Cisco Product Quick Reference Guide

An overview of many Cisco products, services, and solutions for every part of your business

October 2011



Introduction

Cisco Product Quick Reference Guide

Welcome to the October 2011 edition of the Cisco Product Quick Reference Guide. This guide presents an overview of many Cisco products, services, and solutions for every part of your business. Compact, portable, and easy-to-use, the Cisco Product Quick Reference Guide includes brief overviews, important features, technical specifications, part numbers, and ordering information for many Cisco products. This all-in-one time-saving guide includes the following chapters: Routing, Switching, Wireless, Collaboration, Security, Data Center, Video and Content Delivery, Optical Networking, Network Management, and Cisco Services.

Designed for our Cisco field and partners, this guide will help you determine which Cisco product, service, or solution is right for your customer. It is also ideal for end users, networking professionals, Cisco Networking Academy members, and those studying for Cisco certification needing a broad, high-level overview.

This guide includes only a subset of the Cisco portfolio. Additionally, because this guide is published only once per year, there are likely to be new products and part numbers not included in this edition. For the most up-to-date information and the complete product portfolio, refer to the Cisco website at http://www.cisco.com.

What's New

The October 2011 edition includes many new products; they are highlighted in the "At a Glance" section of each chapter. This edition also includes updates to products, services, and solutions across all technologies.

For More Information

For more information about the guide and to register in the Document Center, please visit http://www.cisco.com/go/guide. When you register in the Document Center, you will be notified when new editions are released and also receive access to the PDF and HTML versions.

We always look for your input and guidance to make this guide more useful. Please send your feedback to feedback_ciscoguide@cisco.com.

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Cisco Architectures and Solutions

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- Cisco Borderless Network Architecture and Solutions
- Cisco Collaboration Architecture and Solutions
- Cisco Data Center and Virtualization Architecture and Solutions
- Cisco Smart Business Architecture (SBA)
- Cisco IP Next-Generation Network Architecture for Service Providers
- Cisco Small Business Solutions
- Industry Solutions from Cisco

Cisco Borderless Network Architecture and Solutions

A Next-Generation Architecture That Accelerates Business Innovation

We work, live, play, and learn in a world that has no boundaries and knows no borders. Cisco Borderless Networks securely, reliably, and transparently connects people, information, and devices. As applications and services are increasingly offered and consumed from beyond the traditional enterprise perimeter, Cisco Borderless Networks transparently integrates cloud services and embedded network services with integrated policy and management to deliver the borderless experience.

Cisco embedded network services and its architectural approach balance network performance with operational simplicity.

With the following Network Services, part of the Borderless Networks portfolio, Cisco allows you to increase business innovation with video, mobility, and security:

- **Security: Cisco TrustSec Security**—Build a Secure Borderless Network and gain the visibility and control you need to know who uses your network and what they do on it. Cisco TrustSec technology helps you secure borderless networks with confidence, consistency, and efficiency for better collaboration anywhere, anytime, and from any location.
- **Green: Cisco EnergyWise**—Regain control of network and facilities energy usage to help manage and reduce your company's energy costs and carbon footprint. The Cisco EnergyWise Orchestrator integrates PC power management for both LAN and WAN connected devices into your Cisco EnergyWise domain.
- **Video and multimedia**: **Cisco solutions for optimizing medianet**—The intelligent, networkwide capabilities of Cisco Borderless Networks help identify video applications and endpoints, and optimize the delivery of rich media to any device, in any location.
- **Mobility: Cisco Motion**—Deliver borderless mobility, boost flexibility and productivity, and extend the enterprise by delivering highly secure, rich, and manageable network services to teleworkers and employees working outside the traditional office environment.

Cisco has an expansive product portfolio that can help you accelerate business growth by using technological innovation. You can reduce total cost of ownership, gain ease of operations, and get transparent, highly secure connectivity.

- **Switching—**Get more than connectivity with Cisco Borderless Networks in your LAN. Expect more from your network and save more on operations through innovations such as Cisco EnergyWise.
- **Routing**—Enhance productivity and minimize total cost of ownership with next-generation routing solutions that deliver a superior customer experience, increased architectural scalability, and investment protection.
- **Security**—Reduce costs and complexity with an architectural and systems approach to security. Use Cisco Secure Borderless Networks to deliver a reliable, anytime, anywhere, and highly secure experience.
- **Mobility**—Increase user productivity and business agility with an industry-leading wireless network that opens new opportunities for mobile applications and reduces reliance on IT resources.
- **Application performance**—Deliver consistent application performance regardless of location with Cisco Borderless Networks performance solutions.
- **Management**—Simplify network management, improve operations efficiency, reduce errors, and speed troubleshooting with Cisco Prime for Enterprise Management solutions.

For more information about Cisco Borderless Network Architecture and Solutions, visit http://www.cisco.com/go/borderless.

Cisco Collaboration Architecture and Solutions

Ensure Interoperability, Introduce New Capabilities, and Break Down Boundaries to Improve Collaboration

The way people work together is undergoing a significant transformation that requires a new workspace model. This new workspace model will become a platform of communications and collaboration capabilities that enables a user-centric experience delivered to any device at any location. The new workspace will be inherently:

- Mobile, so that users can use the workspace no matter where they go or when they go there
- Social in nature, so that communication moves beyond one-to-one to many-to-many to capture the power of social networking
- Visual by design, so that the richness of video communications enables users to tell their stories in the most personal way
- Virtual, in that applications, data, and even operating systems can be securely and reliably delivered from private or public clouds through intelligent networks that connect the many devices people use.

As you implement the new workspace, the Cisco Collaboration Architecture helps ensure interoperability between existing and new forms of communication and collaboration technologies, further enabling both structured and impromptu business processes. Individual components of the architecture can be implemented onsite, offered as hosted software-as-a-service solutions, or deployed as a combination of the two. The Cisco Collaboration Architecture comprises the following layers:

- **Network Services**—Ensure end-user quality of experience by providing the foundation for network-enabled collaboration.
- **Medianet Services**—Optimize video and other forms of rich, interactive media.
- **Collaboration Services—**Streamline collaboration and break down application silos with open, secure, reusable capabilities.
- **Client Services**—Provide programmatic access to collaboration services for custom development and integration with traditional environments.
- **Collaboration Applications**—Streamline workflow and optimize decision making with software and hardware that facilitates robust communications.
- **Devices**—Provide freedom and flexibility in accessing collaboration tools and services by allowing teams to work in the manner that suits them best.
- **Security Services—**Protect all layers of the architecture from constantly evolving threats.
- **Management Services—**Streamline management across operations, administration, maintenance, and provisioning.

Founded on the Cisco Collaboration Architecture, Cisco Collaboration solutions, along with services from Cisco and our partners, can help you build more effective teams across corporate boundaries, companies, and continents. You can deploy the solutions in any order, at a pace that matches your business objectives.

With Cisco you will enjoy a new level of freedom and flexibility, while reducing cost and complexity, in the way people connect, communicate, and collaborate.

For more information about Cisco Collaboration Architecture and Solutions, visit http://www.cisco.com/go/collaboration.

Cisco Data Center and Virtualization Architecture and Solutions

Get the Data Center Business Advantage

The Cisco Data Center Business Advantage allows you to continue to use IT as a strategic resource to pursue new opportunities and mitigate challenges to the business. Based on an architectural approach that blends innovative technologies, solutions, services, and ecosystem partnerships to strategically and holistically address business needs, Cisco Data Center Business Advantage allows IT to have a direct and positive effect on the business. Together with our ecosystem partners, we give businesses the flexibility to choose solutions that meet their workload and application requirements, helping ensure predictable performance. The Cisco Unified Fabric, Unified Computing, and Unified Network Services are the foundational pillars for the Cisco Data Center Business Advantage. Solutions for consolidation, virtualization, automation, and cloud are based on the technology innovations found in these pillars:

- **Cisco Unified Fabric**—The Cisco Unified Fabric provides the foundational connectivity to link within and across data centers so resources are highly available and scalable wherever and whenever they are needed. Cisco Unified Fabric unifies LAN and storage networks to deliver converged, scalable, and intelligent solutions. Cisco Unified Fabric continues to extend Cisco's strategy of embedding policy-based, intelligent services directly into the network fabric to create a service platform to deliver services throughout the data center consistently and uniformly. Cisco Unified Fabric includes Cisco Data Center Switching, Storage Networking, Network Management, and Virtualized Networking products as well as Cisco Data Center Interconnect solutions.
- **Cisco Unified Computing**—The Cisco Unified Computing System (Cisco UCS) represents a radical simplification of traditional architectures, dramatically reducing the number of devices organizations must purchase, deploy, and maintain. Cisco UCS delivers end-to-end optimization for virtualized environments while retaining the ability to support traditional OS and application stacks in physical environments.
- **Cisco Unified Network Services**—The Cisco Unified Network Services (Cisco UNS) brings together an intelligent solution set that secures and optimizes the delivery of applications across the distributed enterprise. Cisco UNS addresses the requirements of dynamic, on-demand service delivery with consistently managed policy-based provisioning, bringing integrated application delivery and security services to highly scalable, virtualized data centers and cloud environments. Cisco UNS includes Cisco Application Delivery, WAN Optimization, Data Center Security, and Network Analysis and Monitoring products in physical, software, and virtualized form factors.
- **Cisco Professional Services**—Cisco Services make networks, applications, and the people who use them work better together. With a collaborative delivery methodology that joins the forces of Cisco, our skilled network of partners, and our customers, we achieve the best results.

For more information about Cisco Data Center and Virtualization Architecture and Solutions, visit http://www.cisco.com/go/datacenter.

Cisco Smart Business Architecture (SBA)

Implement Solutions and Services Easier Across the Following Architectures: Borderless Networks, Collaboration, and Data Center

Cisco Smart Business Architecture (SBA) is a series of prescriptive guides that ultimately help optimize businesses. SBA offers step-by-step network design and deployment guidance for implementing tested and validated Cisco architectures.

Designed to grow and evolve with your business, it provides a platform for deploying advanced technologies. For midsize organizations with 100 to 2,500 connected users, SBA spans three architectures: Borderless Networks, Collaboration, and Data Center. For enterprise organizations with 2,000 to 10,000 connected users, SBA guides are available for Borderless Networks. Working with leading technology partners, we can provide a complete solution.

- **Cisco Borderless Network Architecture**—The Cisco Borderless Network Architecture is designed to allow secure, reliable, and transparent access anytime, anywhere, from any device. The Cisco Borderless Network Architecture has capabilities such as security and policy, which encompass the two other main Cisco architectures (Collaboration and Data

Center). What sets it apart, however, is that it delivers a set of critical network services: green, security, video, and mobility.

- **Cisco Collaboration Architecture**—The Cisco Collaboration Architecture helps midsize organizations build more effective teams across corporate boundaries, companies, and continents. Organizations can improve interactions, encourage innovation, make better decisions, and increase customer responsiveness. The Cisco Collaboration Architecture brings together capabilities from IP communications, conferencing, messaging, and mobile applications to deliver these benefits.
- **Cisco Data Center and Virtualization Architecture**—The Cisco Data Center and Virtualization Architecture delivers more resilience, flexibility, and efficiency to your data center assets. It also lets you incrementally build out a best-practice architecture based on a proven foundation.

Cisco has tested and validated the solutions together—simplifying the process for the customer while building the right level of intelligence into every product.

For more information about Cisco SBA, visit http://www.cisco.com/go/sba.

Cisco IP Next-Generation Network Architecture for Service Providers

Comprehensive Service Provider Platform for Delivering The Connected Life

Cisco is committed to enabling sustainable service provider success by helping our global customers effectively address four critical interlinked strategic areas:

- Deliver compelling and differentiated services to all target customers (residential, business, and mobile) that subscribers can personalize
- Optimize network and business operations—Achieve profit-line savings as well as revenue growth
- Capitalize on near- and long-term opportunities with an intelligent, flexible, and scalable network that meets consumer demand for innovation and supports subscriber growth
- Take advantage of an open, standards-based IP infrastructure to build strategic alliances with application and content providers and device manufacturers, and so on, to create new services and revenue streams

Cisco provides the networking solutions, technical experience and expertise, and supporting resources to help service providers reach their goals. The Cisco IP Next-Generation Network (IP NGN) architecture provides fundamental enablers for video, mobile Internet, and data center and cloud-based services.

- **Service Provider Medianet**—Deliver a more visual, social, and personal experience to end users with comprehensive medianet technologies that include video networking solutions for home and business customers. A medianet represents the migration of today's networks to an all-IP NGN network optimized for rich-media delivery. Medianet is a network-aware, device-aware, and media-aware solution that is designed to adapt to the way media services are delivered across multiple devices, networks, and locations.
- **Mobile Internet**—The Cisco 4G Mobile Internet solution addresses mobile carriers' networks, focusing on IP aggregation and cell sites. It enables cost-effective, secure deployment of mobile backhauling transport networks. Cisco is leading the 4G Mobile Internet transformation, enabling users to connect to any device using any technology to access resources and information that are personalized to meet their needs.
- **Data Center and Cloud**—Cut costs, optimize resource use, and deliver a secure virtual experience across your entire service portfolio with the Cisco Unified Service Delivery (USD) solution, which provides a single, common infrastructure and a host of benefits. Within the data center, Cisco combines a set of industry-leading solutions that provide virtualized storage and unified computing power; end-to-end delivery of IP services with multiple features; and multilayer security tailored to identify and eliminate the latest threats.

The Cisco IP NGN architecture effectively integrates each of these distinct application-oriented solutions. Beyond the proven routing and switching strengths that these solutions offer, they also provide service-specific innovations that deliver enhanced qualities for video, mobile Internet, and data center and cloud services that encompass our holistic Connected Life vision. Cisco IP NGN solutions can serve as the intelligent platform to transform the business and consumer experiences you deliver to subscribers at home, at work, and on the move.

For more information about Connected Life, visit http://www.cisco.com/go/connectedlife. For more information about Cisco service provider solutions, visit http://www.cisco.com/go/sp or http://www.cisco.com/go/ipngn for the Cisco IP NGN Architecture.

Cisco Small Business Solutions

Technology You Can Trust to Help Your Business Succeed

Cisco Small Business technology can help you connect your business to the world, secure it, and communicate more effectively using reliable, affordable options that fit your unique needs. A local reseller, backed by Cisco support and expertise, can help make the right choice simple.

We have divided our product portfolio into three categories:

- **Connect to the World**—Cisco has everything you need to connect your business to the world—simply, reliably, and affordably—in a broad portfolio of routers, switches, VPN firewalls, and wireless access points.
- **Secure My Business**—Cisco can help secure your small business, with network security that combines firewall, VPN access, and intrusion prevention, along with e-mail and web threat protection that can help keep your business operational.
- **Communicate and Collaborate**—Cisco can help you collaborate by bringing together your phone, e-mail, text, conferencing, and video in complete solutions that allow your employees to communicate from anywhere, using virtually any device, on any network—enabling you to be more productive.

For more information about Cisco Small Business Solutions, visit http://www.cisco.com/go/smallbusiness.

Industry Solutions from Cisco

Whether you are in education, financial services, government, healthcare, manufacturing, or retail, industry solutions from Cisco are designed and developed around your business imperatives. We implicitly understand what you go through every day. How? Because the people behind the technology are people like you.

They have been former district managers, plant specialists, brokers, police officers, deans, and nurses. These people bridge your world and ours, making our industry solutions uniquely suited to answer your everyday and long-term challenges.

We can help you translate technology into benefits you can use. The opportunity to make things better using technology is here. Working with our partner ecosystem, we can implement solutions that help streamline business processes, improve collaboration, reduce costs, and promote innovation and growth.

Our solutions are centered on you and the industry you serve.

For more information about industry solutions from Cisco, visit:

- Industry solutions—http://www.cisco.com/go/industry
- Education solutions—http://www.cisco.com/go/education
- Financial services solutions—http://www.cisco.com/go/financialservices
- Government solutions—http://www.cisco.com/go/government
- Healthcare solutions—http://www.cisco.com/go/healthcare
- Manufacturing solutions—http://www.cisco.com/go/manufacturing
- Retail solutions—http://www.cisco.com/go/retail

Product Warranty Information

All Cisco hardware and software products are covered for a minimum of 90 days. Some products have longer coverage periods. Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than 90 days after original shipment by Cisco). All Cisco warranties apply to the Customer or Original Owner (the individual who purchased the product for their own use), also referred to as the End User, and are not transferable.

Warranties provide limited liability for Cisco or its designated representative to repair and/or replace defects in Cisco products. They are generally limited in both the duration and the support they offer. Warranties generally do not include Cisco Technical Assistance Center (TAC) support, software updates, or any of the additional benefits obtained under a support service contract.

It is the responsibility of Cisco or Cisco's designated representative to repair and/or replace the Cisco product within the time frame identified in the warranty card or license agreement that accompanied the originally purchased Cisco product. Cisco reserves the right to refund the purchase price as its exclusive warranty remedy.

Elements covered under a Cisco warranty are:

- Hardware—This guarantees that the hardware will be free of defects in material and workmanship under normal use, or it will be replaced by Cisco or Cisco's designated representative.
- Software—This guarantees that the physical media are free from defects, or they will be replaced by Cisco. Also, the warranty guarantees that the software generally conforms to the published specifications for the product. Software is provided "as is," and in no event does Cisco warrant that the software is error-free or that customer will be able to operate the software without problems or interruptions. Warranty does not include software updates.

Some Cisco Catalyst fixed switches are covered by the Cisco Catalyst OS software update policy. Customers with Cisco Catalyst LAN Base and IP Base software licenses will be provided with lifetime bug fixes and updates with minor enhancements as long as the original end user continues to own or use the product or until Cisco announces the end of support for the product. The software policy is not a part of warranty and is subject to change without notice.

To find the warranty that applies to a specific product or product family, visit the Cisco Warranty Finder at http://www.cisco-servicefinder.com/warrantyfinder.aspx.

For more information about Cisco warranties, visit http://www.cisco.com/go/warranty.

Warranty	Entitlement Descriptions
Cisco Standard 90-day Limited Hardware Warranty, Software Warranty, and License Agreement	• Warranty duration: 90 days • Hardware replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within 10 working days after receipt of the RMA request. Actual delivery times might vary depending on customer location. • Software warranty: 90 days • Warranty allows guest access only to Cisco.com.
Cisco 90-day Limited Hardware Warranty	• Warranty duration: 90 days • Hardware replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within 10 working days after receipt of the RMA request. Actual delivery times might vary depending on customer location. • Warranty allows guest access only to Cisco.com.
Cisco One-Year Limited Hardware Warranty	• Warranty duration: 1 year • Hardware replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within 10 working days after receipt of the RMA request. Actual delivery times might vary depending on customer location. • Warranty allows guest access only to Cisco.com.

Cisco End-User Software License Agreement and Limited Software Warranty	• Warranty duration: 90 days • Warranty provides that the media on which the software is furnished will be free of defects in materials and workmanship under normal use and that the software substantially conforms to its published specifications. • The end-user license agreement grants to customer a nonexclusive and nontransferable license to use for customer's internal business purposes the software and the documentation for which the customer has paid the required license fees. • Warranty allows guest access only to Cisco.com.
Cisco Two-Year Limited Hardware Warranty	• Warranty duration: 2 years • Hardware replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within 10 working days after receipt of the RMA request. Actual delivery times might vary depending on customer location. • Warranty allows guest access only to Cisco.com.
Cisco Three-Year Limited Hardware Warranty	• Warranty duration: 3 years • Hardware replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within 10 working days after receipt of the RMA request. Actual delivery times might vary depending on customer location. • Warranty allows guest access only to Cisco.com.
Cisco One-Year Limited Hardware and One-Year Limited Software Warranty	• Hardware warranty duration: 1 year • Software warranty duration: 1 year • Hardware replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery within 10 working days after receipt of the defective product at Cisco's site. Actual delivery times of replacement products might vary depending on customer location. • Warranty allows guest access only to Cisco.com.
Cisco Five-Year Limited Hardware and One-Year Limited Software Warranty	• Warranty is available on optical hardware and software products. • Hardware warranty duration: 5 years • Software warranty duration: 1 year • Hardware replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery within 15 working days after receipt of the defective product at Cisco's site. Actual delivery times of replacement products might vary depending on customer location. • Warranty allows guest access only to Cisco.com.
Cisco Limited Lifetime Hardware Warranty (LLW)	• Warranty applies to Cisco Catalyst Express 500, Cisco Catalyst 2960, 2975, 3560, 3560-E, 3750, 3750-E, 4500, and 4500-E Series Switches. Some limitations apply. • Warranty duration: As long as the original end user continues to own or use the product, provided that fan and power supply warranty is limited to 5 years. • In the event of discontinuance of product manufacture, Cisco warranty support is limited to 5 years from the announcement of discontinuance. • Hardware replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within 10 working days after receipt of the RMA request. Actual delivery times might vary depending on customer location. • Warranty allows guest access only to Cisco.com.

Cisco Enhanced Limited Lifetime Warranty (E-LLW)	· Warranty applies to Cisco Catalyst 2960-S, 3560-X, 3750-X, 2960-C, and 3560-C Series Switches. · Warranty duration: As long as the original end user continues to own or use the product, provided that fan and power supply warranty is limited to 5 years. · In the event of discontinuance of product manufacture, Cisco warranty support is limited to 5 years from the announcement of discontinuance. · Hardware replacement: Where available, Cisco or its service center will use commercially reasonable efforts to ship a replacement part for next-day replacement. Where next business day is not available, a replacement will be shipped the same business day if the RMA is received before the fulfillment warehouse cut-off time. Actual delivery times might vary depending on customer location. · Warranty includes 90 days of Technical Assistance Center (TAC) support during local business hours, 8 hours per day, 5 days per week. · Warranty allows guest access only to Cisco.com.
Cisco Small Business Pro Limited Five-Year Hardware Warranty	· Available for Cisco Small Business Pro Switch · Warranty duration: 5 years · Hardware replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within 10 working days after receipt of the RMA request. Actual delivery times might vary depending on customer location. · Warranty allows guest access only to Cisco.com.
Cisco Small Business Product One-Year Limited Hardware Warranty	· Warranty duration: 1 year · Hardware replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery upon receipt of the defective product at Cisco's site. Part will be shipped using ground shipping with shipping charges prepaid. · Warranty allows guest access only to Cisco.com.
Cisco Small Business Product Three-Year Limited Hardware Warranty	· Warranty duration: 3 years · Hardware replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery upon receipt of the defective product at Cisco's site. Part will be shipped using ground shipping with shipping charges prepaid. · Warranty allows guest access only to Cisco.com.
Cisco Small Business Product Five-Year Limited Hardware Warranty	· Warranty duration: 5 years · Hardware replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery upon receipt of the defective product at Cisco's site. Part will be shipped using ground shipping with shipping charges prepaid. · Warranty allows guest access only to Cisco.com.
Cisco Small Business Product Limited Lifetime Hardware Warranty	· Warranty duration: As long as the original end user continues to own or use the product, provided that fan and power supply warranty is limited to 1 year. · In the event of discontinuance of product manufacture, Cisco warranty support is limited to 5 years from the announcement of discontinuance. · Hardware replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery upon receipt of the defective product at Cisco's site. Part will be shipped using ground shipping with shipping charges prepaid. · Warranty allows guest access only to Cisco.com.

Cisco Small Business Product Enhanced Limited Lifetime Hardware Warranty	• Warranty duration: As long as the original end user continues to own or use the product, provided that fan and power supply warranty is limited to 5 years. • In the event of discontinuance of product manufacture, Cisco warranty support is limited to 5 years from the announcement of discontinuance. • Hardware replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement for next business day delivery, where available. Otherwise, commercially reasonable efforts will be used to ship a replacement part for delivery upon receipt of the defective product at Cisco's site. Actual delivery times may vary depending on Customer location. • Warranty allows guest access only to Cisco.com.
Cisco Unified Computing Three-Year Limited Hardware Warranty	• Warranty is applicable to Cisco Unified Computing System products only. • Hardware warranty duration: 3 years • Hardware replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within the next Cisco business day after receipt of the RMA request. Actual delivery times of replacement products might vary depending on customer location. • Software, including freeware operating systems and applications, is provided "as is," and in no event does Cisco warrant that the software is error free or that the customer will be able to operate the software without problems or interruptions. • Warranty allows guest access only to Cisco.com.
Cisco Limited One-Year Return for Repair (RFR) Hardware Warranty	• Warranty applies to select service provider video, transport, and access hardware only. • Warranty duration: 1 year • Hardware replacement: Cisco or its service center will use commercially reasonable efforts to repair or replace the defective product and ship the repaired or replacement part for delivery within 30 working days. Actual delivery times might vary depending on customer location. • Warranty allows guest access only to Cisco.com.
Cisco Limited Three-Year RFR Hardware Warranty	• Warranty applies to select service provider video, transport, and access hardware only. • Warranty duration: 3 years • Hardware replacement: Cisco or its service center will use commercially reasonable efforts to repair or replace the defective product and ship the repaired or replacement part for delivery within 30 working days. Actual delivery times might vary depending on customer location. • Warranty allows guest access only to Cisco.com.
Cisco Limited Five-Year RFR Hardware Warranty	• Warranty applies to select service provider video, transport, and access hardware only. • Warranty duration: 5 years • Hardware replacement: Cisco or its service center will use commercially reasonable efforts to repair or replace the defective product and ship the repaired or replacement part for delivery within 30 working days. Actual delivery times might vary depending on customer location. • Warranty allows guest access only to Cisco.com.
Cisco Limited 5-Year Hardware and 5-Year Software Warranty for Qualified Service Providers	• Warranty is available to qualified world-wide service providers on select optical hardware and software products only. • Warranty duration: 5 years • Software duration: 5 years • Hardware replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery within 15 working days after receipt of the defective product at Cisco's site. Actual delivery times of replacement products might vary depending on customer location. • Warranty allows guest access only to Cisco.com.

Partner and Customer Support

Pre- and Post-Sales Contact Information	
Pre-sales Partner/Reseller Helpline	800 553-6387 408 526-7208 CiscoPartner.custhelp.com
Post-sales—Technical Assistance Center (TAC)	800 553-2447 (United States) 408 526-7209 (United States) +32 2 704 5555 (Europe) 1 800 805 227 (Australia) +61 2 8446 7411(Asia/Pacific) http://www.cisco.com/en/US/support/tsd_cisco_worldwide_contacts.html
Technical Support Email Addresses	
English/Spanish	tac@cisco.com
Hanzi (Chinese)	chinese-tac@cisco.com
Kanji (Japanese)	japan-tac@cisco.com
Hangul (Korean)	korea-tac@cisco.com
Service Support Center (SSC)	cs-support@cisco.com; http://www.cisco.com/public/scc/ · Pre- and post-sales quoting assistance · Contract registration and access · Tool issues and navigation · SCC/SMS3 troubleshooting help · Contract Management Assistance · SCC registration/virtual registration
Distributor SMARTnet Teams	
Comstor/Westcon Group	smartnetgroup@comstor.com; 800 955 9590 ext. 5143
D&H	licensedesk@dandh.com; 800 340-1001
ScanSource	ciscoservice@scansource.com; 800 944-2439
Ingram Micro	myciscoteam@ingrammicro.com; 800 456-8000 ext. 76471
Tech Data	teamcisco@techdata.com; 800 237-8931 ext. *77776

Helpful Cisco Websites

Partner Resources	
Register with Cisco.com	Register to gain partner-level access to Cisco tools and information. http://tools.cisco.com/RPF/register/register.do
Partner Central	Explore the tools and resources that are available to Cisco partners. http://www.cisco.com/web/partners/index.html
Customized Partner Intelligence Newsletter	Subscribe to our partner newsletter featuring information that is most relevant to each individual partner company's particular business and technology needs. http://www.cisco.com/web/partners/news/index.html
Partner Self-Service	Manage company data including profile information and access privileges. http://tools.cisco.com/WWChannels/GETLOG/login.do
Partner Locator	Locate a qualified channel partner identified on the basis of specific criteria. http://www.cisco.com/go/partnerlocator
Distributor Locator	Locate a Cisco distributor in any country. http://tools.cisco.com/WWChannels/LOCATR/jsp/distributor_locator.jsp

Channel Account Manager (CAM) Locator	Search for a Channels Account Manager assigned to a specific partner. http://tools.cisco.com/WWChannels/CAMLOC/jsp/cam_locator.jsp
Partner Help Online—Direct FAQ access	Find answers to some commonly asked questions or open a case. http://ciscopartner.custhelp.com
Ordering Website	To place orders for Cisco products and services: http://www.cisco.com/en/US/ordering/index.html
Cisco Certified Refurbished Equipment	To learn about Cisco Certified Refurbished Equipment, check product availability, and get ordering instructions: http://www.cisco.com/go/remarketing
Services and Support Resources	
Cisco Services	Find detailed information about the services you need to protect and grow your technology investment. http://www.cisco.com/go/services
Cisco Support Online	Easily access online documentation, technical tools, and resources from Cisco Support Online. http://www.cisco.com/go/support
Cisco Service Finder	Match the right support service to the right product with the Cisco Service Finder. http://www.cisco-servicefinder.com/
End-of-Sale and End-of-Life Products	Stay up-to-date on products that are no longer being sold and might not be supported. http://www.cisco.com/en/US/products/prod_end_of_life.html
Return a Product	Information on return policies and RMA process. http://www.cisco.com/web/ordering/cs_info/or3/o32/Return_a_Product/WWRL_HOME.html
RMAService Order Tools	Access tools and resources to streamline your service and parts logistics inquiries. http://tools.cisco.com/serviceordertools/svosubmit/tools.do
Cisco Support Community	Share information and collaborate in real time with users around the globe. Find the most up-to-date information on Cisco products and services. http://supportwiki.cisco.com
Newsletters	
Cisco Borderless Networks e-Newsletter	Sign up to receive the monthly e-newsletter. This newsletter provides up –to-date security, mobility, routing and switching news. http://www.cisco.com/go/newsletter
Cisco Collaboration Insights e-Newsletter	Sign up to receive the monthly e-newsletter providing the latest up-to-date Unified Communications, WebEx, and TelePresence news. http://www.cisco.com/go/newsletter
Cisco Data Center Insights e-Newsletter	Sign up to receive the quarterly e-newsletter providing up-to-date data center news. http://www.cisco.com/go/newsletter
Cisco Networking Professionals Connection e-Newsletter	Sign up to receive bi-weekly e-newsletters providing up-to-date information on the latest activity on the discussion forums, upcoming events, and other networking news. http://www.cisco.com/go/newsletter
Cisco Technical Services e-Newsletter	Sign up to receive our monthly e-newsletter with current updates on technical documentation, field notices and security alerts, as well as technical articles written by Cisco engineers and technical tips from your peers. http://www.cisco.com/go/tsnews
Trainings and Other Resources	

Training Resources	Cisco offers training resources, career certifications and events to help you improve your skills and keep up with new technologies. http://www.cisco.com/web/learning/index.html
Cisco Networking Academy	Global e-learning program offers students an opportunity to pursue IT curricula through online instructor-led training and hands-on lab exercises. http://www.cisco.com/web/learning/netacad/index.html
Cisco Learning Network	The widely respected Cisco Career Certifications and Training programs bring valuable, measurable rewards to network professionals, their managers, and the organizations that employ them. http://www.cisco.com/go/learnnetspace
Cisco Community Central	Cisco Community Central website is a group of communities designed to foster collaboration between Cisco employees, customers, users, and Cisco Partners. http://www.myciscocommunity.com/
Cisco Design Zone	Consolidated resource for design guides, application deployment guides, white papers, videos, and other technical reference materials. http://www.cisco.com/go/design zone
Cisco SMB Smart Designs	Cisco Smart Designs are pre-tested networking solutions that enable partners to deliver the benefits of Cisco products and technologies to SMB customers. http://www.cisco.com/go/partner/smartdesigns
Cisco Marketplace	The one stop shop for Cisco merchandise, including Cisco collateral and product documentation, logo merchandise, Cisco Press books, and software. http://www.cisco.com/go/marketplace
Cisco Press Bookstore	The only authorized publisher of Cisco, giving you access to industry experts and educators. Provides networking, business, and certification titles for your unique learning needs. http://www.cisco.com/go/marketplace
Product Advisor	The interactive Product Advisor tool provides a list of product recommendations based on your preference and highlights a list of products that meets your needs. Available for the following technologies: routing, switching, wireless, and security. http://www.ciscowebtools.com/productadvisor/index.asp

Cisco Capital Financing

Cisco Capital is in a unique position to provide customers and channel partners worldwide with the most competitive and flexible financing options available for Cisco solutions. Cisco Capital can provide customers with an alternative source of affordable funds, enabling them to get the technology they need, reduce total cost of ownership, meet ongoing technology refresh requirements, and have the flexibility to use payment schedules to match cash flow and budget.

As a trusted business partner, Cisco Capital can help customers obtain and maintain the right Cisco solution with the most effective acquisition strategy for their business or organization. For more information on financing with Cisco Capital, visit http://www.ciscocapital.com.

Cisco Certified Refurbished Equipment



Cisco Certified Refurbished Equipment is the only brand of used Cisco in the market that is certified and authorized by Cisco. Our extensive global inventory of high-quality fully remanufactured Cisco products are an ideal complement to new when price or availability limit customer options, or when customers need older generation products no longer manufactured by Cisco, to extend the life of their network.

Consider Cisco Certified Refurbished Equipment for:

- Onsite spares and Cisco SMARTnet® service augmentation
- Technology transition gap-fillers
- Legacy network expansions and end-of-life maintenance
- Test labs and training
- Network swing kits
- Disaster recovery and contingency networks
- Short-term, temporary networks
- Tight budget scenarios
- Rapid delivery and backorder scenarios

Key facts to know:

- Over 2800 current and end-of-sale (EOS) models from all technology areas
- Remanufactured, tested, and reconditioned to Cisco factory specifications
- Sold with the same Cisco warranty terms and conditions as new products
- Cisco Technical Services can be attached to refurbished equipment to provide the same features and value as provided on new equipment
- 25 to 70 percent off original list price; reseller discounts available for Cisco partners
- Same part numbers but ends with the suffix "-RF"
- Licensed copy of Cisco IOS Software installed
- Available through Cisco authorized channels worldwide; no special certifications or authorizations required to resell
- May not be available in certain countries
- No returns; all sales are final
- Inventory varies daily; sold on a first-come, first-served basis.

For more information about Cisco Certified Refurbished Equipment, including product availability, current promotions, and ordering instructions, visit:
http://www.cisco.com/go/remarketing.

Chapter 1: Routing

This chapter includes only a subset of Cisco products and part numbers. Also, you will see products listed multiple times because they serve multiple roles and are used differently in small, medium, and large networks.

Routing At-a-Glance

Product	Features	Page
BRANCH ROUTERS		
Cisco 3900 Series Integrated Services Routers	· Ideal for high-end deployments requiring business continuity, WAN flexibility, WAN optimization, superior collaboration capabilities, and investment protection · Delivers scalable rich-media services including TelePresence, support for medianet, highest density of service virtualization, and lowest total cost of ownership (TCO) with energy efficiency · Offers field-upgradeable motherboard, circuit-speed WAN performance up to 350 Mbps with services such as security, mobility, WAN optimization, unified communications, video, and customized applications · Has three rack unit (3RU) modular form factor	1–4
Cisco 2900 Series Integrated Services Routers	· Ideal for midrange deployments requiring business agility, WAN flexibility, and secure collaboration · Provides rich-media services including TelePresence, support for medianet, service virtualization, and lower TCO with energy efficiency · Offers circuit-speed WAN performance up to 75 Mbps with services such as security, mobility, WAN optimization, unified communications, voice gateway, video, and customized applications · Has 1RU to 2 RU modular form factor	1–10
Cisco 1900 Series Integrated Services Routers	· Ideal for small offices requiring modular flexibility for highly secure mobility and customizable applications · Offers entry-level, highly secure solution for WAN deployments; offers service virtualization and low TCO · Offers circuit-speed performance up to 25 Mbps with concurrent services · Offers factory-selectable dual radio 802.11n access point and doublewide high-speed WAN interface card (HWIC) support; has desktop form factor	1–15
Cisco 800 Series Routers	· Ideal for small offices and teleworkers, or to service providers to deploy as part of their managed network services · Delivers data, security, wireless, third-generation wireless, Survivable Remote Site Telephony (SRST), and Cisco Unified Border Element (CUBE) · Provides for highly scalable true zero touch deployments	1–19
WAN ROUTERS		
Cisco 7600 Series Routers	· Ideal for service providers that deliver consumer and business services over a single converged Carrier Ethernet network · Industry-leading carrier-class edge router offering integrated, high-density Ethernet switching, IP/MPLS routing, and 10-Gbps interfaces · Offers a choice of form factors purpose-built for high availability	1–23
Cisco 7300 Series Routers	· Ideal for both service providers and enterprise applications · Compact, high-performance one-rack-unit (1RU) router coupled with a broad set of interfaces and Cisco IOS® Software features	1–26
Cisco 7200 Series Routers	· Ideal for enterprise and service provider edge applications · Optimized for delivering integrated services for up to OC-3 bandwidth · Supports a wide range of density, performance, and service requirements · Delivers an exceptional price-to-performance ratio, versatility, and feature richness in a compact form factor	1–27
Cisco ASR 1000 Series Aggregation Services Routers	· Ideal for medium-sized to large enterprises and service providers · Industry-leading performance, service capabilities, reliability, and efficiencies in a compact form factor supporting up to 40 Gbps · Highly secure, high-performance and integrated hardware-based services without the need for additional hardware modules · Extends network as a platform for cloud computing to help conserve resources and optimize performance · Cisco Unified Border Element support for SIP trunking; lowers total communications costs, optimizes network interconnections and enables rich collaboration applications.	1–35
Cisco Catalyst 6500 Series Switches	· Simplifies operations, reduces network costs, and increases resiliency through its Virtual Switch System 1440 technology · Automates network services, energy control and minimizes total cost of ownership with features such as GOLD, OBFL, SmartCallHome, Energywise · Delivers comprehensive features for operational management, integrated services, QoS, and high availability · Integrates services through its portfolio of service modules	See 2–5

SERVICE PROVIDER CORE/EDGE ROUTERS		
Cisco Carrier Routing System	· Ideal for service providers across all market segments · CRS-3 powered by the Cisco QuantumFlow Array · CRS-1 is built on the Cisco Silicon Packet Processor (SPP) · Scales easily from numerous single-chassis form factors to a massive multichassis system, up to 322 Tbps · Provides industry-leading efficiency, requiring low power, cooling, and rack-space use for intelligent, service-rich bandwidth capacity · Each model (CRS-1 and CRS-3) uses Cisco IOS XR Software, a unique self-healing, distributed operating system	1–29
Cisco XR 12000/ 12000 Series Routers	· Ideal for large enterprises and service providers · XR 12000 Series Routers- extend highly secure virtualization, integral service delivery, continuous system operation, and multiservice scale · 12000 Series Routers- feature Cisco I-Flex, a portfolio of shared port adapters (SPAs) and SPA interface processors (SIPs)	1–31
Cisco ASR 9000 Series Aggregation Services Routers	· Ideal for carriers offering residential and business services · Delivers nonstop video and enhanced scalability in a reduced carbon footprint, along with industry-leading levels of carrier transport · Provides carrier-class reliability for continuous service operation and high availability · Scales up to 6.4 Tbps per system and delivers comprehensive system redundancy	1–33
Cisco ASR 1000 Series Aggregation Services Routers	· Ideal for both medium-sized to large enterprises and service providers · Industry-leading performance, service capabilities, reliability, and efficiencies in a compact form factor supporting up to 40 Gbps · Highly secure, high-performance and integrated hardware-based services without the need for additional hardware modules · Extends network as a platform for cloud computing to help conserve resources and optimize performance	1–35
Cisco ASR 900 Series Aggregation Services Routers ***NEW PRODUCT***	· Designed for the mobile wireless and wire-line preaggregation/aggregation function with flexible WAN and LAN interfaces. · Delivers high availability through in-box hardware redundancy and In-Service Software Upgrade (ISSU) · Ideal for mobile backhaul deployment with compact form factor, temperature-hardened platform, modular Ethernet and TDM interface cards, comprehensive timing synchronization support, and hardware-assisted OAM functions · Provides rich Carrier Ethernet features enabling the delivery of intelligent Layer 2 and 3 services.	1–38
Cisco 7600 Series Routers	· Ideal for service providers that deliver consumer and business services over a single converged Carrier Ethernet network · Industry-leading carrier-class edge router offering integrated, high-density Ethernet switching, IP/MPLS routing, and 10-Gbps interfaces · Offers a choice of form factors purpose-built for high availability	1–23
Cisco 7300 Series Routers	· Ideal for both service providers and enterprise applications · Compact, high-performance one-rack-unit (1RU) router coupled with a broad set of interfaces and Cisco IOS® Software features	1–26
Cisco 7200 Series Routers	· Ideal for enterprise and service provider edge applications · Optimized for delivering integrated services for up to OC-3 bandwidth · Supports a wide range of density, performance, and service requirements · Delivers an exceptional price-to-performance ratio, versatility, and feature richness in a compact form factor	1–27
CONNECTED GRID ROUTERS		
Cisco 2000 Series Connected Grid Router	· Designed specifically for the harsh, rugged environments often found in the energy and utility industries · KEMA certified to meet challenging compliance standards such as IEC 61850-3 and IEEE 1613 · Integrated security to help address compliance with critical infrastructure protection mandates · High availability design for optimum network up time and redundancy · Network and device management tools for deployments, upgrades, and remote monitoring · Advanced quality of service (QoS) capabilities to support mission-critical communications such as SCADA (Supervisory Control and Data Acquisition) · Comprehensive network security features based on open standards	1–40
SMALL BUSINESS ROUTERS		
Cisco SRP 500 Series Services Ready Platforms	· Help enable service providers to deliver differentiated, converged service offers that increase bandwidth usage and average revenue per user while reducing customer churn · Fixed-configuration customer premises equipment (CPE) to enable service providers to create, provision, and deploy premium revenue-generating services to small businesses · Support a variety of high-quality voice, data, security, wireless, and application services.	1–41
Cisco RV Series Small Business Routers ***NEW PRODUCT***	· Highly secure network access devices, designed and built for small businesses · Highly secure VPN connectivity for remote workers · Strong security features, including an advanced stateful packet inspection (SPI) firewall, encryption, authentication, and access control · Fast Ethernet ports and Gigabit Ethernet ports	1–42

SERVICES

Cisco Routing and Switching Services use leading practices and time-tested methodologies to help you to: 1–43
- Successfully integrate new technologies and applications onto the routing and switching platform
- Reduce risk, delays, and the total cost of network deployments
- Keep network devices and applications secure, available, and operating reliably
- Optimize your secure wired and wireless networks to meet future needs
- Achieve operational excellence

FOR MORE INFORMATION

Product Ordering
To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml.

End-of-Life and End-of-Sale
Please visit the end-of-life and end-of-sale website for a complete and up-to-date listing of products that are no longer being sold or supported, what replacement products are available, and information about product support.
http://www.cisco.com/en/US/products/prod_end_of_life.html

NOTE: This chapter provides only a subset of Cisco products and part numbers. For the most up-to-date and comprehensive information, refer to the Cisco website at http://www.cisco.com, the Cisco ordering website at http://www.cisco.com/en/US/ordering/index.shtml, or reference the URL listed in the "For More Information" section of each product.

For more Cisco routing platforms, refer to the Cisco Routing Guide at http://www.cisco.com/go/routerguide.

Cisco Integrated Services Routers Model Comparison

	Cisco 3945E	Cisco 3925E	Cisco 3945	Cisco 3925	Cisco 2951	Cisco 2921	Cisco 2911	Cisco 2901	Cisco 1941/ 1941W	Cisco 1921
Form Factor	3 rack units (3RU)	3RU	3RU	3RU	2RU	2RU	2RU	1RU	2RU	1RU
Integrated WAN Ports	4 GE (2 SFP)	4 GE (2 SFP)	3 GE (2 SFP)	3 GE (2 SFP)	3 GE (1 SFP)	3 GE (1 SFP)	3 GE	2 GE	2 GE	2 GE
Interface Slots (EHWIC)	3	3	4	4	4	4	4	4	2	2
Service Module Slots	4	2	4	2	2	1	1	0	0	0
ISM Slots	0	0	1	1	1	1	1	1	1	0
PVDM3 Slots	3	3	4	4	3	3	2	2	0	0
USB Ports (v2.0)	2	2	2	2	2	2	2	2	2	1
Default/Max Flash	256MB/ 4GB	256MB/ 4GB	256 MB/ 4GB	256 MB/ 4 GB	256 MB/ 4 GB	256 MB/ 4 GB	256 MB/ 4 GB	256 MB/ 4 GB	256 MB/ 4 GB	256 MB/ 256 MB
Default/Max SDRAM	1 GB/ 4 GB[1]	1 GB/ 4 GB[1]	1 GB/ 4 GB[1]	1 GB/ 4 GB[1]	512 MB/ 2.5 GB	512 MB/ 2.5 GB	512 MB/ 2.5 GB	512 MB/ 2.5 GB	512 MB/ 2.5 GB	512 MB/ 2.5 GB
Modular LAN Switchports (with optional PoE)	98[2]	74[2]	98[2]	74[2]	50[2]	50[2]	24[2]	16[2]	11[2]	9
WAN Optimization	Enabled via WAAS on the SRE module or WAAS Express									
WAAS Support on SRE Service Modules 700, 710, 900, and 910	SRE 700, 710, 900, and 910 with WAAS 4.3 or later	SRE 700, 710, 900, and 910 with WAAS 4.3 or later	SRE 700, 710, 900, and 910 with WAAS 4.3 or later	SRE 700, 710, 900, and 910 with WAAS 4.3 or later	SRE 700, 710, 900, and 910 with WAAS 4.3 or later	SRE 700, 710, 900, and 910 with WAAS 4.3 or later	SRE 700, 710, 900, and 910 with WAAS 4.3 or later	No	No	No
Platform supports Cisco WAAS Express			Yes	Yes	Yes	Yes	Yes	Yes	Yes	
WAAS Express Optimized TCP Connections			500	500	500	250	250	150	150	
WAAS Express WAN Capacity			10 Mbps	10 Mbps	10 Mbps	6 Mbps	6 Mbps	6 Mbps	4 Mbps	
Advanced Security	**Enabled via Security License for Universal IOS Image. FW, IPS, and Content Filtering, ScanSafe Web Security need additional subscription licenses**									
Stateful Firewall	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Onboard Hardware VPN Acceleration (DES, 3DES, AES)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Intrusion prevention	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Content filtering	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ScanSafe Web Security	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Unified Communication	**Enabled via Unified Communications License for Universal IOS Image. CCME/SRST support through separate feature licenses**									
Local conferencing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	—	—
Voice and Video DSP support	PVDM3 and PVDM2	PVDM3 and PVDM2	PVDM3 and PVDM2	PVDM3 and PVDM2	PVDM3 and PVDM2	PVDM3 and PVDM2	PVDM3 and PVDM2	PVDM3 and PVDM2	—	—
Survivable Remote Site Telephony (SRST)	Up to 1500	Up to 1350	Up to 1200	Up to 730	Up to 250	Up to 100	Up to 50	Up to 35	—	—
Cisco Unified Communications Manager Express	Up to 450	Up to 400	Up to 350[3]	Up to 250[3]	Up to 150	Up to 100	Up to 50	Up to 35	—	—
Cisco Unity™ Express (network module [NM], service module [SM], or ISM)	32 ports; 300 mail-boxes	32 ports; 300 mail-boxes	32 ports; 300 mail-boxes	32 ports; 300 mail-boxes	32 ports; 300 mail-boxes	32 ports; 300 mail-boxes	32 ports; 300 mail-boxes	10 ports; 100 mail-boxes	—	—
Cisco Unified Border Element sessions	2500	2100	950	800	600	400	200	100	—	—
Cisco Unified SIP Proxy	200 CPS (with SRE-700 and SRE-900)	100 CPS (with SRE-700 and SRE-900)	200 CPS (with SRE-700 and SRE-900)	100 CPS (with SRE-700 and SRE-900)	100 CPS (with SRE-700 and SRE-900)	10 CPS (with SRE-700 and SRE-900)	10 CPS (with SRE-700 and SRE-900)	—	—	—
Digital voice support	Up to 840	Up to 600	Up to 900	Up to 720	Up to 400	Up to 240	Up to 150	Up to 100	—	—
Maximum voice support for analog and Basic Rate Interface (BRI)	FXS: 108 FXO: 60 BRI: 38	FXS: 60 FXO: 36 BRI: 22	FXS: 112 FXO: 64 BRI: 40	FXS: 64 FXO: 40 BRI: 24	FXS:40 FXO: 28 BRI: 16	FXS:40 FXO: 28 BRI: 16	FXS: 40 FXO: 28 BRI: 16	FXS: 16 FXO: 16 BRI: 8	—	—
Online model comparison chart: http://www.cisco.com/en/US/products/ps10536/prod_series_comparison.html										

1. Up to 2 GB available for use; upgrade to 4 GB available in future.
2. LAN Switching counts for the Cisco 2911 through Cisco 3945 and Cisco 3945E routers based on latest generation of switch service module.
3. Scales to documented phone support in 15.0.1 build.

Branch Routers

Cisco 3900 Series Integrated Services Routers



Cisco 3900 Series Integrated Services Routers (ISRs) are designed to power the next phase of branch-office evolution, providing rich-media collaboration and virtualization to the branch office while reducing operating costs.

Cisco 3900 Series Integrated Services Routers build on 25 years of Cisco innovation and product leadership. The new Cisco Integrated Services Routers Generation 2 (ISR G2) platforms are architected to enable the next phase of branch-office evolution, providing rich-media collaboration and virtualization to the branch office while maximizing operational cost savings. The new routers support new high-capacity digital signal processors (DSPs) known as PVDM3 for higher density voice services plus basic video-conferencing capabilities, high-powered service modules with improved availability, multicore CPUs, Gigabit Ethernet switching with Cisco Enhanced Power over Ethernet (ePoE), and new energy visibility and control capabilities while enhancing overall system performance.

Additionally, a new Cisco IOS Software Universal image and Cisco Services Ready Engine (SRE) module enable you to decouple the deployment of hardware and software, providing a flexible technology foundation

that can quickly adapt to evolving network requirements. Overall, the Cisco 3900 Series offers exceptional total cost of ownership (TCO) savings and network agility through the intelligent integration of market-leading security, unified communications, wireless, and application services.

The routers include:

- Services on demand—The Cisco 3900 Series Integrated Services Routers reduce initial capital outlays by decoupling the delivery of software from hardware on optional service modules. In addition, you receive a Universal Cisco IOS Software image capable of enabling all of Cisco's rich Cisco IOS Software features and allowing you to quickly deploy new services.
- Investment protection—The Cisco 3900 Series reduces deployment costs and increases flexibility. The platform offers a modular, field-upgradable motherboard called the Services Performance Engine (SPE). SPEs allow you to invest in a Cisco 3900 Series ISR today and boost its performance later by upgrading to a higher-performance engine. Investment protection is also offered with support for most existing modules from previous-generation ISRs.
- The Cisco Unified Border Element features on the Cisco 3900 provides additional investment protection by allowing enterprises to gracefully transition from legacy TDM Voice to IP-based Unified Communications without the need for hardware upgrades.
- Energy efficiency—The Cisco 3900 Series architecture includes higher-efficiency power supplies with intelligent power management, with full Cisco EnergyWise feature support in the future. Both Cisco 3925 and 3945 routers support dual power supplies for power-supply redundancy for branch-office or retail environments running mission-critical applications.
- High performance—The Cisco 3900 Series offers significant performance improvements over previous-generation ISRs.

Overall, the Cisco 3900 Series offers unparalleled total-cost-of-ownership (TCO) savings and network agility through the intelligent integration of security, wireless, rich media, and application services.

Ideal for Companies That Need These Features

Cisco 3945E

- Modular Services Performance Engine (SPE) 250, which can be upgraded for even higher performance as next-generation WAN environments evolve
- Four integrated 10/100/1000 Ethernet ports with 2 ports capable of RJ-45 or Small Form-Factor Pluggable (SFP) connectivity
- Four service-module slots
- Three enhanced high-speed WAN interface card (HWIC) slots
- Three onboard digital-signal-processor (DSP) slots
- Up to 2500 SIP trunk sessions
- Dual integrated power supplies
- Fully integrated power distribution to modules supporting 802.3af Power over Ethernet (PoE)

Cisco 3925E

- Modular Services Performance Engine (SPE) 200 for even higher performance as WAN environments evolve
- Four integrated 10/100/1000 Ethernet ports with two Small Form-Factor Pluggable (SFP) ports
- Two service-module slots
- Three enhanced high-speed WAN interface card (EHWIC) slots
- Three onboard digital-signal-processor (DSP) slots
- Up to 2100 SIP trunk sessions
- Dual integrated power supplies
- Fully integrated power distribution to modules supporting 802.3af Power over Ethernet (PoE)

Cisco 3945

- Modular Services Performance Engine (SPE) 150, which can be upgraded for even higher performance as next-generation WAN environments evolve
- Four integrated 10/100/1000 Ethernet ports with two ports capable of RJ-45 or Small Form-Factor Pluggable (SFP) connectivity
- Four service-module slots
- Four enhanced high-speed WAN interface card (EHWIC) slots
- Four onboard digital-signal-processor (DSP) slots
- Up to 950 SIP trunk sessions
- One integrated-services-module slot
- Dual integrated power supplies
- Fully integrated power distribution to modules supporting 802.3af Power over Ethernet (PoE)

Cisco 3925

- Modular Services Performance Engine (SPE) 100 for even higher performance as WAN environments evolve
- Three integrated 10/100/1000 Ethernet ports with two SFP ports
- Two service-module slots
- Four enhanced high-speed WAN interface card (EHWIC) slots
- Four onboard digital-signal-processor (DSP) slots
- Up to 800 SIP trunk sessions
- One integrated-services-module slot
- Dual integrated power supplies
- Fully integrated power distribution to modules supporting 802.3af Power over Ethernet (PoE)

Key Features and Benefits

- Modular platform
  - The Cisco 3900 Series routers are highly modular platforms with several types of module slots to add connectivity and services for varied branch-office network requirements.
  - The routers offer an industry-leading breadth of LAN and WAN connectivity options through modules to accommodate field upgrades to future technologies without requiring platform replacement.
  - The Cisco SPE on the Cisco 3900 offers the ability to increase the performance of the router with a field-upgradable motherboard as your network needs grow.
- Processors
  - The Cisco 3900 Series routers are powered by high-performance multi-core processors that can support the growing demands of high-speed WAN connections to the branch office while also running multiple concurrent services.
- Advanced security with embedded IP Security with Secure Sockets Layer (IPSec/SSL) VPN hardware acceleration
  - Embedded hardware encryption acceleration is enhanced to provide higher scalability, which, combined with an optional Cisco IOS Software Security license, enables WAN link security and VPN services (both IPSec and SSL acceleration).
  - The onboard encryption hardware outperforms the advanced integration modules (AIMs) of previous generations.
  - The routers support Cisco Easy VPN (remote and server), Dynamic Multipoint VPN (DMVPN), Group Encrypted VPN (GET VPN), and Secure Socket Layer VPN (SSL VPN). The 3900 Series routers support Multiprotocol Label Switching (MPLS) VPNs. Specific provider-edge capabilities include Virtual Route Forwarding (VRF) firewall and VRF IP Security (IPsec).
  - More than 3700 intrusion-prevention-system (IPS) signatures are supported in Cisco IOS Software, with the ability to load and enable selected IPS signatures. More than 4500 IPS signatures are available with the optional high-performance intrusion-prevention-system (IPS) network module.
  - Content Filtering includes URL/keyword blocking and features category-based productivity and security ratings. This is a subscription-based hosted solution that leverages Trend Micro's global TrendLabs™ threat database, and is closely integrated with Cisco IOS Software.
  - Cisco Configuration Professional comes standard on all Cisco 3900 Series Integrated Services Routers.
- WAN Optimization with WAAS Express
  - Cisco Wide Area Application Services (WAAS) Express, based on Cisco IOS® Software and integrated into the Cisco 3900 Series routers offers bandwidth optimization and application acceleration capabilities in a cost-effective solution
  - Fully integrated in Cisco IOS Software, with no additional hardware requirement (the maximum DRAM is needed in the router). This integration allows significant savings in capital expenditures (CapEx) by enabling a small-footprint branch-office deployment.
  - Increases remote user productivity, reduces WAN bandwidth costs, and offers investment protection by interoperating with existing Cisco WAAS infrastructure.
  - Uniquely provides network transparency, improving deployment flexibility with on-demand service enablement, and integrating with native Cisco IOS Software services such as security, NetFlow, and quality of service (QoS).
  - Fully interoperable with Cisco WAAS Modules for Services-Ready Engine (SRE) and Cisco WAAS appliances and can be managed by a common Cisco WAAS Central Manager.
  - Offers Context-Aware DRE for reduced latency and increased end-user experience.
  - Organizations can enable Cisco WAAS Express as an on-demand service on the router and can expand to the Cisco WAAS Modules for SRE or a dedicated Cisco WAAS appliance as business needs grow.
- WAN Optimization with Cisco Wide Area Application Services (WAAS) Software on Cisco Integrated Services Routers Generation 2 (ISR G2)
  - Cisco WAAS Software on Cisco 3900 Series provides router-integrated, on-demand WAN optimization and application acceleration for branch offices.
  - Cisco WAAS offers the option to integrate physically with first- and second-generation Cisco ISRs.
  - The Cisco Services Ready Engine (SRE) Modules on the ISR G2 platform, which decouple software services from the underlying hardware, can deliver WAN optimization as an on-demand service as required for business objectives and IT budget.
  - Cisco WAAS Software is licensed with two types of feature capability for deployment on the Cisco SRE Modules. The software licenses are common across Cisco SRE 700 SM, SRE 710 SM, SRE 900 SM, and SRE 910 SM.
    - Transport license—Supports WAN optimization features including Data Redundancy Elimination (DRE), Lempel-Ziv (LZ) compression, and Transport Flow Optimization (TFO)
    - Enterprise license—Includes Cisco WAAS Transport license functions (Data Redundancy Elimination (DRE), Lempel-Ziv (LZ) compression, and Transport Flow Optimization (TFO)) plus application-specific accelerations for protocols including Common Internet File System (CIFS), Messaging Application Programming Interface (MAPI),
- Multigigabit fabric (MGF)
  - The Cisco 3900 Series introduces an innovative MGF that allows for efficient module-to-module communication, enabling tighter services interactions across modules while reducing the overhead on the router processor.
- TDM interconnectivity fabric
  - Unified communications services in the branch office are significantly enhanced with the use of TDM interconnectivity fabric in the router architecture, allowing for scaling of DS-0 channel capacity.
- Integrated Gigabit Ethernet ports
  - The Cisco 3900 Series provides up to four 10/100/1000 Ethernet WAN ports.
  - Two of the 10/100/1000 Ethernet WAN ports on the Cisco 3900 Series can support Small Form-Factor Pluggable (SFP)-based connectivity in lieu of RJ-45 ports, enabling fiber connectivity.
- High-capacity Packet Voice Video Digital Signal Processor Module (PVDM3)

  - Enhanced architecture delivers a new packet-processing engine optimized for video and rich-media applications, while concurrently supporting packet voice
  - Enables scaling of high-definition (HD) voice capacity and is optimized for enhanced video capabilities
  - Supports full suite of medianet features
- Innovative universal-serial-bus (USB)-based console access
  - A new, innovative, mini-B USB console port supports management connectivity when traditional serial ports are not available.
  - Traditional console and auxiliary ports are also available.
- Optional integrated power supply for distribution of PoE and universal DC power supply
  - An optional upgrade to the internal power supply provides inline power (802.3af-compliant PoE, Cisco ePoE, and Cisco Inline Power) to optional integrated switch modules.
  - An optional DC power supply that extends possible deployment environments such as central offices and industrial environments will be available in the future.
- Optional integrated redundant power supply (RPS) and PoE boost
  - Power redundancy is available by installing an optional integrated RPS, thereby decreasing network downtime and protecting the network from power-supply failures.
  - When populated with dual integrated power supplies, the Cisco 3900 Series can operate in a configurable PoE boost mode in lieu of redundant power mode whereby the power capacity of the platform is increased to almost twice the normal power to support additional PoE ports.
- Designed for flexible deployments
  - The Cisco 3945 and 3925 are designed for Network Equipment Building Systems (NEBS) environments.

Specifications

Services and Slot Density	Cisco 3945E	Cisco 3925E	Cisco 3945	Cisco 3925
Embedded hardware-based cryptography acceleration (IPSec + Secure Sockets Layer [SSL])	Yes	Yes	Yes	Yes
Cisco Unified Communications Manager Express Sessions	450	400	350	250
Cisco Unified SRST sessions	1500	1350	1200	730
Cisco Unified Border Element sessions	2500	2100	950	800
Total onboard WAN or LAN 10/100/1000 ports	4	4	3	3
RJ-45-based ports	4	4	3	3
SFP-based ports	2	2	2	2
Service-module slots	4	2	4	2
Doublewide service-module slots	1	1	1	1
EHWIC slots	3	3	4	4
Doublewide EHWIC slots	1	1	2	2
ISM slots	0	0	1	1
Online insertion and removal (OIR)	Services modules	Services modules	Services modules	Services modules
Onboard DSP (PVDM3) slots	3	3	4	4
Memory DDR2 ECC DRAM: Default	1 GB	1 GB	1 GB	1 GB
Memory DDR2 ECC DRAM: Maximum	2 GB	2 GB	2 GB	2 GB
Compact Flash (external): Default	Slot 0: 256 MB Slot 1: None	Slot 0: 256 MB Slot 1: None	Slot 0: 256 MB Slot 1: None	Slot 0: 256 MB Slot 1: None
Compact Flash (external): Maximum	Slot 0: 4 GB Slot 1: 4 GB	Slot 0: 4 GB Slot 1: 4 GB	Slot 0: 4 GB Slot 1: 4 GB	Slot 0: 4 GB Slot 1: 4 GB
External USB 2.0 slots (Type A)	2	2	2	2
USB console port (Type B) (up to 115.2 kbps)	1	1	1	1
Serial console port (up to 115.2 kbps)	1	1	1	1
Serial auxiliary port (up to 115.2 kbps)	1	1	1	1
Power-supply options	Internal: AC, PoE, and DC	Internal: AC, PoE, and DC	Internal: AC, PoE, and DC	Internal: AC, PoE, and DC
Redundant power supply	Internal: AC, PoE, and DC	Internal: AC, PoE, and DC	Internal: AC, PoE, and DC	Internal: AC, PoE, and DC

WAN Optimization with WAAS Express			Yes	Yes
Optimized TCP Connections with WAAS Express			500	500
WAS Capacity with WAAS Express			10 Mbps	10 Mbps
DRAM Required for WAAS Express			4 GB	4 GB
Power Specifications				
AC input voltage	100 to 240 VAC autoranging	100 to 240 VAC autoranging	100 to 240 VAC autoranging	100 to 240 VAC autoranging
AC input frequency	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz
AC input current range, AC power supply (maximum)	7.1 to 3.0A	7.1 to 3.0A	7.1 to 3.0A	7.1 to 3.0A
AC input surge current	<50A	<50A	<50A	<50A
Typical power (no modules) (watts)	105	100	105	100
Maximum power with AC power supply (watts)	540	420	540	420
Maximum power with PoE power supply (platform only) (watts)	540	420	540	420
Maximum endpoint PoE power available from PoE power supply (watts)	520	520	520	520
Maximum endpoint PoE power capacity with PoE boost (watts)	1040	1040	1040	1040
Dimensions (H x W x D)	5.25 x 17.25 x 18.75 in. (133.35 x 438.15 x 476.25 mm)	5.25 x 17.25 x 18.75 in. (133.35 x 438.15 x 476.25 mm)	5.25 x 17.25 x 18.75 in. (133.35 x 438.15 x 476.25 mm)	5.25 x 17.25 x 18.75 in. (133.35 x 438.15 x 476.25 mm)
Rack height	3 rack units (3RU)	3RU	3 RU	3RU
Rack-mount 19 in. (48.3 cm) EIA	Included	Included	Included	Included
Rack-mount 23 in. (58.4 cm) EIA	Optional	Optional	Optional	Optional
Wall-mount	No	No	No	No
Weight with AC power supply (no modules)	39 lb (17.7 kg)	39 lb (17.7 kg)	39 lb (17.7 kg)	39 lb (17.7 kg)
Weight with PoE power supply (no modules)	40 lb (18.1 kg)	40 lb (18.1 kg)	40 lb (18.1 kg)	40 lb (18.1 kg)
Typical weight (with modules)	60 lb (27.2 kg)	60 lb (27.2 kg)	60 lb (27.2 kg)	60 lb (27.2 kg)
Airflow	Back to front	Back to front	Back to front	Back to front
Optional airflow kit (includes filter)	None	None	Front to back	Front to back

Online model comparison chart: http://www.cisco.com/en/US/products/ps10536/prod_series_comparison.html

The Cisco 3900 Series supports a wide range of modules that span industry-leading breadth of services at the branch office. For a list of modules supported on the Cisco 3900 Series, visit: http://www.cisco.com/en/US/products/ps10536/products_relevant_interfaces_and_modules.html.

Selected Part Numbers and Ordering Information

Cisco 3900 Series Integrated Services Routers	
CISCO3945E/K9	Cisco 3945 w/SPE250(4GE, 3EHWIC, 3DSP,4SM, 256MBCF,1GBDRAM,IPB)
CISCO3925E/K9	Cisco 3925 w/SPE200(4GE, 3EHWIC, 3DSP, 2SM, 256MBCF,1GBDRAM,IPB)
CISCO3945/K9	Cisco 3925 w/SPE150(3GE,4EHWIC,4DSP,4SM, 256MBCF,1GBDRAM,IPB)
CISCO3925/K9	Cisco 3945 w/SPE100(3GE,4EHWIC,4DSP, 2SM, 256MBCF,1GBDRAM,IPB)
C3900-SPE250/K9=	Cisco Services Performance Engine 250 for Cisco 3945E ISR (Spare)
C3900-SPE200/K9=	Cisco Services Performance Engine 200 for Cisco 3925E ISR (Spare)
C3900-SPE150/K9=	Cisco Services Performance Engine 150 for Cisco 3945 ISR (Spare)
C3900-SPE100/K9=	Cisco Services Performance Engine 100 for Cisco 3925 ISR (Spare)
C3900-SPE100/K9=	Cisco Services Performance Engine 100 for Cisco 3925 ISR (Spare)
Cisco 3900 Series Secure Voice Bundles[1]	
C3945E-VSEC/K9	Cisco 3945E Voice Sec. Bundle, PVDM3-64, UC and SEC License PAK

C3925E-VSEC/K9	Cisco 3925 EVoice Sec. Bundle, PVDM3-64, UC and SEC License PAK
C3945-VSEC/K9	Cisco 3945 Voice Sec. Bundle, PVDM3-64, UC and SEC License PAK
C3925-VSEC/K9	Cisco 3925 Voice Sec. Bundle, PVDM3-64, UC and SEC License PAK
Cisco 3900 Series Secure Voice and CUBE Bundles[1]	
C3925-VSEC-CUBE/K9	Cisco 3925 Voice Sec and CUBE Bundle, PVDM3-64, UC and SEC License P, FL-CUBEE-25
C3945-VSEC-CUBE/K9	Cisco 3945 Voice Sec and CUBE Bundle, PVDM3-64, UC and SEC License P, FL-CUBEE-25
C3925E-VSEC-CUBEK9	Cisco 3925E Voice Sec and CUBE Bundle, PVDM3-64, UC and SEC License P, FL-CUBEE-25
C3945E-VSEC-CUBEK9	Cisco 3945E Voice Sec and CUBE Bundle, PVDM3-64, UC and SEC License P, FL-CUBEE-25
Cisco 3900 Series Security Bundles[1]	
CISCO3945E-SEC/K9	Cisco 3945E Security Bundle w/SEC license PAK
CISCO3925E-SEC/K9	Cisco 3925E Security Bundle w/SEC license PAK
CISCO3945-SEC/K9	Cisco 3945 Security Bundle w/SEC license PAK
CISCO3925-SEC/K9	Cisco 3925 Security Bundle w/SEC license PAK
Cisco 3900 Series Voice Bundles	
CISCO3945E-V/K9	Cisco 3945E Voice Bundle, PVDM3-64, UC License PAK
CISCO3925E-V/K9	Cisco 3925E Voice Bundle, PVDM3-64, UC License PAK
CISCO3945-V/K9	Cisco 3945 Voice Bundle, PVDM3-64, UC License PAK
CISCO3925-V/K9	Cisco 3925 Voice Bundle, PVDM3-64, UC License PAK
C3945E-CME-SRST/K9	3945E Voice Bundle w/ PVDM3-64,FL-CME-SRST-25, UC License PAK
C3925E-CME-SRST/K9	3925E Voice Bundle w/ PVDM3-64,FL-CME-SRST-25, UC License PAK
C3945-CME-SRST/K9	3945 Voice Bundle w/ PVDM3-64,FL-CME-SRST-25, UC License PAK
C3925-CME-SRST/K9	3925 Voice Bundle w/ PVDM3-64,FL-CME-SRST-25, UC License PAK
Cisco 3900 Series Service Ready Engine Bundles[1]	
C3945E-VSEC-SRE/K9	Cisco 3945E SRE Bundle, SRE 900 or SRE 910, PVDM3-64, UC and SEC License PAK
C3925E-VSEC-SRE/K9	Cisco 3925E SRE Bundle, SRE 900 or SRE 910, PVDM3-64, UC and SEC License PAK
C3945-VSEC-PSRE/K9	Cisco 3945 SRE Bundle, SRE 900 or SRE 910, PVDM3-64, UC and SEC License PAK
C3925-VSEC-PSRE/K9	Cisco 3925 SRE Bundle, SRE 900 or SRE 910, PVDM3-64, UC and SEC License PAK
C3945-VSEC-SRE/K9	Cisco 3945 SRE Bundle, SRE 700 or SRE 710, PVDM3-64, UC and SEC License PAK
C3925-VSEC-SRE/K9	Cisco 3925 SRE Bundle, SRE 700 or SRE 710, PVDM3-64, UC and SEC License PAK
Cisco 3900 Series UCS Express Bundles	
C3945-WAAS-UCSE/K9	Cisco 3945, 2x SRE 900 or SRE 910, WAAS Enterprise Medium License, SRE-V License, 4GB ISR RAM, 768 MB ISR CF, IMC Software
C3925-WAAS-UCSE/K9	Cisco 3925, 2x SRE 900 or SRE 910, WAAS Enterprise Medium License, SRE-V License, 4GB ISR RAM, 768 MB ISR CF, IMC Software
C3945-ES24-UCSE/K9	Cisco 3945, SRE 900 or SRE 910, 24 port L3 ESM w/ PoE, 4 GB RAM, SRE-V License, 768 MB ISR CF, IMC Software
C3925-ES24-UCSE/K9	Cisco 3925, SRE 900 or SRE 910, 24 port L2 ESM w/ PoE, 4 GB RAM, SRE-V License, 768 MB ISR CF, IMC Software
C3945-UCSE/K9	Cisco 3945, SRE 900 or SRE 910, SRE-V License, 4 GB ISR RAM, 768 MB ISR CF, IMC Software
C3925-UCSE/K9	Cisco 3925, SRE 900 or SRE 910, SRE-V License, 4 GB ISR RAM, 768 MB ISR CF, IMC Software
Cisco 3900 Series WAAS Bundles	
C3945-WAAS-SEC/K9	Cisco 3945, SRE 900 or SRE 910, SEC License PAK, WAAS Enterprise Large License
C3925-WAAS-SEC/K9	Cisco 3925, SRE 900 or SRE 910, SEC License PAK, WAAS Enterprise Large License
Select WAAS Express License Part Numbers	
FL-C3900-WAAS-X	WAAS Express Feature License for Cisco 3900 Series

Cisco 3900 Series Export Restriction Compliance License (Required by U.S. Export regulations for more than 85Mbps throughput or 225 IPsec tunnels)	
FL-39-HSEC-K9	U.S. Export Restriction Compliance license for 3900 series

1. Additional HSEC license available for high performance/scale IPsec deployments

For More Information

http://www.cisco.com/go/3900

Cisco 2900 Series Integrated Services Routers



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The routers include:

- Services on demand—The Cisco 2900 Series Integrated Services Routers reduce initial capital outlays by decoupling the delivery of software from hardware on optional service modules. In addition, you receive a Cisco IOS Software Universal image capable of enabling all of Cisco's rich Cisco IOS Software features and allowing you to quickly deploy new services.
- Investment protection—The Cisco 2900 Series reduces deployment costs and increases flexibility. The platform also offers investment protection with support for many existing ISR modules.
- The Cisco 2900 Series provides additional investment protection with Cisco Unified Border Element by allowing enterprises to gracefully transition from legacy TDM Voice to IP-based Unified Communications without the need for hardware upgrades.
- Energy efficiency—The Cisco 2900 Series architecture incorporates higher-efficiency power supplies with intelligent power management, with full Cisco EnergyWise support in the future.
- High performance—The Cisco 2900 Series offers significant performance improvements over previous-generation ISRs.

Overall, the Cisco 2900 Series offers unparalleled TCO savings and network agility through the intelligent integration of security, wireless, unified communications, and application services.

Ideal for Companies That Need These Features

Cisco 2900 Series

- Delivers highly secure data, voice, video, and application services for small offices.
- Two or 3 integrated 10/100/1000 Ethernet ports with 1 port capable of RJ-45 or Small Form-Factor Pluggable (SFP) connectivity
- Two service-module slots
- Four enhanced high-speed WAN interface card (EHWIC) slots
- Two or 3 onboard digital-signal-processor (DSP) slots
- One internal service-module slot for application services
- Fully integrated power distribution to modules supporting 802.3af Power over Ethernet (PoE) and Cisco Enhanced PoE (ePoE)

Key Features and Benefits

The Cisco 2900 Series builds on the best-in-class offering of the existing Cisco 2800 Series Integrated Services Routers by offering four platforms: Cisco 2901, 2911, 2921, and 2951 Integrated Services Routers.

All Cisco 2900 Series Integrated Services Routers offer embedded hardware encryption acceleration, voice- and video-capable digital-signal-processor (DSP) slots, optional firewall, intrusion prevention, call processing, voicemail, and application services. In addition, the platforms support the industry's widest range of wired and wireless connectivity options such as T1/E1, T3/E3, xDSL, copper, and fiber Gigabit Ethernet.

Key architectural features of the Cisco 2900 Series include:

- Modular platform
  - The Cisco 2900 Series ISRs are highly modular platforms with several types of module slots to add connectivity and services for varied branch-office network requirements.
  - The ISRs offer an industry-leading breadth of LAN and WAN connectivity options through modules to accommodate field upgrades for future technologies without requiring a platform replacement.
- Processors
  - The Cisco 2900 Series are powered by high-performance multi-core processors that can support the growing demands of high-speed WAN connections to the branch-office while also running multiple concurrent services.

- Advanced security with embedded IP Security with Security Sockets Layer (IPSec/SSL) VPN hardware acceleration
  - Embedded hardware encryption acceleration is enhanced to provide higher scalability, which combined with an optional Cisco IOS Security license, enables WAN link security and VPN services (both IPSec and SSL acceleration). The onboard encryption hardware replaces and outperforms the advanced integration modules (AIMs) of previous generations.
  - The routers support Cisco Easy VPN (remote and server), Dynamic Multipoint VPN (DMVPN), Group Encrypted VPN (GET VPN), and Secure Socket Layer VPN (SSL VPN). The 3900 Series routers support Multiprotocol Label Switching (MPLS) VPNs. Specific provider-edge capabilities include Virtual Route Forwarding (VRF) firewall and VRF IP Security (IPsec).
  - More than 3700 intrusion-prevention-system (IPS) signatures are supported in Cisco IOS Software, with the ability to load and enable selected IPS signatures. More than 4500 IPS signatures are available with the optional high-performance intrusion-prevention-system (IPS) network module.
  - Content Filtering includes URL/keyword blocking and features category-based productivity and security ratings. This is a subscription-based hosted solution that leverages Trend Micro's global TrendLabs™ threat database, and is closely integrated with Cisco IOS Software.
  - Cisco Configuration Professional comes standard on all Cisco 2900 Series Integrated Services Routers.
- WAN Optimization with WAAS Express
  - Cisco Wide Area Application Services (WAAS) Express, based on Cisco IOS® Software and integrated into the Cisco 2900 Series routers offers bandwidth optimization and application acceleration capabilities in a cost-effective solution
  - Fully integrated in Cisco IOS Software, with no additional hardware requirement (the maximum DRAM is needed in the router). This integration allows significant savings in capital expenditures (CapEx) by enabling a small-footprint branch-office deployment.
  - Increases remote user productivity, reduces WAN bandwidth costs, and offers investment protection by interoperating with existing Cisco WAAS infrastructure.
  - Uniquely provides network transparency, improving deployment flexibility with on-demand service enablement, and integrating with native Cisco IOS Software services such as security, NetFlow, and quality of service (QoS).
  - Fully interoperable with Cisco WAAS Modules for Services-Ready Engine (SRE) and Cisco WAAS appliances and can be managed by a common Cisco WAAS Central Manager.
  - Offers Context-Aware DRE for reduced latency and increased end-user experience.
  - Organizations can enable Cisco WAAS Express as an on-demand service on the router and can expand to the Cisco WAAS Modules for SRE or a dedicated Cisco WAAS appliance as business needs grow.
- WAN Optimization with Cisco Wide Area Application Services (WAAS) Software on Cisco Integrated Services Routers Generation 2 (ISR G2)
  - Cisco WAAS Software on Cisco 2900 Series provides router-integrated, on-demand WAN optimization and application acceleration for branch offices.
  - The Cisco Services Ready Engine (SRE) Modules on the ISR G2 platform, which decouple software services from the underlying hardware, can deliver WAN optimization as an on-demand service as required for business objectives and IT budget.
  - Cisco WAAS Software is licensed with two types of feature capability for deployment on the Cisco SRE Modules. The software licenses are common across Cisco SRE 700 SM, SRE 710 SM, SRE 900 SM, and SRE 910 SM.
    - Transport license—Supports WAN optimization features including Data Redundancy Elimination (DRE), Lempel-Ziv (LZ) compression, and Transport Flow Optimization (TFO)
    - Enterprise license—Includes Cisco WAAS Transport license functions (Data Redundancy Elimination (DRE), Lempel-Ziv (LZ) compression, and Transport Flow Optimization (TFO)) plus application-specific accelerations for protocols including Common Internet File System (CIFS), Messaging Application Programming Interface (MAPI),
- Multi-gigabit fabric
  - The Cisco 2900 Series introduces an innovative multi-gigabit fabric (MGF) that allows for efficient module-to-module communication, enabling tighter services interactions across modules while reducing the overhead on the route processor.
- TDM interconnectivity fabric
  - Unified communications services in the branch office are significantly enhanced with the use of a TDM interconnectivity fabric in the system architecture, allowing for scaling of DS-0 channel capacity.
- High-capacity, video-ready Packet Voice Video Digital Signal Processor Module (PVDM3)
  - Enhanced architecture delivers a new packet-processing engine optimized for video and rich-media applications, while concurrently supporting packet voice
  - Enables scaling of high-definition (HD) voice capacity and is optimized for enhanced video capabilities
  - Supports full suite of medianet features
- Integrated Gigabit Ethernet ports
  - All onboard WAN ports are 10/100/1000 Gigabit Ethernet WAN routed ports.
  - One of the three 10/100/1000 Ethernet WAN ports on the Cisco 2921 and 2951 supports Small Form-Factor Pluggable (SFP)-based connectivity in lieu of a RJ-45 port and enabling fiber connectivity.
- Innovative USB-based console access
  - A new, innovative USB console port offers management connectivity for devices without a serial port such as modern laptop computers.
  - Traditional console and auxiliary ports are also available.
- Optional integrated power supply for distribution of PoE and universal DC power supply
  - An optional upgrade to the internal power supply provides inline power (802.3af-compliant PoE and Cisco Inline Power) to integrated switch modules.
  - On the Cisco 2911, 2921, and 2951, an optional DC power supply will be available in the future that extends deployment into central offices and industrial environments.

- Optional external redundant power supply (RPS)
  - The Cisco 2911, 2921, and 2951 allow for power redundancy through the use of an external RPS device, thereby decreasing network downtime and protecting the network from power-supply failures.
  - Redundant power on the Cisco 2900 Series is supported through the Cisco RPS 2300 Redundant Power System. You can use the Cisco RPS 2300 to provide redundant power for Cisco 2900 Series ISRs as well as Cisco Catalyst switches.
  - To use the Cisco RPS 2300, an external RPS adapter is required (configurable option) to connect the platform to the external RPS.
- PoE boost
  - When connected to an external RPS device, the Cisco 2911, 2921, and 2951 can operate in a PoE boost configuration in lieu of redundant power mode, whereby the power capacity of the platform is increased to twice the normal level to power additional PoE ports.
- Designed for flexible deployments
  - The Cisco 2911 and 2951 are designed for NEBS environments
  - The 2911 is 12" deep and has an optional fan filter for deployments in a variety of environments. An assembly that provides front-to-back airflow is also available for 23" racks.

Specifications

Services and Slot Density	Cisco 2901	Cisco 2911	Cisco 2921	Cisco 2951
Embedded hardware-based cryptography acceleration (IPSec + SSL)	Yes	Yes	Yes	Yes
Cisco Unified SRST Sessions	35	50	100	250
Cisco Unified CCME Sessions	35	50	100	150
Total onboard WAN 10/100/1000 Ports	2	3	3	3
RJ-45-based ports	2	3	3	3
SFP-based ports (use of SFP port disables the corresponding RJ-45 port)	0	0	1	1
Service Module slots	0	1	1	2
Double-wide Service Module slots (use of a double-wide slot will occupy all single-wide service module slots in a 2900)	0	0	1	1
EHWIC slots	4	4	4	4
Double-wide EHWIC slots (use of a double-wide EHWIC slot will consume two EHWIC slots)	2	2	2	2
ISM slots	1	1	1	1
Onboard DSP (PVDM) slots	2	2	3	3
Memory DDR2 ECC DRAM - Default	512 MB	512 MB	512 MB	512 MB
Memory (DDR2 ECC DRAM) - Maximum	2 GB	2 GB	2 GB	2 GB
Compact Flash (external) - Default	slot 0: 256 MB slot 1: none	slot 0: 256 MB slot 1: none	slot 0: 256 MB slot 1: none	slot 0: 256 MB slot 1: none
Compact Flash (external) - Maximum	slot 0: 4 GB slot 1: 4 GB	slot 0: 4 GB slot 1: 4 GB	slot 0: 4 GB slot 1: 4 GB	slot 0: 4 GB slot 1: 4 GB
External USB 2.0 flash memory slots (Type A)	2	2	2	2
USB Console port (Type B) (up to 115.2 kbps)	1	1	1	1
Serial console port	1	1	1	1
Serial auxiliary port	1	1	1	1
Power-supply options	AC and PoE	AC, PoE, and DC	AC, PoE, and DC	AC, PoE, and DC
RPS support (External)	No	Cisco RPS 2300	Cisco RPS 2300	Cisco RPS 2300
WAN Optimization with WAAS Express	Yes	Yes	Yes	Yes
Optimized TCP Connections with WAAS Express	150	250	250	500
WAS Capacity with WAAS Express	6 Mbps	6 Mbps	6 Mbps	10 Mbps
DRAM Required for WAAS Express	2.5 GB	2.5 GB	2.5 GB	4 GB
Power Specifications				

AC input voltage	100 to 240 VAC auto ranging	100 to 240 VAC auto ranging	100 to 240 VAC auto ranging	100 to 240 VAC auto ranging
AC input frequency	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz
AC input current range AC power supply (maximum)	1.5 to 0.6A	2.2 to 1.0A	3.4 to 1.4A	3.4 to 1.4A
AC input surge current	<50A	<50A	<50A	<50A
Typical Power (no modules) (Watts)	40	50	60	70
Maximum Power with AC power supply (Watts)	150	210	320	340
Maximum Power with PoE power supply (platform only) (Watts)	175	250	370	405
Maximum end-point PoE power available from PoE power supply (Watts)	130	200	280	370
Maximum end-point PoE power capacity with PoE Boost (Watts)	N/A	750	750	750
Physical Specifications				
Dimensions (H x W x D)	1.75 x 17.25 x 17.3 in. (44.5 x 438.2 x 439.4 mm)	3.5 x 17.25 x 12 in. (88.9 x 438.2 x 304.8 mm)	3.5 x 17.25 x 18.5 in. (88.9 x 438.2 x 469.9 mm)	3.5 x 17.25 x 18.5 in. (88.9 x 438.2 x 469.9 mm)
Rack height	1RU (rack unit)	2RU	2RU	2RU
Rack-mount 19in. (48.3 cm) EIA	included	included	included	included
Rack Mount 23in. (58.4 cm) EIA	optional	optional	optional	optional
Wall-mount (refer to installation guide for approved orientation)	Yes	Yes	No	No
Weight with AC power supply (no modules)	13.4 lb (6.1 kg)	18 lb (8.2 kg)	29 lb (13.2 kg.)	29 lb (13.2 kg)
Weight with AC PoE power supply (no modules)	14.3 lb (6.5 kg)	19 lb (8.6 kg)	30 lb (13.6 kg)	30 lb (13.6 kg)
Typical weight fully configured	16 lb (7.3 kg)	21 lb (9.5 kg)	34 lb (15.5 kg)	34 lb (15.5 kg)
Airflow	Front to side	Side to side	Front to back	Front to back
Optional Airflow Kit	N/A	Front to back	N/A	N/A
Online model comparison chart: http://www.cisco.com/en/US/products/ps10536/prod_series_comparison.html				

Selected Part Numbers and Ordering Information

Cisco 2900 Series Router	
CISCO2951/K9	Cisco 2951 w/3 GE,4 EHWIC, 3 DSP, 2 SM, 256MB CF,512MB DRAM,IPB
CISCO2921/K9	Cisco 2921 w/3 GE,4 EHWIC, 3 DSP,1 SM, 256MB CF,512MB DRAM,IPB
CISCO2911/K9	Cisco 2911 w/3 GE,4 EHWIC, 2 DSP,1 SM, 256MB CF,512MB DRAM,IPB
CISCO2901/K9	Cisco 2901 w/2 GE,4 EHWIC, 2 DSP, 256MB CF,512MB DRAM,IPB
Cisco 2900 Series Security Bundles[1]	
CISCO2951-SEC/K9	Cisco 2951 Security Bundle w/SEC license PAK
CISCO2921-SEC/K9	Cisco 2921 Security Bundle w/SEC license PAK
CISCO2911-SEC/K9	Cisco 2911 Security Bundle w/SEC license PAK
CISCO2901-SEC/K9	Cisco 2901 Security Bundle w/SEC license PAK
Cisco 2900 Series Voice Bundles[1]	
CISCO2951-V/K9	Cisco 2951 Voice Bundle, PVDM3-32, UC License PAK
CISCO2921-V/K9	Cisco 2921 Voice Bundle, PVDM3-32, UC License PAK
CISCO2911-V/K9	Cisco 2911 Voice Bundle, PVDM3-16, UC License PAK
CISCO2901-V/K9	Cisco 2901 Voice Bundle, PVDM3-16, UC License PAK
C2951-CME-SRST/K9	2951 Voice Bundle w/ PVDM3-32,FL-CME-SRST-25, UC License PAK
C2921-CME-SRST/K9	2921 Voice Bundle w/ PVDM3-32,FL-CME-SRST-25, UC License PAK
C2911-CME-SRST/K9	2921 Voice Bundle w/ PVDM3-16,FL-CME-SRST-25, UC License PAK

C2901-CME-SRST/K9	2901 Voice Bundle w/ PVDM3-16,FL-CME-SRST-25, UC License PAK
Cisco 2900 Series Secure Voice Bundles[1]	
C2951-VSEC/K9	Cisco 2951 Voice Sec. Bundle, PVDM3-32, UC and SEC License PAK
C2921-VSEC/K9	Cisco 2921 Voice Sec. Bundle, PVDM3-32, UC and SEC License PAK
C2911-VSEC/K9	Cisco 2911 Voice Sec. Bundle, PVDM3-16, UC and SEC License PAK
C2901-VSEC/K9	Cisco 2901 Voice Sec. Bundle, PVDM3-16, UC and SEC License PAK
Cisco 2900 Series Secure Voice plus CUBE Bundles[1]	
C2901-VSEC-CUBE/K9	Cisco 2901 Voice Sec and CUBE Bundle, PVDM3-16, UC and SEC License P, FL-CUBEE-25
C2911-VSEC-CUBE/K9	Cisco 2911 Voice Sec and CUBE Bundle, PVDM3-16, UC and SEC License P, FL-CUBEE-25
C2921-VSEC-CUBE/K9	Cisco 2921 Voice Sec and CUBE Bundle, PVDM3-32, UC and SEC License P, FL-CUBEE-25
C2951-VSEC-CUBE/K9	Cisco 2951 Voice Sec and CUBE Bundle, PVDM3-32, UC and SEC License P, FL-CUBEE-25
Cisco 2900 Services Ready Engine Bundles[1]	
C2951-VSEC-PSRE/K9	Cisco 2951 SRE Bundle, SRE 910, PVDM3-32, UC and SEC License PAK
C2951-VSEC-SRE/K9	Cisco 2951 SRE Bundle, SRE 700 or SRE 710, PVDM3-32, UC and SEC License PAK
C2921-VSEC-PSRE/K9	Cisco 2921 SRE Bundle, SRE 910, PVDM3-32, UC and SEC License PAK
C2921-VSEC-SRE/K9	Cisco 2921 SRE Bundle, SRE 700 or SRE 710, PVDM3-32, UC and SEC License PAK
C2911-VSEC-PSRE/K9	Cisco 2911 SRE Bundle, SRE 910, PVDM3-16, UC and SEC License PAK
C2911-VSEC-SRE/K9	Cisco 2911 SRE Bundle, SRE 300, PVDM3-16, UC and SEC License PAK
C2901-VSEC-SRE/K9	Cisco 2901 SRE Bundle, SRE 300, PVDM3-16, UC and SEC License PAK
Cisco 2900 Series UCS Express Bundles	
C2951-WAAS-UCSE/K9	Cisco 2951, 2x SRE 900 or SRE 910, WAAS Enterprise Medium License, SRE-V License, 4GB ISR RAM, 768 MB ISR CF, IMC Software
C2951-ES24-UCSE/K9	Cisco 2951, SRE 900 or SRE 910, 24 port L2 ESM, 4 GB ISR RAM, SRE-V License, 768 MB ISR CF, IMC Software
C2951-UCSE/K9	Cisco 2951, SRE 900 or SRE 910, SRE-V License, 4 GB ISR RAM, 768 MB ISR CF, IMC Software
C2921-UCSE/K9	Cisco 2921, SRE 900 or SRE 910, SRE-V License, 2.5 GB ISR RAM, 768 MB ISR CF, IMC Software
C2911-UCSE/K9	Cisco 2911, SRE 900 or SRE 910, SRE-V License, 2.5 GB ISR RAM, 768 MB ISR CF, IMC Software
Cisco 2900 Series WAAS Bundles	
C2951-WAAS-SEC/K9	Cisco 2951, SRE 900 or SRE 910, SEC License PAK, WAAS Enterprise Large License
C2921-WAAS-SEC/K9	Cisco 2921, SRE 700 or SRE 710, SEC License PAK, WAAS Enterprise Medium License
C2911-WAAS-SEC/K9	Cisco 2911, SRE 700 or SRE 710, SEC License PAK, WAAS Enterprise Small License
Cisco 2900 Series Security and WAAS Express Bundles	
C2951-WAASX-SEC/K9	Router Bundle—C2951, WAASX F-License, Sec License, Max Mem
C2921-WAASX-SEC/K9	Router Bundle—C2921, WAASX F-License, Sec License, Max Mem
C2911-WAASX-SEC/K9	Router Bundle—C2911, WAASX F-License, Sec License, Max Mem
C2901-WAASX-SEC/K9	Router Bundle—C2901, WAASX F-License, Sec License, Max Mem
Cisco 2900 Series WAAS Express Bundles	
C2951-WAASX/K9	Router Bundle—C2951, WAASX Feature License, Max Mem
C2921-WAASX/K9	Router Bundle—C2921, WAASX Feature License, Max Mem
C2911-WAASX/K9	Router Bundle—C2911, WAASX Feature License, Max Mem
C2901-WAASX/K9	Router Bundle—C2901, WAASX Feature License, Max Mem
Cisco 2900 Series Export Restriction Compliance License (Required by U.S. Export regulations for more than 85Mbps throughput or 225 IPsec tunnels)	
FL-29-HSEC-K9	U.S. Export Restriction Compliance license for 2921/2951

1. Additional HSEC license available on 2921/2951 for high performance/scale IPsec deployments

For More Information

http://www.cisco.com/go/2900

Cisco 1900 Series Integrated Services Routers



The Cisco 1900 Series Integrated Services Router portfolio constitutes the entry-level, highly secure solution for WAN deployments, offering service virtualization and low total cost of ownership (TCO). The Cisco 1900 Series is ideal for small offices requiring modular flexibility for highly secure mobility and customizable applications with circuit-speed performance up to 25 Mbps with concurrent services.

The Cisco 1900 Series offers a factory-selectable 802.11n access point and a doublewide high-speed WAN interface. Cisco 1900 Series Integrated Services Routers build on 25 years of Cisco innovation and product leadership. The new platforms are architected to enable the next phase of branch-office evolution, providing rich-media collaboration and virtualization to the branch office while maximizing operational cost savings. The Cisco Integrated Services Routers Generation 2 (ISR G2) platforms are protected for future versions with multi-core CPUs, Gigabit Ethernet switching with enhanced Power over Ethernet (ePoE), and new energy monitoring and control capabilities while enhancing overall system performance.

Additionally, a new Cisco IOS Software Universal image and Services Ready Engine module enable you to decouple the deployment of hardware and software, providing a stable technology foundation that can quickly adapt to evolving network requirements. Overall, the Cisco 1900 Series offers unparalleled TCO savings and network agility through the intelligent integration of market-leading security, unified communications, wireless, and application services.

The Cisco 1900 Series builds on the best-in-class offering of the existing Cisco 1841 Integrated Services Routers by offering three models—the Cisco 1941, 1941W, and 1921. In addition to the support of a wide range of wireless and wired connectivity options supported on Cisco 1941 Series, the Cisco 1941W offers integration of a IEEE 802.11n access point that is backward-compatible with IEEE 802.11a/b/g access points.

All Cisco 1900 Series Integrated Services Routers offer embedded hardware encryption acceleration, optional firewall, intrusion prevention, and application services. In addition, the platforms support the industry's widest range of wired and wireless connectivity options such as T1/E1, xDSL, third generation (3G), and Gigabit Ethernet.

The routers offer:

- Services on demand—The Cisco 1900 Series Integrated Services Routers reduce initial capital outlays by decoupling the delivery of software from hardware on optional service modules. In addition, you receive a Cisco IOS Software Universal image capable of enabling all of Cisco's rich Cisco IOS Software features and allowing you to quickly deploy new services. The Cisco Services Ready Engine (SRE) on the Cisco 1941 enables a new operational model that allows you to reduce capital expenditures (CapEx) and deploy a variety of application services such as WAAS for WAN optimization as needed on a single integrated compute services module.
- Investment protection—The Cisco 1900 Series reduces deployment costs and increases flexibility. The platform also offers investment protection with support for many existing ISR modules.
- Energy efficiency—The Cisco 1900 Series architecture includes higher-efficiency power supplies with intelligent power management, with full Cisco EnergyWise feature support in the future.
- High performance—The Cisco 1900 Series offers significant performance improvements over previous-generation ISRs.

Overall, the Cisco 1900 Series offers unparalleled TCO savings and network agility through the intelligent integration of security, wireless, and application services.

Ideal for Companies That Need These Features

Cisco 1900	· Delivers highly secure data and application services for small offices and branch offices · Two 10/100/1000 Ethernet ports · Two enhanced high-speed WAN interface card (EHWIC) slots · One internal service-module slot for application services (Cisco 1941) · Integrated 802.11a/g/n access point (Cisco 1941W) · Fully integrated power distribution to modules supporting 802.3af Power over Ethernet (PoE) and Cisco Enhanced PoE (ePoE)
Cisco 1921	· Two integrated 10/100/1000 Ethernet ports · Two enhanced High-Speed WAN Interface Card (EHWIC) slots that can host two single-wide or one double-wide EHWIC modules · Fully integrated power distribution to modules supporting 802.3af Power over Ethernet (PoE) and Cisco Enhanced PoE · Security
Cisco 1941W/1941	· Two integrated 10/100/1000 Ethernet ports · Two Enhanced High-Speed WAN Interface Card slots that can host two single-wide or one double-wide and one single-wide (e)HWIC · One integrated 802.11n Wireless Access Point/1 Internal Services Module slot · Fully integrated power distribution to modules supporting 802.3af Power over Ethernet (PoE) and Cisco Enhanced PoE

Key Features and Benefits

The Cisco 1900 Series is architected to meet the application demands of today's branch offices with design flexibility for future applications. The modular architecture is designed to support expanding customer requirements, increased bandwidth, and fully integrated power distribution to modules supporting 802.3af Power over Ethernet (PoE) and Cisco Enhanced PoE (ePoE).

Key architectural features include:

- Modular platform
  - The Cisco 1900 Series ISR are highly modular platforms with multiple module slots to provide connectivity and services for varied branch network requirements.
  - The ISRs offer an industry-leading breadth of LAN and WAN connectivity options through modules to accommodate field upgrades to future technologies without requiring replacement of the platform.
- Processors
  - The Cisco 1900 Series is powered by high-performance multi-core processors that support growing demands of branch office networks by supporting high throughput WAN requirements.
- MultiGigabit fabric
  - The Cisco 1941 model in the Cisco 1900 Series introduces an innovative MultiGigabit Fabric (MGF) which allows for efficient module to module communication, enabling direct services interactions across modules while reducing the overhead on the router processor.
- Embedded IPSec/SSL VPN hardware acceleration
  - Embedded hardware encryption acceleration is enhanced to provide higher scalability, which, combined with an optional Cisco IOS Security license, enables WAN link security and VPN services (Both IPSec and SSL acceleration).
  - The onboard encryption hardware out-performs the Advanced Integration Modules of previous generations.
  - The routers support Cisco Easy VPN (remote and server), Dynamic Multipoint VPN (DMVPN), Group Encrypted VPN (GET VPN), and Secure Socket Layer VPN (SSL VPN).
  - More than 3700 intrusion-prevention-system (IPS) signatures are supported in Cisco IOS Software, with the ability to load and enable selected IPS signatures.
  - Content Filtering includes URL/keyword blocking and features category-based productivity and security ratings. This is a subscription-based hosted solution that leverages Trend Micro's global TrendLabs™ threat database, and is closely integrated with Cisco IOS Software.
  - Cisco Configuration Professional comes standard on all Cisco 1900 Series Integrated Services Routers.
- Integrated Gigabit Ethernet Ports
  - All onboard WAN ports are 10/100/1000 Gigabit Ethernet WAN routed ports.
  - Innovative universal-serial-bus (USB)-based console access
  - A new, innovative, mini-B USB console port supports management connectivity when traditional serial ports are not available.
  - The traditional console and auxiliary ports are also available. Either the USB-based console or the RJ-45-based console port can be used to configure the router.
- Optional power supply for distribution of power over Ethernet (PoE)
  - An optional power supply (internal in Cisco 1941 and external in Cisco 1921) provides in-line power (802.3af-compliant Power-over-Ethernet [PoE] and Cisco standard inline power) to optional integrated switch modules.
- Integrated wireless LAN
  - The Cisco 1941W offers a secure integrated access point in a single device.
  - Integrated access point is based on the IEEE 802.11n draft 2.0 standard that uses MIMO (Multi-Input, Multiple-output) to improve coverage for existing 802.11a/ b/g clients and new 802.11n clients.
  - The Cisco 1941W supports dual radios-802.11 b/g/n and 802.11a/n and is capable of operating in both autonomous and unified modes.
- WAN Optimization with WAAS Express
  - Cisco Wide Area Application Services (WAAS) Express, based on Cisco IOS Software and integrated into the Cisco 1941 router offers bandwidth optimization and application acceleration capabilities in a cost-effective solution
  - Fully integrated in Cisco IOS Software, with no additional hardware requirement (the maximum DRAM is needed in the router). This integration allows significant savings in capital expenditures (CapEx) by enabling a small-footprint branch-office deployment.
  - Increases remote user productivity, reduces WAN bandwidth costs, and offers investment protection by interoperating with existing Cisco WAAS infrastructure.
  - Uniquely provides network transparency, improving deployment flexibility with on-demand service enablement, and integrating with native Cisco IOS Software services such as security, NetFlow, and quality of service (QoS).
  - Fully interoperable with Cisco WAAS Modules for Services-Ready Engine (SRE) and Cisco WAAS appliances and can be managed by a common Cisco WAAS Central Manager.
  - Offers Context-Aware DRE for reduced latency and increased end-user experience.
  - Organizations can enable Cisco WAAS Express as an on-demand service on the router and can expand to the Cisco WAAS Modules for SRE or a dedicated Cisco WAAS appliance as business needs grow.

Specifications

Services and Slot Density	Cisco 1941, Cisco 1941W	Cisco 1921
Embedded hardware-based crypto acceleration (IPSec + SSL)	Yes	Yes
Total Onboard LAN 10/100/1000	2	2

RJ-45-Based Ports	2	2
EHWIC Slots	2	2
Double-Wide EHWIC slots (use of a double-wide EHWIC slot will consume two EHWIC slots)	1	1
ISM Slots	1 (0 on the Cisco 1941W)	0
Memory (DDR2 DRAM) - Default	512 MB	512 MB
Memory (DDR2 DRAM) - Maximum	2.0 GB	512 MB
Compact Flash—Default	External slot 0: 256 MB slot 1: none	Internal 256 MB
Compact Flash—Maximum	External slot 0: 4 GB slot 1: 4 GB	Internal 256 MB
External USB flash memory slots (Type A)	2	1
USB Console Port (Type B) (up to 115.2 kbps)	1	1
Serial Console Port (up to 115.2 kbps)	1	1
Serial Auxiliary Port (up to 115.2 kbps	1	1
Power Supply Options	AC, PoE (Internal)	AC, PoE
Redundant Power Supply Support	No	No
WAN Optimization with WAAS Express	Yes	No
Optimized TCP Connections with WAAS Express	150	
WAS Capacity with WAAS Express	4 Mbps	
DRAM Required for WAAS Express	2.5 GB	
Power Specifications		
AC Input Voltage	100–240 V ~	100–240 V ~
AC Input Frequency	47–63 Hz	47–63 Hz
AC Input Current range AC Power Supply (Max) (Amps)	1.5–0.6	1.5–0.6
AC Input Surge Current	<50 A	<50 A
Typical Power (No Modules)	35 W	25W
Maximum Power capacity with AC power supply	110 W	60 W
Maximum Power capacity with PoE power supply (platform only)	110 W	70 W
Maximum PoE device power capacity with PoE power supply	80 W	80 W
Physical Specifications		
Dimensions (H x W x D)	3.5 in x 13.5 in x 11.5 in	1.75 in x 13.5 in x 11.5 in
Rack Height	2 RU	1 RU
Rack-mount 19in. (48.3 cm) EIA	Included	Optional
Wall-mount (refer to installation guide for approved orientation)	Yes	Yes

Weight-with AC power supply (no modules)	12 lbs	7 lb
Weight-with PoE power supply (no modules)	12.8 lbs	7 lbs (external PoE)
Maximum Weight-Fully Configured	14 lbs	8 lbs
Airflow	Front to Side	Back to side
Cisco 1941W WLAN Specifications		
WLAN hardware	• IEEE 802.11n draft 2.0 standards-based access point with 802.11a/ b/g compatibility • Automatic rate selection for 802.11a/g/n • Dual radios for 802.11b/g/n and 802.11a/n modes. • RP-TNC connectors for field-replaceable external antennas • 2-dB default antenna gain • 2 x 3 multiple input, multiple output (MIMO) radio operation • Wi-Fi 802.11n Draft v2.0 certified	
WLAN software features	• Autonomous or unified access point • Cisco WCS support for monitoring of autonomous-mode access points • Option to maximize throughput or maximize range • Software-configurable transmit power • Radio roles, including access point, root bridge, non-root bridge, and workgroup bridge • Wi-Fi Multimedia (WMM) certification • Traffic specifications (TSPEC) Call Admission Control (CAC) to ensure voice quality is maintained • Unscheduled Automatic Power Save Delivery (UPSD) to reduce latency	
Unified WLAN management	• Unified access point features: • Supported by wireless LAN controller and Cisco WCS • Configurable local or central switching for HREAP mode • Radio management through Cisco WCS • Transparent roaming with mobility groups	
Certifications		
Service Set Identifiers (SSIDs)	16	
Wireless VLANs	16	
WLAN security features	• Standard 802.11i • Wi-Fi Protected Access (WPA) and AES (WPA2) • EAP authentication: Cisco LEAP, PEAP, Extensible Authentication Protocol Transport Layer Security (EAP TLS), Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST), Extensible Authentication Protocol-Subscriber Information Module (EAP-SIM), Extensible Authentication Protocol-Message Digest Algorithm 5 (EAP-MD5), and Extensible Authentication Protocol-Tunneled TLS (EAP-TTLS) • Static and dynamic Wired Equivalent Privacy (WEP) • Temporal Key Integrity Protocol/Simple Security Network (TKIP/SSN) encryption • MAC authentication and filter • User database for survivable local authentication using LEAP and EAP-FAST • Configurable limit to the number of wireless clients • Configurable RADIUS accounting for wireless clients • Pre-Shared Keys (PSKs) (WPA-small office or home office [WPA-SOHO])	
Encrypted wireless VLANs	16	
Multiple Broadcast Service Set Identifiers (MBSSIDs)	16	
Online model comparison chart: http://www.cisco.com/en/US/products/ps10536/prod_series_comparison.html		

Cisco 1900 Series supports a wide range of modules that span an industry-leading breadth of services at the branch office. Please refer to the following link for the list of modules supported on the Cisco 1900: http://cisco.com/en/US/products/ps1900/products_relevant_interfaces_and_modules.html.

Selected Part Numbers and Ordering Information

Cisco 1900 Series Router	
CISCO1941/K9	Cisco 1941 w/2 GE, 2 EHWIC slots, 256MB CF,512MB DRAM,IP Base
CISCO1921/K9	CISCO 1921 Modular Router, 2 GE, 2 EHWIC slots, 256F/512D, IP Base
Cisco 1900 Series Wireless Bundles	
CISCO1941W-A-N-SEC/K9	Cisco 1941 Router w/ 802.11 a/b/g/n FCC Compliant WLAN ISM, SEC Lic
CISCO1941W-E-N-SEC/K9	Cisco 1941 Router w/ 802.11 a/b/g/n ETSI WLAN ISM, SEC Lic

CISCO1941W-A/K9	Cisco 1941 Router w/ 802.11 a/b/g/n FCC Compliant WLAN ISM
CISCO1941W-C/K9	Cisco 1941 Router w/802.11 a/b/g/n China Compliant WLAN ISM
CISCO1941W-E/K9	Cisco 1941 Router w/ 802.11 a/b/g/n ETSI Compliant WLAN ISM
CISCO1941W-P/K9	Cisco 1941 Router w/ 802.11 a/b/g/n Japan Compliant WLAN ISM
CISCO1941W-N/K9	Cisco 1941 Router w/802.11 a/b/g/n Aus, NZ Compliant WLAN ISM
CISCO1941/K9	Cisco 1941 w/2 GE, 2 EHWIC slots, 256MB CF,512MB DRAM,IP Base
CISCO1921/K9	CISCO 1921 Modular Router, 2 GE, 2 EHWIC slots, 256F/512D, IP Base Lic
Cisco 1900 Series Security Bundles	
CISCO1941-SEC/K9	Cisco 1941 Security Bundle w/SEC license PAK
Cisco1921-T1SEC/K9	Cisco 1921 SEC T1 Bundle incl. HWIC-1DSU-T1, 256F/512D, SEC Lic
CISCO1921-SEC/K9	CISCO 1921 Modular Router, 2 GE, 2 EHWIC slots, 256F/512D, SEC Lic
WAAS Express License for the Cisco 1941 Router	
FL-C1941-WAASX	WAAS Express Feature License for Cisco 1941
Cisco 1900 Series DSL Bundles	
C1921-4SHDSL/K9	CISCO 1921 ADSL Annex M, 3G HSPA Bundle, 256F/512D, SEC Lic
C1921-ADSL2-M/K9	Cisco 1921 ADSL2 Annex M Bundle, HWIC-1ADSL-M, 256F/512D, IP Base Lic
CISCO1921-ADSL2/K9	Cisco 1921 ADSL2+ Bundle, HWIC-1ADSL, 256F/512D, IP Base Lic
Cisco 1900 Services Ready Engine Bundles	
C1941-SEC-SRE/K9	Cisco 1941, SRE 300, SEC License PAK

For More Information

http://www.cisco.com/go/1900

Cisco 800 Series Integrated Services Routers



Cisco 800 Series Integrated Services Routers are fixed-configuration routers that provide collaborative business solutions for secure voice and data communication to small businesses and enterprise teleworkers. They offer concurrent broadband services over third-generation (3G), Metro Ethernet, and multiple DSL technologies to provide business continuity. Wireless 802.11n and 3G offer LAN and WAN mobility. The routers provide the performance required for concurrent services, including firewall, intrusion prevention, content filtering, and encryption for VPNs; optional 802.11g/n for mobility; and quality-of-service (QoS) features for optimizing voice and video applications. In addition, the web-based Cisco Configuration Professional configuration tool simplifies setup and deployment. Centralized management capabilities give network managers visibility and control of the network configurations at the remote site.

Ideal for Companies That Need These Features

Cisco 800

- Ethernet ports with VLAN support, Metro Ethernet support
- WAN connectivity, including Ethernet, SFP, multimode VDSL2/ADSL2/2+, G.SHDSL, 3G/3.5G/3.7G, ISDN Basic Rate Interface (BRI), and V.92
- Advanced security including Firewall, Intrusion Prevention, Content Filtering, Encryption for VPN, and ScanSafe support
- Wireless LAN (802.11 a/g/n) access points
- Quality of service (QoS) features for optimizing voice and video applications
- Unified Communications survivability (SRST) and Cisco Unified Border Element (CUBE) in a small form factor

Key Features and Benefits

Cisco 860 Series Integrated Services Routers offer:

- Concurrent broadband services for small offices, and remote sites
- Secure connectivity with Stateful Inspection Firewall and IP Security (IPSec) VPN support for small offices
- Security features including:
- Stateful Inspection Firewall
- P Security (IPSec) VPNs (Triple Data Encryption Standard [3DES] or Advanced Encryption Standard [AES])
- 4-port 10/100 Fast Ethernet managed switch with VLAN support
- CON/AUX port for console or external modem

- Secure 802.11g/n access point option based on IEEE 802.11n draft 2.0 standard with support for autonomous WLAN architecture
- Easy setup, deployment, and remote management capabilities through web-based tools and Cisco IOS® Software

Cisco 880 Series Integrated Services Routers offer:

- High performance for broadband access in small offices and small branch-office and teleworker sites
- Collaborative services with secure analog, digital voice, and data communication
- Business continuity and WAN diversity with redundant WAN links: Fast Ethernet, G.SHDSL, Multi-Mode VDSL2 and ADSL2/2+, 3G/3.5G/3.7G (including Embedded), and ISDN
- Survivable Remote Site Telephony (SRST) voice continuity for enterprise small branch-office and teleworker sites
- Cisco Unified Border Element (CUBE) IP-IP Voice gateway functionality for connecting to SIP trunking services as a replacement for PRI or FXO voice connectivity to the service provider.
- Up to 15 sessions of Cisco Unified Border Element (CUBE) IP-IP Voice gateway functionality for connecting to SIP trunking services as a replacement for PRI or FXO voice connectivity to the Service Provider.
- Enhanced security, including:
  - Firewall with advance application and control for email, instant messaging (IM), and HTTP traffic
  - Site-to-site remote-access and dynamic VPN services—IP Security (IPsec) VPNs (Triple Data Encryption Standard [3DES] or Advanced Encryption Standard [AES]), Dynamic Multipoint VPN (DMVPN), Group Encrypted Transport VPN with onboard acceleration, and Secure Sockets Layer (SSL) VPN
  - Intrusion prevention system (IPS)—An inline, deep-packet inspection feature that effectively mitigates a wide range of network attacks
  - Content filtering—A subscription-based integrated security solution that offers category-based reputation rating; keyword blocking; and protection against adware, malware, spyware, and URL blocking
- Four-port 10/100 Fast Ethernet managed switch with VLAN support; two ports support Power over Ethernet (PoE) for powering IP phones or external access points
- Secure 802.11g/n access point option based on draft 802.11n standard with support for autonomous or Cisco Unified WLAN architectures
- CON/AUX port for console or external modem
- One USB 1.1 port for security eToken credentials, booting from USB, loading configuration
- Easy setup, deployment, and remote-management capabilities through web-based tools and Cisco IOS® Software

Cisco 890 Series Integrated Services Routers are fixed-configuration routers that provide collaborative business solutions for secure voice and data communications to enterprise small branch offices. They are designed to deliver secure broadband, Metro Ethernet, wireless LAN (WLAN) connectivity, and business continuity. The routers also come with powerful management tools, such as the web-based Cisco Configuration Professional configuration management tool, which simplifies setup and deployment. Centralized management capabilities give network managers visibility and control of the network configurations at the remote site.

Cisco 890 Series Integrated Services Routers offer:

- High performance for secure broadband and Metro Ethernet access with concurrent services for enterprise small branch offices
- Business continuity and WAN diversity with redundant WAN links: SFP, Fast Ethernet, V.92, and ISDN Basic Rate Interface (BRI)
- Integrated secure 802.11a/g/n access point (optional) based on the 802.11n standard; dual-band radios for mobility and support for autonomous or Cisco Unified WLAN architectures
- Enhanced security including:
  - Firewall with advance application and control for email, instant messaging (IM), and HTTP traffic
  - Site-to-site remote-access and dynamic VPN services: IP Security (IPsec) VPNs (Triple Data Encryption Standard [3DES] or Advanced Encryption Standard [AES]), Dynamic Multipoint VPN [DMVPN], Group Encrypted Transport VPN [GET VPN] with onboard acceleration, and Secure Sockets Layer [SSL] VPN
  - Intrusion prevention system (IPS)—An inline, deep-packet-inspection feature that mitigates a wide range of network attacks
  - Content filtering—A subscription-based integrated security solution that offers category-based reputation rating, keyword blocking, and protection against adware, malware, spyware, and URL blocking
- WAN Optimization with WAAS Express
  - Cisco Wide Area Application Services (WAAS) Express, based on Cisco IOS Software and integrated into the Cisco 880 3G, 891, and 892 routers offers bandwidth optimization and application acceleration capabilities in a cost-effective solution
  - Fully integrated in Cisco IOS Software, with no additional hardware requirement (the maximum DRAM is needed in the router). This integration allows significant savings in capital expenditures (CapEx) by enabling a small-footprint branch-office deployment.
  - Increases remote user productivity, reduces WAN bandwidth costs, and offers investment protection by interoperating with existing Cisco WAAS infrastructure.
  - Uniquely provides network transparency, improving deployment flexibility with on-demand service enablement, and integrating with native Cisco IOS Software services such as security, NetFlow, and quality of service (QoS).
  - Fully interoperable with Cisco WAAS Modules for Services-Ready Engine (SRE) and Cisco WAAS appliances and can be managed by a common Cisco WAAS Central Manager.
  - Offers Context-Aware DRE for reduced latency and increased end-user experience.
  - Organizations can enable Cisco WAAS Express as an on-demand service on the router and can expand to the Cisco WAAS Modules for SRE or a dedicated Cisco WAAS appliance as business needs grow.
- An 8-port 10/100 Fast Ethernet managed switch with VLAN support and 4-port support for Power over Ethernet (PoE) (optional) to power IP phones or external access points
- Metro Ethernet features include:

- One 1000 BASE-T Gigabit Ethernet WAN port
- One 10/100 BASE-T Fast Ethernet WAN port
- Optional SFP port on 892F platform
- Intelligent hierarchical quality of service (HQoS): Supports hierarchical queuing and shaping
- Connectivity Fault Management (CFM), based on 802.1ag
- 802.3ah standard based Link operational administration and maintenance (OAM)
- Ethernet Local Management Interface (E-LMI) for the Customer Edge
- CFM Interworking and backwards compatibility
- Performance Management based on IP service-level agreement (SLA) for Ethernet

- Dedicated console and auxiliary ports for configuration and management
- Two USB 2.0 ports for security eToken credentials, booting, and loading configuration from USB
- Easy setup, deployment, and centralized and remote-management capabilities through web-based tools and Cisco IOS Software

Specifications

Feature	Cisco 861	Cisco 881	Cisco 886A/ 887VA	Cisco 888/ 888E	Cisco 891	Cisco 892/ 892F
Fixed LAN Port Connections	4-port 10/100 Ethernet switch	4-port 10/100 Ethernet switch	4-port 10/100 Ethernet switch	4-port 10/100 Ethernet switch	8-port 10/100 Ethernet switch	8-port 10/100 Ethernet switch
PoE	No	Optional 2-port	Optional 2-port	Optional 2-port	Optional 4-port	Optional 4-port
Fixed WAN Port Connections	1-port 10/100 Ethernet	1-port 10/100 Ethernet	887VA: 1-port Multi-mode VDSL2 and ADSL2/2+, annex A 887VA-M: 1-port Multi-mode VDSL2 and ADSL2/2+, annex M 886VA: 1-port Multi-mode VDSL2 and ADSL2/2+, annex B	888: 1-port G.SHDSL (ATM mode) 888E: 1-port G.SHDSL (EFM mode)	1-port 10/100 Ethernet, 1-port GE	1-port 10/100 Ethernet, 1-port GE; Ethernet, 1-port GE or SFP (892F model only)
Wireless LAN	IEEE 802.11 b/g/n ("W" model)	IEEE 802.11 b/g/n ("W" model)	IEEE 802.11 b/g/n ("W" model)	IEEE 802.11 b/g/n ("W" model)	IEEE 802.11 a/b/g/n ("W" model)	IEEE 802.11 a/b/g/n ("W" model)
3G	No	Yes ("G" model)	Yes ("G" model)	Yes ("G" model)	No	No
ISDN BRI	No	No	886VA model only)	Yes	No	Yes
V.92 modem	No	No	No	No	Yes	No
4-port FXS	No	Yes ("SRST" model)	No	Yes ("SRST" model)	No	No
FXO	No	Yes ("SRST" model)	No	No	No	No
Voice BRI	No	No	No	Yes ("SRST" model)	No	No
SIP IP-to-IP Trunking	No	Yes ("CUBE" model)	Yes ("CUBE" model)	Yes ("CUBE" model)	No	Yes ("CUBE" model)
Maximum VPN Tunnels	5	20	20	20	50	50
Content Filtering	No	Yes	Yes	Yes	Yes	Yes
Stateful Firewall	Yes	Yes	Yes	Yes	Yes	Yes
Inline IPS	No	Yes	Yes	Yes	Yes	Yes
ScanSafe Connector	No	Yes	Yes	Yes	Yes	Yes
WAN Optimization with WAAS Express	No	No	No	No	Yes	Yes
Optimized TCP Connections with WAAS Express					75	75

WAN Capacity with WAAS Express					1.5 Mbps	2 Mbps
DRAM Required for WAAS Express					768 MB	768 MB

Online model comparison chart: http://www.cisco.com/en/US/products/hw/routers/ps380/prod_models_comparison.html

Selected Part Numbers and Ordering Information

CISCO861W-GN-A-K9, E-K9, P-K9	Cisco 861 Ethernet Security Router 802.11n (Americas-A, Europe-E. Japan-P)
CISCO881-SEC-K9	Cisco 881 Ethernet Sec Router w/ Adv IP Services
CISCO881W-GN-A-K9, E-K9, P-K9	Cisco 881 Ethernet Security Router 802.11n (Americas-A, Europe-E. Japan-P)
CISCO881GW-GN-A-K9, E-K9	Cisco 881 Ethernet Security Router with 3G, 802.11n (Americas-A, Europe-E)
CISCO881G-A-K9	Cisco 881G FE Sec Router with Adv IP Serv, 3G N. America GSM/HSPA
CISCO881G-G-K9	Cisco 881G FE Sec Router with Adv IP Serv, 3G N. Global GSM/HSPA
CISCO881G-S-K9	Cisco 881G FE Sec Router bundle with Adv IP Serv, 3G Sprint
CISCO881G-V-K9	Cisco 881G FE Sec Router bundle with Adv IP Serv, 3G Verizon
C881G+7-K9	Secure Router with WAN FE and Embedded 3.7G HSPA+ Release 7 with SMS/GPS
C881G+7-A-K9	Secure Router with WAN FE and Embedded 3.7G HSPA+ Release 7 with SMS/GPS for AT&T networks
C881G-U-K9	Cisco 881G FE Sec Router with Adv IP Serv, 3.5G Global (non-US) GSM/HSPA
C881G-V-K9	Cisco 881G FE Sec Router with Adv IP Serv, 3G Verizon CDMA EV-DO Rev A
C881G-S-K9	Cisco 881G FE Sec Router bundle with Adv IP Serv, 3G Sprint CDMA EV-DO Rev A
C881G-V-K9	Cisco 881G FE Sec Router bundle with Adv IP Serv, 3G BSNL CDMA EV-DO Rev A
CISCO887V-SEC-K9	Cisco 887 VDSL2 over POTS Sec Router w/ ISDN B/U, Adv IP Services
CISCO886VA-K9	Cisco 886VA router with VDSL2/ADSL2+ over ISDN
C886VAG+7-K9	Secure Router with VDSL2/ADSL2+ over ISDN and Embedded 3.7G HSPA+ Release 7 with SMS/GPS
CISCO886VA-SEC-K9	Cisco 886VA Secure router with VDSL2/ADSL2+ over ISDN
CISCO887VA-K9	Cisco 887VA router with VDSL2/ADSL2+ over POTS
C887VAG+7-K9	Secure Router with VDSL2/ADSL2+ over ISDN and Embedded 3.7G HSPA+ Release 7 with SMS/GPS
C887VAG-S-K9	Secure Router with Raiders VDSL2/ADSL2+ over POTS (Annex M) and Embedded 3.7G HSPA+ Release 7 with GPS
CISCO887VA-SEC-K9	Cisco 887VA Secure router with VDSL2/ADSL2+ over POTS
CISCO887VA-M-K9	Cisco 887VA Annex M router
C887VAMG+7-K9	Secure Router with Raiders VDSL2/ADSL2+ over POTS (Annex M) and Embedded 3.7G HSPA+ Release 7 with GPS
CISCO888GW-G-AN-K9, EN-K9	Cisco 888 G.SHDSL Wireless Router with 3G; 802.11n (Americas-A, Europe-E)
CISCO888EW-GN-E-K9	Cisco 888E G.SHDSL Router with 802.11n ETSI Compliant and 802.3ah EFM Support
C888EG+7-K9	Secure Router with Ethernet over G.SHDSL (EFM) and Embedded 3.7G HSPA+ Release 7 with SMS/GPS
C881-CUBE-K9	Cisco 881 Ethernet Security Router with integrated CUBE Licenses
C886VA-CUBE-K9	Cisco 886VA Secure router with VDSL2/ADSL2+ over ISDN and integrated CUBE licenses
C887VA-CUBE-K9	Cisco 887VA router with VDSL2/ADSL2+ over ISDN and integrated CUBE licenses
C888-CUBE-K9	Cisco 888 G.SHDSL Router with integrated CUBE licenses
C888E-CUBE-K9	Cisco 888E G.SHDSL Router with 802.3ah EFM Support and integrated CUBE licenses
C892F-CUBE-K9	Cisco 892F SFP Gigabit Ethernet Security Router and integrated CUBE licenses
C881SRSTW-GN-A-K9, E-K9	Cisco 881 SRST Ethernet Security Router with FXS, FXO; 802.11n (Americas-A, Europe-E)

C888SRSTW-GN-A-K9, E-K9	Cisco 881 SRST Ethernet Security Router with FXS, BRI; 802.11n (Americas-A, Europe-E)
CISCO891W-AGN-A-K9, N-K9	Cisco 891W Gigabit Ethernet Security Router w/ 802.11n (Americas-A, Australia-N)
CISCO892W-AGN-E-K9	Cisco 892W Gigabit Ethernet Security Router w/ 802.11n ETSI Comp

For More Information

http://www.cisco.com/go/800

WAN Routers

Cisco 7600 Series Routers



The Cisco 7600 Series Routers combine optical WAN and metropolitan-area network (MAN) networking and high-volume Ethernet aggregation with a focus on the delivery of high-touch services for the IP and Multiprotocol Label Switching (MPLS) edge. These routers combine Layer 2 and Layer 3 networking capabilities with a high-bandwidth, high-performance architecture, including hardware-based forwarding of Multiprotocol Label Switching (MPLS), IPv4, and IPv6. Cisco 7600 Series form factors include the Cisco 7603-S, 7604, 7606-S, 7609-S, and 7613 models. Each router can deliver DS-0 to OC-192 WAN and n x 10-Mbps Ethernet to n x 10-Gigabit Ethernet connectivity into service provider edge, MAN, and enterprise networks for a variety of quad-play (data, voice, video, and mobile) and aggregation solutions. All Cisco 7600 Series Routers comply with Network Equipment Building Standards (NEBS) and have a 30-Mpps forwarding rate.

Ideal for Companies That Need These Features

Cisco 7603	• Three-slot (horizontal) chassis; 320-Gbps backplane bandwidth
Cisco 7604	• Four-slot (horizontal) chassis; 320-Gbps backplane bandwidth
Cisco 7606	• Six-slot (horizontal) chassis; 480-Gbps backplane bandwidth
Cisco 7609	• Nine-slot (vertical) chassis; 720-Gbps backplane bandwidth
Cisco 7613	• Thirteen-slot (horizontal) chassis; 720-Gbps backplane bandwidth

Key Features and Benefits

- Cisco 7600 Series Routers provide up to 30-Mpps central or up to 400-Mpps distributed forwarding with hardware-accelerated IPv4, IPv6, and Multiprotocol Label Switching (MPLS).
- The modular routers are scalable from 32- to 720-Gbps switch fabric.
- These routers represent one of the widest, most complete ranges of WAN interfaces in the industry, with DS-0 to OC-192 connectivity.
- Using the Cisco 7600 Series/Catalyst 6500 Series Enhanced FlexWAN Module, Cisco 7000 Series port adapters are shared with the Cisco 7200, 7300, 7400, and 7500 models, simplifying sparing and protecting customer investment in interfaces.
- Cisco 7600 Series Routers support many Cisco Catalyst 6500 LAN interfaces, offering n x 10-Mbps Ethernet to 10 Gbps.

Specifications

Feature	Cisco 7603	Cisco 7604	Cisco 7606	Cisco 7609	Cisco 7613
Fixed Ports	SFP & 10/100/1000 (Sup720)	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
Expansion Slots	3 (horizontal)	4 (horizontal)	6 (horizontal)	9 (vertical)	13 (horizontal)
WAN Interface Range	DS0 to OC-192	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
Processor	Supervisor720-3B Supervisor720-3BXL Supervisor 32 RSP720-3C RSP720-3CXL RSP720-10G-3C RSP720-10G-3CXL	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
Forwarding Rate	Up to 30 Mpps	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
Backplane Capacity	240 Gbps	320 Gbps	480 Gbps	720 Gbps	720 Gbps

Flash PCMCIA Memory	up to 512MB on Sup720 up to 1 G on RPS720	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
System DRAM Memory	512 MB on Sup720-3B 1G on Sup720-3BXL 1G on RSP720-3C 2G on RSP720-3CXL	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
Internal Power Supply	AC or DC	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
RPS Support	Yes	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
Chassis Height	4 RU	5 RU	7 RU	20 RU	18 RU
Rack Mountable	Yes, up to 11 per rack	Yes, up to 10 per rack	Yes, up to 6 per rack	Yes, up to 2 per rack	Yes, up to 2 per rack
Dimensions (H x W x D)	7 x 17.37 x 20.3 in.	7 x 17.37 x 21.75 in.	12.25 x 17.37 x 21.75 in.	36.75 x 17.2 x 20.7 in.	33.3 x 17.2 x 18.1 in.
Online model comparison chart: http://www.cisco.com/en/US/products/hw/routers/ps368/prod_models_comparison.html					

Selected Part Numbers and Ordering Information

Cisco 7613 Systems	
7613-RSP720C-P	Cisco 7613 Chassis,13-slot, RSP720-3C, PS
7613-RSP720CXL-P	Cisco 7613 Chassis,13-slot, RSP720-3CXL, PS
7613-RSP720CXL-R	Cisco 7613 Chassis,13-slot, Redundant System, 2RSP720-3CXL, 2PS
7613-RSP720C-R	Cisco 7613 Chassis,13-slot, Redundant System, 2RSP720-3C, 2PS
7613-RSP7C-10G-P	Cisco 7613 Chassis,13-slot, RSP720-3C-10GE, PS
7613-RSP7XL-10G-P	Cisco 7613 Chassis,13-slot, RSP720-3CXL-10GE, PS
7613-RSP7XL-10G-R	Cisco 7613 Chassis,13-slot, Red System, 2RSP720-3CXL-10GE, 2PS
7613-RSP7C-10G-R	Cisco 7613 Chassis,13-slot, Red System, 2RSP720-3C-10GE, 2PS
CISCO7613	Cisco 7613 Chassis
7613-2SUP720XL-2PS	Cisco 7613 13-slot, Redundant System, 2 SUP720-3BXL and 2 PS
7613-SUP7203B-PS	Cisco 7613 Chassis, 13-slot, SUP7203B, Power Supply
7613-SUP720XL-PS	Cisco 7613 13-slot, SUP720-3BXL and PS
7613-S323B-10G-P	Cisco 7613 Chassis, 13-slot, SUP32-2X10GE-3B, PS
7613-S323B-10G-R	Cisco7613 Chassis,13-slot, Redundant SUP32-2X10GE-3B and PS
7613-S323B-8G-P	Cisco 7613 Chassis, 13-slot, SUP32-8GE-3B, PS
7613-2SUP7203B-2PS	Cisco 7613 Chassis, 13-slot, 2 SUP7203B, 2 Power Supply
Cisco 7609 Systems	
CISCO7609-S	Cisco 7609-S Chassis including fans
7609S-RSP720C-P	Cisco 7609S Chassis, 9-slot, RSP720-3C, PS
7609S-RSP720CXL-P	Cisco 7609S Chassis, 9-slot, RSP720-3CXL, PS
7609S-RSP720CXL-R	Cisco 7609S Chassis, 9-slot, Redundant System, 2RSP720-3CXL, 2PS
7609S-RSP720C-R	Cisco 7609S Chassis, 9-slot, Redundant System, 2RSP720-3C, 2PS
7609S-S32-8G-B-P	Cisco 7609S Chassis, 9-slot, SUP32-8GE-3B, PS
7609S-S32-10G-B-P	Cisco 7609S Chassis, 9-slot, SUP32-2X10GE-3B, PS
7609S-S32-8G-B-R	Cisco 7609S Chassis, 9-slot, Redundant SUP32-8GE-3B, PS
7609S-S32-10G-B-R	Cisco 7609S Chassis, 9-slot, Redundant SUP32-2X10GE-3B, PS
7609S-SUP720B-P	Cisco 7609S Chassis, 9-slot, SUP720-3B, PS
7609S-SUP720BXL-P	Cisco 7609S Chassis, 9-slot, SUP720-3BXL, PS

7609S-SUP720B-R	Cisco 7609S Chassis, 9-slot, Redundant System, 2SUP720-3B, 2PS
7609S-SUP720BXL-R	Cisco 7609S Chassis, 9-slot, Redundant System, 2SUP720-3BXL, 2PS
7609S-RSP7XL-10G-R	Cisco 7609S Chassis, 9-slot, Red System, 2RSP720-3CXL-10GE, 2PS
7609S-RSP7C-10G-P	Cisco 7609S Chassis, 9-slot, RSP720-3C-10GE, PS
7609S-RSP7XL-10G-P	Cisco 7609S Chassis, 9-slot, RSP720-3CXL-10GE, PS
7609S-RSP7C-10G-R	Cisco 7609S Chassis, 9-slot, Red System, 2RSP720-3C-10GE, 2PS
Cisco 7606 Systems	
CISCO7606-S	Cisco 7606-S Chassis
7606S-RSP720C-R	Cisco 7606S Chassis,6-slot, Redundant System, 2RSP720-3C, 2PS
7606S-RSP720CXL-P	Cisco 7606S Chassis,6-slot, RSP720-3CXL, PS
7606S-RSP720CXL-R	Cisco 7606S Chassis,6-slot, Redundant System, 2RSP720-3CXL, 2PS
7606S-S32-10G-B-P	Cisco 7606S Chassis,6-slot, SUP32-2X10GE-3B, PS
7606S-S32-10G-B-R	Cisco 7606S Chassis,6-slot, Redundant SUP32-2X10GE-3B, PS
7606S-S32-8G-B-R	Cisco 7606S Chassis,6-slot, Redundant SUP32-8GE-3B, PS
7606S-SUP720B-P	Cisco 7606S Chassis,6-slot, SUP720-3B, PS
7606S-SUP720B-R	Cisco 7606S Chassis,6-slot, Redundant System, 2SUP720-3B, 2PS
7606S-SUP720BXL-P	Cisco 7606S Chassis,6-slot, SUP720-3BXL, PS
7606S-SUP720BXL-R	Cisco 7606S Chassis,6-slot, Redundant System, 2SUP720-3BXL, 2PS
7606S-RSP720C-P	Cisco 7606S Chassis,6-slot, RSP720-3C, PS
7606S-S32-8G-B-P	Cisco 7606S Chassis,6-slot, SUP32-8GE-3B, PS
7606S-RSP7C-10G-P	Cisco 7606S Chassis,6-slot, RSP720-3C-10GE, PS
7606S-RSP7XL-10G-P	Cisco 7606S Chassis,6-slot, RSP720-3CXL-10GE, PS
7606S-RSP7XL-10G-R	Cisco 7606S Chassis,6-slot, Red System, 2RSP720-3CXL-10GE, 2PS
7606S-RSP7C-10G-R	Cisco 7606S Chassis,6-slot, Red System, 2RSP720-3C-10GE, 2PS
Cisco 7604 Systems	
7604-RSP720C-P	Cisco 7604 Chassis,4-slot, RSP720-3C, PS
7604-RSP720C-R	Cisco 7604 Chassis,4-slot, Redundant System, 2RSP720-3C, 2PS
7604-RSP720CXL-P	Cisco 7604 Chassis,4-slot, RSP720-3CXL, PS
7604-RSP720CXL-R	Cisco 7604 Chassis,4-slot, Redundant System, 2RSP720-3CXL, 2PS
7604-RSP7C-10G-P	Cisco 7604 Chassis,4-slot, RSP720-3C-10GE, PS
7604-RSP7C-10G-R	Cisco 7604 Chassis,4-slot, Red System, 2RSP720-3C-10GE, 2PS
7604-RSP7XL-10G-P	Cisco 7604 Chassis,4-slot, RSP720-3CXL-10GE, PS
7604-RSP7XL-10G-R	Cisco 7604 Chassis,4-slot, Red System, 2RSP720-3CXL-10GE, 2PS
7604-SUP720XL-PS	Cisco 7604 chassis, 4-slot, SUP720-3BXL, PS
7604-2SUP720XL-2PS	Cisco 7604 Chassis, 4-slot, 2SUP720-3BXL, 2 PS
CISCO7604	Cisco 7604 Chassis
7604-SUP7203B-PS	Cisco 7604 Chassis, 4-slot, SUP720-3B, PS
7604-2SUP7203B-2PS	Cisco 7604 Chassis, 4-slot, 2 SUP720-3B, 2 PS
7604-S323B-8G-P	Cisco 7604 Chassis, 4-slot, SUP32-8GE-3B, PS
7604-S323B-8G-R	Cisco 7604 Chassis, 4-slot, Redundant SUP32-8GE-3B and PS
7604-S323B-10G-R	Cisco 7604 Chassis, 4-slot, Redundant SUP32-2X10GE-3B and PS
7604-S323B-10G-P	Cisco 7604 Chassis, 4-slot, SUP32-2X10GE-3B, PS
7604-PS-CVR=	Cisco 7604 Power Supply Cover (Spare)
Cisco 7603 Systems	

7603S-S32-10G-B-P	Cisco 7603S Chassis, 3-slot, SUP32-2X10GE-3B, PS
7603S-S32-8G-B-P	Cisco 7603S Chassis, 3-slot, SUP32-8GE-3B, PS
CISCO7603-S	Cisco 7603-S Chassis
7603S-RSP720C-P	Cisco 7603S Chassis, 3-slot, RSP720-3C, PS
7603S-RSP720C-R	Cisco 7603S Chassis, 3-slot, Redundant System, 2RSP720-3C, 2PS
7603S-RSP720CXL-P	Cisco 7603S Chassis, 3-slot, RSP720-3CXL, PS
7603S-RSP720CXL-R	Cisco 7603S Chassis, 3-slot, Redundant System, 2RSP720-3CXL, 2PS
7603S-S32-10G-B-R	Cisco 7603S Chassis, 3-slot, Redundant SUP32-2X10GE-3B, PS
7603S-S32-8G-B-R	Cisco 7603S Chassis, 3-slot, Redundant SUP32-8GE-3B, PS
7603S-SUP720B-P	Cisco 7603S Chassis, 3-slot, SUP720-3B, PS
7603S-SUP720B-R	Cisco 7603S Chassis, 3-slot, Redundant System, 2SUP720-3B, 2PS
7603S-SUP720BXL-P	Cisco 7603S Chassis, 3-slot, SUP720-3BXL, PS
7603S-RSP7C-10G-P	Cisco 7603S Chassis, 3-slot, RSP720-3C-10GE, PS
7603S-RSP7C-10G-R	Cisco 7603S Chassis, 3-slot, Red System, 2RSP720-3C-10GE, 2PS
7603S-RSP7XL-10G-P	Cisco 7603S Chassis, 3-slot, RSP720-3CXL-10GE, PS
7603S-RSP7XL-10G-R	Cisco 7603S Chassis, 3-slot, Red System, 2RSP720-3CXL-10GE, 2PS

For More Information

http://www.cisco.com/go/7600

Cisco 7300 Series Routers



The Cisco 7301 is targeted at principal application areas within a service provider network in a compact, single-rack form factor coupled with a broad set of interfaces and Cisco IOS Software features. It packs high performance of up to 1 Mpps in a space- and power-efficient form factor that includes a single Cisco 7000 Series port adapter slot and 3 onboard Gigabit Ethernet (copper or optical) or Fast Ethernet ports.

Ideal for Companies That Need These Features

Cisco 7301

- Compact, power-efficient 1RU form factor
- Single Cisco 7000 Series port adapter slot

Key Features and Benefits

- 1 Mpps processing performance
- Pluggable Gigabit Ethernet optics (Small Form-Factor Pluggables [SFPs])
- Three fixed 10-/100-/1000-Mbps ports (RJ-45 or SFP optics) directly on the processor
- Full Cisco IOS Software feature support
- Up to 1 GB of available DRAM; up to 256 MB of removable Compact Flash memory
- Front-to-back airflow and single-sided management

Specifications

Feature	Cisco 7301
Fixed Ports	Three Gigabit Ethernet ports
Expansion Slots	1
WAN Interface Range	DS-1 to OC-3
Forwarding Rate	Up to 1 Mpps
Backplane Capacity	1.2 Gbps
Flash PCMCIA Memory	64 MB (expandable to 256 MB)
System DRAM Memory	512 MB (expandable to 1 GB)
Min Cisco IOS Release	12.2(11)YZ
Internal Power Supply	AC or DC
RPS Support	Yes, for AC or DC

Chassis Height	1 RU
Rack Mountable	Yes, up to 40 per rack
Dimensions (H x W x D)	1.73 x 17.3 x 13.87 in. (4.39 x 43.94 x 35.23 cm.)

Selected Part Numbers and Ordering Information

Cisco 7301 System	
CISCO7301=	Cisco 7301 chassis, 512 MB memory, A/C power,64MB Flash
CISCO7301-BB	Cisco7301,512MB Mem,16K license,64MB Flash, A/C power, IP/IOS
CISCO7301-BB-8K	Cisco 7301, 512M SDRAM, 8K Sub Broadband Feature License
CISCO7301BB-1G	Cisco 7301, 1 G Mem,64MB FI, AC Pwr, IP IOS, up to 16k sub BBA lic
CISCO7301BB-8K-1G	Cisco 7301,1 G Mem, 64MB FI, AC Pwr, IP IOS, up to 8k sub BBA lic
CISCO7301/ITP/BUN	Cisco ITP Signaling Gateway Bundle
CISCO7301/2+VPNK9	Cisco 7301, VAM2+, AC pwr, 512 sys mem, SDM

For More Information

http://www.cisco.com/go/7300

Cisco 7200 Series Routers



The Cisco 7200 Series Routers (Cisco 7201, Cisco 7204VXR, and Cisco 7206VXR) deliver an exceptional price-to-performance ratio, versatility, and feature richness in a compact form factor. The Cisco 7200 is an optimized integrated services aggregation OC-3/Gigabit Ethernet edge router that is ideal as a WAN aggregator for the service provider (small point of presence [POP]) or enterprise edge, as an enterprise WAN gateway, as high-end managed customer premises equipment (CPE), for IBM data center connectivity, or as a small core router. With the hardware-supported IP Security (IPSec) encryption module as well as robust firewall and Virtual Route Forwarding (VRF)-aware IPSec with Network Address Translation (NAT) support, the Cisco 7200 Series is ideal for integrated security services. The Cisco 7200 also supports gatekeeper and IP-to-IP gateway functions. Modularity combined with a low initial price point helps guarantee both investment protection and maximum return on investment, allowing customers to upgrade or redeploy their Cisco 7200 Series Router as their network needs change.

Ideal for Companies That Need These Features

Cisco 7201

- 1-slot chassis
- Built-in NPE-G2 Network Processing Engine with up to 2 Mpps
- WAN services aggregation (for example, Multiprotocol Label Switching [MPLS] provider edge traffic segmentation)
- Integrated edge services (for example, integrated security)
- Multiservice Interchange (MIX)-enabled bus for data, voice, and video applications

Cisco 7204VXR

- 4-slot chassis
- Modular processor, 1 Mpps, or 2 Mpps (Cisco NPE-G1, and Cisco NPE-G2 Network Processing Engines)
- 1.8-Gbps backplane
- WAN services aggregation (for example, MPLS provider edge traffic segmentation)
- Integrated edge services (for example, integrated security)
- MIX-enabled bus for data, voice, and video applications

Cisco 7206VXR

- All the features of the Cisco 7204VXR Router in a 6-slot chassis

Key Features and Benefits

- Compact form factor—The router offers up to six port adapters in a fully modular 3RU form factor; seven port adapters with a port adapter jacket card; choice of a 1-slot, and a 1RU chassis with built-in Cisco NPE-G2.
- Modularity—The router has choices of 1-, 4-, and 6-slot chassis, a selection of processors providing up to 2 Mpps, an extensive range of LAN and WAN interfaces with up to 48 ports per chassis, and single or dual power supplies. Chassis are expandable to an additional slot by using an I/O slot as a port or service adapter slot by using the port adapter jacket card.
- Exceptional value—The router offers superior price-to-performance ratio supporting high-speed media and high-density configurations with up to 2 million packets per second processing at a competitive price point.
- Feature richness—The router supports Cisco IOS Software and enhancements for high-performance network services. It offers industry-leading network services, including MPLS; route reflectors; broadband aggregation; the Cisco IOS Intelligent Services Gateway; QoS; service management; IBM data center; storage-area-network application; security; voice, video, and data support; and gatekeeper and IP-to-IP gateway (session border controller) support.

- Connectivity and flexibility—The router provides high port density and an extensive range of LAN and WAN media.
- Common port adapters—Port adapters are shared with the Cisco 7300 and 7600 Series (with the Cisco FlexWAN Module), simplifying sparing and protecting customer investment in interfaces.
- IP-to-IP gateway—Highest capacity of call support in Cisco router portfolio

Specifications

Feature	Cisco 7201	Cisco 7204VXR	Cisco 7206VXR
Fixed Ports	4 GEs	0	0
Expansion Slots	1	4 (5 with port adapter jacket card[1] utilizing the I/O slot)	6 (7 with port adapter jacket card utilizing the I/O slot)
WAN Port Adapters	DS0 to OC-3	DS0 to OC-3	Same as 7204VXR
Forwarding Rate	Up to 2 Mpps	Up to 2 Mpps	Up to 2 Mpps
Backplane Capacity	N/A	1.8 Gbps (with NPE-G2)	Same as 7204VXR
Flash (Compact) Memory	256 MB (default and max.)	For NPE-G2: 256 MB (default and max.) For NPE-G1: 64 MB (expandable to 256 MB)	Same as 7204VXR
System DRAM Memory	1 GB (default); 2 GB (max.)	NPE-G2: 1 GB (default); 2 GB (max.) NPE-G1: 512 MB (default); 1 GB (max.)	Same as 7204VXR
Minimum Cisco IOS Release	12.4(4)XD7 12.2(31)SB4 12.4(15)T	NPE-G2: 12.4(4)XD; 12.4(15)T; 12.2(31)SB4 (and later) NPE-G1: 12.2(4)BW, 12.2(15)B, 12.2(14)S, 12.2(14)SU, 12.2(15)T, 12.1(14)E, 12.3(1), 12.3(2)T, 12.0(28)S, 12.3(1a)B (and later);	Same as 7204VXR
Internal Power Supply	Dual AC or Dual DC – By default	AC or DC, dual option	Same as 7204VXR
Redundant Power Supply	Yes, Dual AC or DC by default	Yes, for AC or DC	Same as 7204VXR
Chassis Height	1 RU	4 RU	6 RU
Rack Mountable	Yes	Yes, up to 16 per rack	Same as 7204VXR
Dimensions (H x W x D)	1.75 x 19 x 16.9 in.	5.25 x 16.8 x 17 in.	10.5 x 16.8 x 17 in.
Online model comparison chart: http://www.cisco.com/en/US/products/hw/routers/ps341/prod_models_comparison.html			

1. Jacket Card par t number: C7200-JC-PA

Selected Part Numbers and Ordering Information

Cisco 7200 Series Chassis	
CISCO7201	Cisco 7201 router, with built-in dual power supplies, NPE-G2, and IP Software
Cisco 7200 NPE Bundles	
7206VXR/NPE-G2	Cisco 7206VXR with NPE-G2 includes 3GigE/FE/E Ports and IP SW
7206VXR/NPE-G1	Cisco 7206VXR with NPE-G1 includes 3GigE/FE/E Ports and IP SW
Cisco 7200 MPLS/IPv6 Bundles	
7206-IPV6/ADSVC/K9	Cisco 7206VXR IPv6/Adv. Ent. Services with NPE-G2
Cisco 7200 Security Bundles	
7206VXRG2/VSAVPNK9	Cisco 7206VXR chassis, NPE-G2, C7200-VSA Security Module, 256 MB Flash, 1GB DRAM, IOS ADVANCED SECURITY, SDM
7206VXRG2/2+VPNK9	Cisco 7206VXR NPE-G2 Bundle with Advanced Security IOS, 3 FE/GE, 64 MB Flash/1 GB DRAM, VAM2+
7206VXRG1/2+VPNK9	Cisco 7206VXR, NPE-G1, SA-VAM2+, AC pwr, 512 sys mem, SDM
Cisco 7200 Broadband Bundles	
CISCO7206-BB	Cisco 7206 Broadband Bundle NPE-G1 includes 3GigE/FE/E Ports
Cisco 7200 Channel Bundles	
CISCO7204VXR-CH	Cisco 7204VXR, 4-slot chassis, 1 AC Supply w/ IP Software
CISCO7206VXR-CH	Cisco 7206VXR, 6-slot chassis, 1 AC Supply w/IP Software

Cisco 7200 MPLS/IPv6 Bundles	
7206-IPV6/ADSVC/K9	Cisco 7206VXR IPv6/Adv. Ent. Services with NPE-G2

For More Information

http://www.cisco.com/go/7200

Service Provider Core/Edge Routers

Cisco Carrier Routing System (CRS)



The Cisco Carrier Routing System (CRS) provides industry-leading performance, advanced services intelligence, environmentally aware design, and system longevity. Each model uses Cisco IOS XR Software, a unique self-healing, distributed operating system.

Models include:

- Cisco CRS-3, powered by Cisco QuantumFlow Array, a chipset architecture engineered in multiple dimensions of scale, services, and savings
- Cisco CRS-1, built on the Cisco Silicon Packet Processor (SPP)

Packet-based data communications are being replaced by video and rich media crossing the IP Next-Generation Network (NGN) in multiple directions. As part of a medianet, a media-aware Cisco IP NGN, Cisco CRS eases this strain on networks. It efficiently handles the multidirectional traffic of network and data center cloud interactions.

The Cisco CRS:

- Delivers continuous operations, with high performance single-flow line-rate forwarding
- Scales easily from numerous single-chassis form factors to a massive multichassis system, up to 322 Tbps
- Provides industry-leading efficiency, requiring low power, cooling, and rack-space use for intelligent, service-rich bandwidth capacity

Cisco CRS-3 models build on the CRS-1 models' backward and forward compatibility, protecting your existing and future investments for decades to come.

The Cisco CRS includes two major elements, line card shelves and fabric shelves, combinations of which allow the system to scale from four 40-Gbps or 140-Gbps slots to as many as 1152 40-Gbps or 140-Gbps slots in 72 line card shelves interconnected using eight fabric shelves, all operating as a single system.

- Cisco CRS 16-Slot Single-Shelf System—A single, 16-slot line card shelf with total switching capacity of 1.2 Tbps (40-Gbps/slot) or 4.48 Tbps (140-Gbps/slot); built from a 16-slot line card chassis featuring a midplane design
- Cisco CRS 8-Slot Single-Shelf System—A single, 8-slot line card shelf with total switching capacity of 640 Gbps (40-Gbps/slot) or 2.24 Tbps (140-Gbps/slot); built from an 8-slot line card chassis featuring a midplane design
- Cisco CRS 4-Slot Single-Shelf System—A single, 4-slot line-card shelf with total switching capacity of 320 Gbps (40-Gbps/slot) or 1.12 Tbps (140-Gbps/slot); built from a 4-slot line card chassis featuring a midplane design
- Cisco CRS-1 Multishelf System—Two to 72 line card shelves and 1 to 8 fabric shelves with a total switching capacity of up to 92 Tbps (40-Gbps/slot) or 322 Tbps (140-Gbps/slot); shelves are connected only to the fabric-card shelves where stage 2 of the three-stage switching is performed

Key Features and Benefits

- Delivery of differentiated voice, video, and data with mobility and business services with better quality of service (QoS) and performance
- Flexible functionality integrated in a single platform: rich services' processing, high performance packet routing, efficient label switching, optimized optical transport
- Multicast traffic replicated in the fabric for efficient broadcast video applications
- Optical Transport (ITU G.709) integration with IP-over-DWDM (IPoDWDM) technology
- Intelligence for Data-Center Cloud interaction with Network Positioning System (NPS) technology
- Rich IPv6 support including dual-stack, translation/tunneling techniques with Carrier-Grade IPv6 (CGv6)
- Wire-rate line card integrated application performance monitoring, including for video
- Hardware-accelerated Operations, Administration and Performance (OAM)
- Consolidation of multiple networks into a single platform using secure domain routers (SDRs) while maintaining hardware and software isolation
- Dedicated 8-KB ingress and egress queues on the line cards for superior performance
- Isolation of different classes of services to deliver high-quality voice, video, and premium traffic
- Granular process-level In Service Software Upgrades (ISSUs)
- Non-service affecting online insertion and removal (OIR) of all components to reduce downtime
- Cisco Nonstop Forwarding (NSF) and Stateful Switchover (SSO) to eliminate single points of failure without service interruption, forwarding continues before, during, and after a route-processor switchover
- In-service, non-disruptive scaling from a single chassis to multiple chassis
- Shared port adapters (SPAs) and SPA interface processors (SIPs) to preserve hardware investment across Cisco platforms, including the Cisco 12000, 7600, and 7300 Series Routers

- Interchangeable interfaces between Cisco CRS and a range of other Cisco platforms

Specifications

Feature	16 slot Single-Shelf System	8 slot Single-Shelf System	4 slot Single-Shelf System	Fabric Card Chassis
Design Slots	Midplane design	Midplane design	Midplane design	Midplane design
	Line card: 16 x 40-Gbps/140-Gbps slots Switch Fabric Card: 8 dedicated slots Route Processor: 2 dedicated slots Fan Controller: 2 dedicated slots	Line card: Eight 40-Gbps/ 140-Gbps slots Switch-fabric card: 4 dedicated slots Route processor: 2 dedicated slots Fan tray: 2 fan trays	Line card: 40-Gbps/ 140-Gbps slots Switch fabric card: 4 dedicated slots Route processor: 2 dedicated slots Fans: 4 fans, 1 fan tray	Switch Fabric Card: 24 slots Shelf Controller: 2 dedicated slots
Full-Duplex Throughput	1280 Gbps (40-Gbps/ slot) 4480 Gbps (140-Gbps/slot)	640 Gbps(40-Gbps/ slot) 2240 Gbps (140-Gbps/slot)	320 Gbps (40-Gbps/ slot) 1120 Gbps (140-Gbps/slot)	
Power	Maximum DC power needed when chassis is fully configured with line cards with traffic running: 10.92kW Chassis power supply maximum DC output: 13.2kW	Maximum DC power needed when chassis is fully configured with line cards with traffic running: 5992W Chassis power supply maximum DC output: 7.7kW	AC input = 4270VA @ 16000 BTU/HR DC input = 4326W @16200 BTU/HR	Maximum DC = 9.1kW @ 31,050 BTU/hr Maximum AC = 10.4kW @ 32,668 BTU/hr
Dimensions (H x W x D)	84 x 23.6 x 36 in (213.36 x 59.94 x 91.44 cm); With cable management and front cover—84 x 23.6 x 39.71 in (213.36 x 59.94 x 100.84 cm)	38.5 x 17.5 x 36.6 in (97.79 x 44.45 x 92.964 cm) with base cosmetics; With cable management and front cover—38.5 x 17.5 x 40.5 in (97.79 x 44.45 x 102.87 cm)	30 x 17.643 x 30.28 in (76.2 x 44.813 x 76.91 cm) without doors and cosmetics	Without cable management and front cover—84 x 23.6 x 35 in (213.36 x 59.94 x 88.9 cm); With cable management and front cover—84 x 23.6 x 41 in (213.36 x 59.94 x 104.2 cm)
Weight	939 lbs (425 kg) as shipped, chassis only with build in rack and fan trays installed 1008 lbs (457 kg) chassis only as shipped, including power shelves, without power modules, and with build in rack 1595 lbs (723 kg) chassis fully configured, using all card slots, power shelves, cosmetics, and with build in rack	330.8 lb (148.86 kg) chassis with fan, PDU and blanks (as shipped) 650lb (292.5 kg) chassis as shipped, including power shelves, and all line cards and route processors	260 lb (117.93 kg) chassis with fan, power modules and blanks (as shipped) 380 lb (172.37 kg) chassis as shipped, including power shelf, fabric cards, and all line cards and route processors	644 lbs (292 kg) as shipped, chassis only with fan trays installed 712.8 lbs (323 kg) chassis only as shipped, including power shelves, without power modules 1559 lbs (707 kg) chassis fully configured
IP Features	Control-plane packet handling, IPv4, IPv6, (X)ACLs, QoS/class of service (CoS) using Modular QoS CLI (MQC), IP packet classification and marking, Queuing (both ingress and egress), Policing (both ingress and egress), Diagnostic and network management support			
Software Components	Cisco IOS XR			
IP over DWDM (IPoDWDM) Features	• GFEC: standard G.975 Reed-Salomon algorithm • EFEC: standard G.975.1 two orthogonally concatenated BCH super FEC code • Full C-band tunable laser with 50-GHz spacing • Router-to-router SONET/SDH-like operations, administration, maintenance, and provisioning (OAM&P)			
Routing Features	Multiprotocol BGP Version 4 (MP-BGPv4), Open Shortest Path First Version 2 (OSPFv2), OSPFv3, IS-IS, Static routes, RPL, Multicast, MPLS, High availability, Security, Manageability			
Online model comparison chart: http://www.cisco.com/en/US/products/ps5763/prod_models_comparison.html				

Selected Part Numbers and Ordering Information

CRS-16/S	Cisco CRS-1 Series 16 Slots Carrier Routing System/Single
CRS-8/S	Cisco CRS-1 Series 8 Slots Carrier Routing System/Single
CRS-4/S	Cisco CRS-1 Series 4 Slots Carrier Routing System

CRS-MC-FC2	Cisco CRS-1 Multichassis System with 24-Slot Fabric Chassis
CRS-FC24=	Cisco CRS-1 Fabric Chassis 24-Slot System (complete FCC)
CRS-FCC=	Cisco CRS-1 FCC, spare (Chassis Only)
CRS3-16/S	Cisco CRS-3 16-Slot Carrier Routing System/Single
CRS3-8/S	Cisco CRS-3 8-Slot Single-Shelf System
CRS3-4/S	Cisco CRS-3 4-Slot Single-Shelf System
CRS3-MC-FC24	Cisco CRS-3 Multichassis System with 24-Slot Fabric Chassis
CRS3-FC24=	Cisco CRS-3 Fabric Chassis 24-Slot System (complete FCC)
CRS3-FCC=	Cisco CRS-3 FCC, spare (chassis only)

For More Information

http://www.cisco.com/go/crs

Cisco XR 12000 and 12000 Series Routers

The Cisco XR 12000 and 12000 Series Routers compose a portfolio of intelligent routing solutions that scale from 2.5 to n x 10Gpbs capacity per slot, facilitating carrier-class IP/Multiprotocol Label Switching (MPLS) networks and accelerating the evolution to IP next-generation networks.



Key Features and Benefits

- The Cisco XR 12000 and 12000 Series Routers deliver up to 1.28-Tbps switching capacity with wire-speed feature performance, scalability, and graceful hardware and software upgrade paths.
- These routers offer full forward compatibility for all line cards and the portfolio of shared port adapters (SPAs) and SPA interface processors (SIPs).
- The routers scale to the edge, supporting backbone- or edge-optimized line cards in the same chassis.
- The routers maximize the value of line-rate edge applications with 10-G uplinks.
- IP quality of service (QoS) and congestion-control implementation facilitates real-time services such as voice over IP (VoIP) and video. The distributed architecture and class-of-service features of the routers, such as priority-based congestion control (Weighted Random Early Detection [WRED]) and dedicated Low Latency Queuing (Modified Deficit Round Robin [MDRR]), along with virtual output queuing (Virtual Output Queuing [VOQ]), eliminate head-of-line blocking (HOL) and maintain packet sequence integrity under all conditions.
- Non-service-affecting online insertion and removal (OIR) of components (including switch fabric cards) and front accessibility reduce downtime and simplify maintenance.
- Cisco Nonstop Forwarding (NSF) and Cisco Stateful Switchover (SSO) eliminate single points of failure, help maintain system performance, and prevent service interruption; packet forwarding remains uninterrupted before, during, and after a route-processor switchover.
- Performance Route Processor-3 (PRP-3)—PRP-3 is the premium route processor for the Cisco XR 12000 Series Router. This latest generation of Performance Route Processors (PRPs) vastly expands the processing power for control plane and management plane applications, providing up to 300% improvement over PRP-2 performance for such applications. The premium PRP-3 route processor greatly extends the lifetime of the Cisco XR 12000 Series platform.
- Service Module Daughter Card (SMDC)—The new services card can be plugged on to the PRP-3 route processor to support a comprehensive suite of CGv6 features, as well as a number of service applications that help bridge the IPv6 divide and build a bridge to the future of the Internet.

Specifications

Feature	Cisco XR 12000/ 12000 16-slot Chassis	Cisco XR 12000/ 12000 Series 10-Slot Chassis	Cisco XR 12000/ 12000 Series 6-Slot Chassis	Cisco XR 12000/ 12000 Series 4-Slot Chassis
Slot Capacity	16 slots	10 slots	6 slots	4 slots
Aggregate Switching Capacity	12016: 80 Gbps; 12416: 320 Gbps; 12816: 1280 Gbps	12010: 50 Gbps; 12410: 200 Gbps; 12810: 800 Gbps	12006: 30 Gbps; 12406: 120 Gbps	12404: 80 Gbps
Full-Duplex Throughput Per	12016: 2.5 Gbps/slot 12416: 10 Gbps/slot 12816: 40 Gbps/slot	12010: 2.5 Gbps/slot 12410: 10 Gbps/slot 12810: 40 Gbps/slot	12006: 2.5 Gbps/slot 12406: 10 Gbps/slot	12404: 10 Gbps/slot

Dimensions (H x W x D)	71.5 x 17.25 x 22.0 in (181.6 x 184.2[1] x 55.9 cm); 72.5 x 18.75 x 24.0 in.[2]; (43.8 x 47.6 x 61.0 cm)[3]	37.5 x 19 x 22.0 in. (95.25 x 48.26 x 55.9 cm); 24.0 in. (61.0 cm)	18.5 in. (47.0 cm) chassis width: 17.3 in. (43.9 cm); 18.9 in. (48.0 cm); chassis depth 28.0 in. (71.1 cm)	8.75 in. (22.23 cm) chassis width 17.38 in. (44.15 cm) 18.9 in. (48.01 cm) chassis depth 27.5 in. (69.85 cm)
Weight	140 lb. (64 kg)[4]; 390 lb. (177 kg)[5]	125 lb. (57 kg)[4]; 275 lb. (125 kg)[5]	18.5 in. (47.0 cm); chassis width: 17.3 in (43.9 cm) 18.9 in. (48.0 cm) chassis depth: 28.0 in. (71.1 cm)	8.75 in. (22.23 cm); chassis width: 17.38 in (44.15 cm) 18.9 in. (48.01 cm) chassis depth: 27.5 in. (69.85 cm)
Chassis Per Rack	One	Two	Four	Eight
Software Components (Per Base System)	Cisco IOS XR or Cisco IOS Software Operating System; Cisco Express Forwarding for distributed packet forwarding			
Compatibility	12800—Line cards that support 2.5-, 5-, 10-, or 20-Gbps capability; 12400—Line cards that support 2.5-, 5- or 10-Gbps capability; 12000—Line cards that support 2.5-Gbps capability			
Protocols	IPv4/v6, MPLS, BGPv4/v6, IS-IS, OSPFv2.0, RIPv2, IGMP, DVMRP, and PIM DX/SX			
Connectivity	Packet over SONET/SDH (POS), Ethernet, ATM, copper (DS-3/E3), Channelized (CT1, CT3, ChOC-3/CHSTM1, ChOC-12/CHSTM4, ChOC-48/CHSTM16); see Cisco IOS XR Software release notes for specific connectivity support on the Cisco XR 12000 Series			

1. With AC input power shelf or DC input power shelf, front covers installed
2. Including chassis rack-mount flanges
3. Including cable-management system and front cover
4. Chassis only, including power shelf for 16-slot chassis
5. Chassis fully configured, using all card slots, AC or DC power shelf for 16-slot chassis, & AC or DC input power supplies

Selected Part Numbers and Ordering Information

Cisco XR 12000 16-Slot Systems	
XR-12416/320-AC	Cisco XR 12000 16-slot chassis w/ 3 AC power supplies, 320-Gbps fabric (2 CSC & 3 SFC cards)
XR-12416/320-AC4	Cisco XR 12000 16-slot chassis w/ 4 AC power supplies, 320-Gbps fabric (2 CSC & 3 SFC cards)
XR-12416/320-DC	Cisco XR 12000 16-slot chassis w/ 4 DC power supplies, 320-Gbps fabric (2 CSC & 3 SFC cards)
Cisco 12000 16-Slot Systems	
GSR16/80-AC-8R	Cisco 12000 16-slot chassis w/ 3 AC power supplies, 80-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers
12816E/1280	Cisco 12000 16-slot chassis w/ 4 AC power supplies, 1280-Gbps Enhanced fabric (2 CSC & 3 SFC cards), 2 blowers, 2 alarms, and 1 PRP-1
12816/1280-DC	Cisco 12000 16-slot chassis w/ 4 DC power supplies, 1280-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2 alarms, and 1 PRP-1
Cisco XR 12000 10-Slot Systems	
XR-12410/200-AC	Cisco XR 12000 10-slot chassis w/ 2 AC power supplies, 200-Gbps fabric (2 CSC & 5 SFC cards)
XR-12410/200-DC	Cisco XR 12000 10-slot chassis w/ 2 DC power supplies, 200-Gbps fabric (2 CSC & 5 SFC cards)
Cisco 12000 10-Slot Systems	
12010-AC	Cisco 12000 10-slot chassis w/ 2 AC power supplies, 50-Gbps fabric (2 CSC & 5 SFC cards), 1 blower
12010-DC	Cisco 12000 10-slot chassis w/ 2 DC power supplies, 50-Gbps fabric (2 CSC & 5 SFC cards), 1 blower
12810/800-AC	Cisco 12000 10-slot chassis w/ 2 AC power supplies, 800-Gbps fabric (2 CSC & 5 SFC cards), 1 blower
12810/800-DC	Cisco 12000 10-slot chassis w/ 2 DC power supplies, 800-Gbps fabric (2 CSC & 5 SFC cards), 1 blower
Cisco XR 12000 6-Slot Systems	
XR-12406/120-AC	Cisco XR 12000 6-slot chassis w/ 1 AC power supply, 120-Gbps fabric (1 CSC & 3 SFC cards), 1 blower

XR-12406/120-DC	Cisco XR 12000 6-slot chassis w/ 1 DC power supply, 120-Gbps fabric (1 CSC & 3 SFC cards), 1 blower
Cisco 12000 6-Slot Systems	
12006-AC	Cisco 12000 6-slot chassis w/ 2 AC power supplies, 30-Gbps fabric (2 CSC & 3 SFC cards), 1 blower
12006-DC	Cisco 12000 6-slot chassis w/ 2 DC power supplies, 30-Gbps fabric (2 CSC & 3 SFC cards), 1 blower
Cisco XR 12000 4-Slot Systems	
XR-12404/80-AC	Cisco XR 12000 4-slot chassis w/ 2 AC power supply, 80-Gbps fabric (consolidated switch fabric, clock scheduler, & alarm card), 1 blower, & 1 PRP-2
XR-12404/80-DC	Cisco XR 12000 4-slot chassis w/ 2 DC power supply, 80-Gbps fabric (consolidated switch fabric, clock scheduler, & alarm card), 1 blower, & 1 PRP-2

For More Information

http://www.cisco.com/go/12000

Cisco ASR 9000 Series Aggregation Services Routers



The Cisco ASR 9000 Series represents an exciting new paradigm in the world of Carrier Ethernet transport with exceptional scalability, carrier-class reliability, environmentally conscious design, incredible flexibility, and an enticing new price-to-performance benchmark.

The Cisco ASR 9000 Series has four form factors: the Cisco ASR 9010 Router, the Cisco ASR 9006 Router, the Cisco ASR 9922 Router, and the Cisco ASR 9000v Router. Cisco ASR 9000 Series Routers are designed to provide true carrier-class reliability using the Cisco IOS XR operating system, comprehensive system redundancy, and a full complement of network resiliency schemes.

The Cisco ASR 9000 Series also offers service and application-level intelligence focused on optimized video delivery and mobile aggregation. Finally, the Cisco ASR 9000 Series is designed to simplify and enhance the operational and deployment aspects of service-delivery networks.

Key Features and Benefits

- Cisco IOS XR modular operating system—The Cisco ASR 9000 Series leverages the Cisco IOS XR operating system made famous by the highly successful Cisco CRS Carrier Routing System platform in core deployments. The Cisco IOS XR operating system is purpose-built for distributed systems such as the Cisco ASR 9000 Series, and uses a microkernel architecture to achieve true modularity. This modularity provides the path to nonstop operations during software image upgrades or module changes, without affecting normal platform operations.
- Fully distributed system—The Cisco ASR 9000 Series operates in a fully distributed fashion; that is, all packet-forwarding decisions and actions take place on the individual line cards. These high-density Ethernet line cards are equipped with a specialized network processor that provides a flexible programming infrastructure with high-density hierarchical quality-of-service (H-QoS) services, security, and integrated synchronous Ethernet. The distributed nature of the Cisco ASR 9000 Series improves resiliency by adding a new dimension in scale for features such as bidirectional forwarding detection (BFD) and Ethernet operations, administration, and maintenance (E-OAM).
- Operationally efficient and redundant hardware—The Cisco ASR 9000 Series provides an infrastructure where all common components, route switch processors (RSPs), switching fabric, fans, and power supplies, are completely redundant. In addition, the platform is designed such that power is used on an as-needed basis depending on system requirements. Power has been modularized for a true pay-as-you-grow approach, reducing capital expenditures (CapEx) and again providing an operationally efficient deployment. The Cisco ASR 9000 also provides a space-optimized small-platform option that uses the Series' common components and retains a central office deployment-ready capability using a patent-pending side-to-back airflow design.
- Environmentally conscious design—In today's world of increasing awareness of the human impact on the environment and the resultant fiscal implications, Cisco ASR 9000 Series Routers bring a fresh new "conscious" approach to product development. From optimal thermal design to the architecture of the power infrastructure, from the placement of line card components to the pitch of each slot, every design aspect had one goal in mind: reduced environmental impact through lowered power consumption and decreased cooling requirements. Even the product packaging process was evaluated to minimize the use of packaging material and thereby reduce waste at customer locations. The Cisco ASR 9000 Series is an example of the continued Cisco commitment to efficient and future-friendly product design.
- Network virtualization—Leveraging Cisco's "network virtualization" or nV technology, the Cisco ASR 9000 System offers exceptional pay as you grow scale, carrier-class reliability, and simplified service provisioning. The ASR 9000v sets the industry benchmark as a virtualized compact carrier-class converged access and aggregation platform.
- Integrated services capability—The Cisco ASR 9000 Series delivers flexible and highly scalable service integration through the Integrated Service Module (ISM) allowing operational efficiency and faster time to market. A Cisco ASR 9000 system populated with ISMs becomes a platform upon which new services and applications can be layered over time and deployed much more quickly.

Specifications

Model	Cisco ASR 9006	Cisco ASR 9010	Cisco ASR 9922
Dimensions	Height—17.5 in. (444.5 mm) Width—17.5 in. (444.5 mm) Depth: · With doors—31.45 in. (798.8 mm) · Without doors—28.65 in (727.2 mm) Weight: · 110 lbs (50 kg) (Unloaded) · 230 lbs (106.8 kg) (Fully Loaded)	Height—36.75 in. (933.5 mm) Width—17.5 in. (444.5 mm) Depth: · With doors—31.45 in. (798.8 mm) · Without doors—28.65 in (727.2 mm) Weight: · 191 lbs (86.8 kg) (Unloaded) · 375 lb (170.5 kg) (maximum)	Height: 77 in. (44 RU chassis) Width: 17.75 in. Depth: · With doors: 31.45 in. (798.8 mm) · Without doors: 28.65 in. (727.2 mm) Weight: · 420 lbs (unloaded) · 800 lbs (maximum)
Slot Orientation	Horizontal	Vertical	Vertical
Cisco ASR 9000 Series RSP	Same as Cisco ASR 9010	Dual redundant RSPs in 2 slots	Dual redundant RPs in 2 slots RSPs segregated into RP and FC
Cisco ASR 9000 Series LCs	Four line card slots	Eight line card slots	20 line card slots
"Commons" Components	Two RSPs Two fan trays One PEM (either DC or AC) One fan filter	Two RSPs Two fan trays Two PEMs (either DC or AC) One fan filter	2 RPs 7 FCs 4 fan trays 4 DC PEMs or 4 AC PEMs 1 fan filter
Reliability and Availability	Same as Cisco ASR 9010	Fabric redundancy Fan redundancy Feed redundancy Power-supply redundancy RSP redundancy Software redundancy	Fabric redundancy Fan redundancy Feed redundancy Power-supply redundancy RSP redundancy Software redundancy
Rack Mounting	Same as Cisco ASR 9010 Note: Minimum 17.75-in. opening between posts is needed for proper operation.	Yes · 19-inch · 21 and 23 inch adapters available	Yes · 19-inch · 21 and 23 inch adapters available
Airflow	Side-to-back	Front-to-back	Front-to-back
Chassis Switching	Up to 3.2 Tbps	Up to 6.4 Tbps	Up to 48Tbps
Capacity			
Fabric	Same as Cisco ASR 9010	One per RSP · Active/Active non-blocking operation mode in dual RSP redundant configuration. · Fully redundant in dual RSP redundant configuration · Built-in service-intelligence and traffic-prioritization capability	7 fabric cards · Supports 6+1 redundancy · Operate in Active/Active nonblocking mode · Built-in service-intelligence and traffic-prioritization capability
Thermal	Two fan trays · Six high-efficiency fans per tray · Variable-speed fans for optimal thermal performance · No single point of failure	Two fan trays · Twelve high-efficiency fans per tray · Variable-speed fans for optimal thermal performance · No single point of failure	4 fan trays · 12 high-efficiency fans per tray · Variable-speed fans for optimal thermal performance · No single point of failure
Power			
Modularity	· Up to 3 power modules (AC or DC) for future scalability Multiple power module types · Same as Cisco ASR 9010 Note: Mixing of AC and DC modules is not supported. DC modules can be mixed and matched.	· Up to 6 power modules (AC or DC) for future scalability Multiple power module types · 3-kW AC power module · 2.1 and 1.5-kW DC power modules Note: Mixing of AC and DC modules is not supported. DC modules can be mixed and matched.	· Up to 16 power modules (AC or DC) for future scalability Multiple power module types · 3-kW AC power module · 2.1-kW DC power modules Note: Mixing of AC and DC modules is not supported. DC modules can be mixed and matched.
Redundancy	· Module redundancy: 1:N-1:1 · Feed redundancy	· Module redundancy: 1:N-1:1 · Feed redundancy · PEM redundancy	· Module redundancy: 1:N-1:1 · Feed redundancy · PEM Redundancy
Online model comparison chart: http://www.cisco.com/en/US/products/ps9853/prod_models_comparison.html			

Selected Part Numbers and Ordering Information

Cisco ASR 9000 Series Chassis	
ASR-9006-AC/ASR-9010-DC	Cisco ASR 9006 chassis
ASR-9010-AC/ASR-9010-DC	Cisco ASR 9010 chassis
ASR-9922-AC/ASR-9922-DC	Cisco ASR 9922 chassis
A9K-2X100GE-SE	Cisco ASR 9000 2-Port 100GE Service Edge Optimized Line Card
A9K-2X100GE-TR	Cisco ASR 9000 2-Port 100GE Transport Optimized Line Card
A9K-24X10GE-SE	Cisco ASR 9000 24-Port 10GE Service Edge Optimized Line Card
A9K-24X10GE-TR	Cisco ASR 9000 24-Port 10GE Transport Optimized Line Card
A9K-ISM-100	Cisco ASR 9000 Integrated Services Module

For More Information

http://www.cisco.com/go/asr9000

Cisco ASR 1000 Series Aggregation Services Routers



The Cisco ASR 1000 Series Aggregation Services Routers include five versions: the Cisco ASR 1001 Router, the Cisco ASR 1002 Router, the Cisco ASR 1004 Router, the Cisco ASR 1006 Router, and the Cisco ASR1013 Router. All five models use the new, innovative, and powerful Cisco QuantumFlow Processor and are optimized for both service provider, managed services and enterprise deployments.

For service provider deployments, the Cisco ASR 1000 Series is designed for broadband, SP edge, and route reflector. For enterprise deployments, the Cisco ASR 1000 Series is applicable for WAN aggregation, Internet edge, data center interconnect, and ultra-high-end branch.

The Cisco ASR 1000 Series delivers routing with multiple services embedded in the Cisco QuantumFlow Processor at wire speeds of up to 40 Gbps. The supported services include security services (IPsec encryption, firewall, and router security), Performance Routing, quality of service (QoS), multicast, Application Visibility and Control (AVC), broadband aggregation, and Cisco Unified Border Element (also known as session border controller), among others.

With the separation of the control and data planes in the Cisco ASR 1000 Series Router architecture, it enables software redundancy (on the Cisco ASR 1001, 1002, and 1004 Routers), hardware redundancy (on the Cisco ASR 1006 and ASR 1013 Routers), and distributed denial service of attack (DDoS) protection for all the models. Additionally, the modular Cisco IOS XE Software that is introduced with the Cisco ASR 1000 Series facilitates In Service Software Upgrade (ISSU) on the ASR 1006 and ASR 1013. I/O connectivity is provided through shared port adapters (SPAs), which are housed in the SPA Interface Processor (SIP) card.

From a price-to-performance perspective, the Cisco ASR 1000 Series Router solution fits well between the Cisco 7200 and Cisco 7301 Series and the Cisco 7600 and Cisco Catalyst 6500 Series Switches, thus providing a comprehensive high-end and midrange routing portfolio.

All the following Cisco ASR 1000 Series Aggregation Services Routers offer L3VPN, route reflector, WAN services aggregation, managed customer premises equipment (CPE), and Layer 2 Tunneling Protocol access concentrator (LAC) or Layer 2 Tunneling Protocol network server (LNS).

Ideal for Companies That Need These Features

Cisco ASR 1001

- One SPA slot
- One integrated SIP
- One integrated route processor
- One integrated embedded services processor engine at 2.5 Gbps by default and 5 Gbps with the Upgrade Feature License
- Built-in four 1-Gigabit Ethernet ports
- Support of Software Redundancy
- One optional Integrated Daughter Card (IDC) with one of the following choices: two OC-3 ports, four T3 ports, four GE ports, 8 channelized T1/E1 ports, 160GB hard disk drive
- Up to 10,000 Cisco Unified Border Element sessions

Cisco ASR 1002

- Three SPA slots
- One integrated 10-Gigabit Ethernet SIP (ASR1000-SIP10)
- One integrated route processor (Cisco ASR 1000 Series RP1)
- One embedded services processor (Cisco ASR 1000-ESP5 or ASR1000-ESP10)
- Built-in four 1-Gigabit Ethernet ports
- Support of Software Redundancy

Cisco ASR 1004

- Eight SPA slots
- Two SIP cards (ASR1000-SIP10 and/or ASR1000-SIP40), each with 4 SPA slots
- One route processor (ASR 1000-RP1 or ASR1000-RP2)
- One embedded services processor (ASR 1000-ESP10, ASR1000-ESP20, or ASR1000-ESP40)
- Support of Software Redundancy
- Up to 16,000 Cisco Unified Border Element sessions

Cisco ASR 1006

- Twelve SPA slots
- Three SIP cards (ASR1000-SIP10 and/or ASR1000-SIP40), each with 4 SPA slots
- Up to two route processors (ASR 1000-RP1 or ASR1000-RP2)
- Up to two embedded services processors (ASR1000-ESP10, ASR1000-ESP20 or ASR1000-ESP40)
- In-box hardware redundancy (dual ESP and dual route processor) – optional
- Up to 16,000 Cisco Unified Border Element sessions

Cisco ASR 1013

- Twenty-four SPA slots
- Six SIP cards (ASR1000-SIP10 and/or ASR1000-SIP40), each with 4 SPA slots
- Up to two route processors (ASR1000-RP2)
- Up to two embedded services processors (ASR1000-ES40)
- In-box hardware redundancy (dual ESP and dual route processor) – optional

Key Features and Benefits

- Compact form factor—The Cisco ASR 1000 Series offers 2.5-Gigabit throughput in a compact 1-rack unit chassis with fixed components, up to 10-Gigabit Ethernet throughput in compact modular 2-rack unit (2RU) form factor, up to 40 Gigabit throughput in a modular 4-rack unit (4RU), modular 6-rack unit (6RU) and, modular 13-rack unit (13 RU) form factors.
- Modularity—The Cisco ASR 1000 Series offers a choice of chassis that supports from 1 up to 24 SPAs. The Cisco ASR 1004, ASR 1006, and 1013 provide full flexibility to select different types of Route Processors (RPs) for control plane processing, Embedded Services Processors (ESPs) for data forwarding, SPA Interface Processors (SIP), and SPAs based on deployment requirements. On the Cisco ASR 1002, the RP and SIP are integrated in the chassis. On the Cisco ASR 1001, the RP, ESP, and RP are integrated in the chassis, and it has various models that are pre-installed with a non-field-upgradeable Integrated Daughter Card (IDC) to provide additional interfaces.
- Integrated services—Services can be enabled either at the time of ordering or after the router is already deployed. Cisco IOS Software redundancy, encryption, firewall, Session Border Controller functionality (also known as Cisco Unified Border Element [CUBE]), and Application Visibility and Control (AVC) can all be enabled by purchasing feature licenses with no need for hardware upgrades.
- High availability—Cisco offers in-box engine redundancy on the Cisco ASR 1006 and Cisco ASR 1013 and Cisco IOS Software redundancy on the Cisco ASR 1001, 1002 and 1004 models.
- Common SPAs—SPAs are shared with the Cisco Catalyst 6500 and Catalyst 7600 Series, simplifying sparing and protecting customer investment in interfaces.
- WebEx Node SPA – double-height SPA supported on the ASR1002, ASR1004, ASR1006, and ASR1013 chassis maximizes bandwidth efficiency and user experience for WebEx users in the Enterprise.
- DSP SPA – single-height SPA supported on all ASR 1000 models to provide voice and video transcoding and transrating, and DTMF interworking with CUBE(SP) and CUBE(ENT).

Specifications

Feature	Cisco ASR1001	Cisco ASR1001-2XOC3POS	Cisco ASR1001-4XT3	Cisco ASR1001-HDD	Cisco ASR 1001-4X1GE
Built-in Gigabit Ethernet Ports	4	4	4	4	4
Integrated Daughter Card	No	2 x OC-3 Ports	4 x T3 Ports	1 x 160GB Hard Disk Drive	4 x GE Ports
Embedded Service Processor Slots	Integrated	Integrated	Integrated	Integrated	Integrated
Route Processor Slots	Integrated	Integrated	Integrated	Integrated	Integrated
SIP Card Slots	Integrated	Integrated	Integrated	Integrated	Integrated
Shared Port Adapter Slots	1	1	1	1	1
Bandwidth	2.5 Gbps; upgradable to 5 Gbps with Performance Upgrade License	2.5 Gbps; upgradable to 5 Gbps with Performance Upgrade License	2.5 Gbps; upgradable to 5 Gbps with Performance Upgrade License	2.5 Gbps; upgradable to 5 Gbps with Performance Upgrade License	2.5 Gbps; upgradable to 5 Gbps with Performance Upgrade License
Forwarding Rate	Up to 7.5 Mpps	Up to 7.5 Mpps	Up to 7.5 Mpps	Up to 7.5 Mpps	Up to 7.5 Mpps
Crypto Performance	Up to 1.8 Gbps	Up to 1.8 Gbps	Up to 1.8 Gbps	Up to 1.8 Gbps	Up to 1.8 Gbps
Route Processor Memory	4 GB (default); upgradeable to 8GB or 16GB	4 GB (default); upgradeable to 8GB or 16GB	4 GB (default); upgradeable to 8GB or 16GB	4 GB (default); upgradeable to 8GB or 16GB	4 GB (default); upgradeable to 8GB or 16GB

Minimum Cisco IOS Release	IOS XE 3.2.0S	IOS XE 3.2.0S	IOS XE 3.2.0S	IOS XE 3.3.0S	IOS XE 3.3.0S
Redundant Power Supply	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default
Chassis Height	1 RU	1 RU	1 RU	1 RU	1 RU
Rack Mountable	Yes	Yes	Yes	Yes	Yes
Dimensions (H x W x D)	1.71 x 17.3 x 18.5 in.	1.71 x 17.3 x 18.5 in.	1.71 x 17.3 x 18.5 in.	1.71 x 17.3 x 18.5 in.	1.71 x 17.3 x 18.5 in.
Airflow	Front-to-back	Front-to-back	Front-to-back	Front-to-back	Front-to-back
Feature	**Cisco ASR1001-8XCHT1E1**	**Cisco ASR1002**	**Cisco ASR1004**	**Cisco ASR1006**	**Cisco ASR 1013**
Built-in Gigabit Ethernet Ports	4	4	0	0	0
Integrated Daughter Card	8 x Channelized T1/E1 Ports	No	No	No	No
Embedded Service Processor Slots	Integrated	1 – ESP5 or ESP10	1 – ESP10, ESP20, or ESP40	2 – ESP10, ESP20, or ESP40	2 – ESP40
Route Processor Slots	Integrated	Integrated	1 – RP1 or RP2	2 – RP1 or RP2	2 – RP2
SIP Card Slots	Integrated	Integrated	2	3	6
Shared Port Adapter Slots	1	3	8	12	24
Bandwidth	2.5 Gbps; upgradable to 5 Gbps with Performance Upgrade License	Up to 10 Gbps with ESP-10	Up to 40 Gbps with ESP-40	Up to 40 Gbps with ESP-40	Up to 40 Gbps with ESP-40
Forwarding Rate	Up to 7.5 Mpps	Up to 8 Mpps with ESP-10	Up to 23 Mpps with ESP-40	Up to 23 Mpps with ESP-40	Up to 23 Mpps with ESP-40
Crypto Performance	Up to 1.8 Gbps	Up to 4 Gbps with ESP-10	Up to 11 Gbps with ESP-40	Up to 11 Gbps with ESP-40	Up to 11 Gbps with ESP-40
Route Processor Memory	4 GB (default); upgradeable to 8GB or 16GB	4 GB (default); 4 GB (max.)	RP1: 2 GB (default); 4 GB (max.) RP2: 8 GB (default); 16 GB (max.)	RP1: 2 GB (default); 4 GB (max.) RP2: 8 GB (default); 16 GB (max.)	RP1: 2 GB (default); 4 GB (max.) RP2: 8 GB (default); 16 GB (max.)
Minimum Cisco IOS Release	IOS XE 3.3.0S	IOS XE 2.1.0	IOS XE 2.1.0	IOS XE 2.1.0	IOS XE 3.1.0S
Redundant Power Supply	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default
Chassis Height	1 RU	2 RU	4 RU	6 RU	13 RU
Rack Mountable	Yes	Yes	Yes	Yes	Yes
Dimensions (H x W x D)	1.71 x 17.3 x 18.5 in.	3.5 x 17.2 x 22 in.	7.0 x 17.2 x 22 in.	10.5 x 17.2 x 22 in.	22.8 x 17.2 x 22 in
Airflow	Front-to-back	Front-to-back	Front-to-back	Front-to-back	Front-to-back

Online model comparison chart: http://www.cisco.com/en/US/products/ps9343/prod_models_comparison.html

Selected Part Numbers and Ordering Information

ASR1001	Cisco ASR1001 System, Fixed ESP & RP, Crypto, 4 Built-in GE, Dual P/S
ASR1001-2XOC3POS	Cisco ASR1001 System, Fixed ESP & RP, Crypto, 4 Built-in GE, 2 OC-3 Integrated Daughter Card (IDC), Dual P/S
ASR1001-4XT3	Cisco ASR1001 System, Fixed ESP & RP, Crypto, 4 Built-in GE, 4 T3 Integrated Daughter Card (IDC), Dual P/S
ASR1001-HDD	Cisco ASR1001 System, Fixed ESP & RP, Crypto, 4 Built-in GE, Hard Disk Drive (HDD), Dual P/S,
ASR1001-4x1GE	Cisco ASR1001 System, Fixed ESP & RP, Crypto, 4 Built-in GE, 4 GE Integrated Daughter Card (IDC), Dual P/S

ASR1001-8xCHT1E1	Cisco ASR1001 System, Fixed ESP & RP, Crypto, 4 Built-in GE, 8 Channelized T1/E1 Integrated Daughter Card (IDC), Dual P/S
ASR1002	Cisco ASR1002 chassis,4 built-in GE, Dual P/S,4GB DRAM
ASR1004	Cisco ASR1004 chassis, Dual P/S
ASR1006	Cisco ASR1006 chassis, Dual P/S
ASR1013	Cisco ASR1013 chassis, Dual P/S

For More Information

http://www.cisco.com/go/asr1000

Cisco ASR 900 Series Aggregation Services Routers



The Cisco ASR 900 Series delivers on the Cisco Unified Ethernet Access vision by having a single product family with one software and system architecture to enable service providers to offer Ethernet transport services across access and aggregation networks for business access, mobile backhaul, residential, and other deployments.

The Cisco ASR 903 Router is Cisco's first product built specifically for the pre-aggregation function in networks that target convergence of wireless and wireline services. A natural extension to Cisco's service provider access and aggregation portfolio, the Cisco ASR 903 Router extends the reach of the portfolio with a small-footprint, redundant, modular, and industrial temperature-hardened device.

The Cisco ASR 903 Route Switch Processor (RSP) provides the central control and forwarding capabilities of the router with rich clocking and management interfaces. I/O connectivity is provided through hot-swappable Interface Module (IM) cards. The IM cards can deliver DS-0 to OC-12 TDM/ATM and n x 10-Mbps Ethernet to n x 10-Gigabit Ethernet connectivity into service provider access and aggregation networks at wire speeds of up to 55 Gbps.

The Cisco ASR 903 Routers combine Layer 2 and Layer 3 networking capabilities with a high-bandwidth, high-performance architecture, including hardware-based forwarding of Circuit Emulation, Ethernet Operations, Administration and Maintenance (E-OAM) protocols, Multiprotocol Label Switching (MPLS), Multiprotocol Label Switching Transport Profile (MPLS-TP), IPv4, and IPv6.

The Cisco ASR 903 Router architecture, software redundancy and hardware redundancy provide a high-availability platform. Additionally, the modular Cisco IOS XE Software facilitates In Service Software Upgrade (ISSU).

Ideal for Companies that Need These Features

Cisco ASR 903

- High availability with Redundant Switch Processor and In Service Software Upgrade
- Flexible interface option with modular interface cards
- Redundant power with 2 modular power supplies; AC and DC power supplies available
- Single platform for both mobile wireless and wireline access and aggregation
- Capable of operating in extended temperature range
- Ability to deploy in tight spaces with small footprint

Key Features and Benefits

- Flexible deployment options—The Cisco ASR 903 Router is designed with a 3RU compact form factor to accommodate deployment in small spaces. Combined with various mounting options, the Cisco ASR 903 Routers can be deployed in space-constrained places such as ETSI 300mm cabinets. The side-to-side airflow design allows for two Cisco ASR 900 Series Routers to be mounted back-to-back in a 600mm cabinet. The wide temperature range supported by the Cisco ASR 903 Routers allows the router to be deployed in locations with minimum environmental control. Small footprint and extended temperature range support allows service providers to extend the reach of their Carrier Ethernet networks to various types of locations and save money on air conditioning.
- High availability—The Cisco ASR 903 Router offers in-box hardware redundancy for all hardware components and supports software redundancy with ISSU when two Route Switch Processors are inserted in the chassis.
- Modularity—Cisco offers a choice of two Route Switch Processors (RSPs) providing different service scale and a wide range of LAN and WAN Interface Modules (IMs). The LAN interfaces are available in copper and fiber Ethernet interfaces with speed ranging from 10 Mbps to 10 Gbps. The WAN interfaces are available in speeds ranging from DS-0 to OC-12. IMs, power supplies, and the fan tray are all modular and fully upgradable when future generations are released.
- Industry standards certifications—The Cisco ASR 903 Router is certified for both Network Equipment Buildings Standards Level 3 (NEBS3) and European Telecommunications Standards Institute (ETSI) standards.
- Timing and synchronization services—The Cisco ASR 903 Router provides the timing services required in today's converged access networks to support mobile solutions, including Radio Access Network (RAN) applications, and offers integrated support for the Building Integrated Timing Supply (BITS), 10MHz, 1 Pulse Per Second (PPS), and Time Of Day (TOD) interfaces. The Cisco ASR 903 also supports synchronous Ethernet (SyncE) and IEEE-1588, and it can also act as the source for network clocking information.
- Cisco Carrier Ethernet application-specific integrated circuit (ASIC)—Powered by the Cisco˙ Carrier Ethernet ASIC, designed specifically for the needs of service providers, the Cisco ASR 903 Router delivers essential Carrier Ethernet technologies including: VLAN translation, selective QinQ, hierarchical QoS (H-

QoS), Multiprotocol Label Switching (MPLS), and Hierarchical Virtual Private LAN Services (H-VPLS). The ASIC provides line-rate performance and offers advanced services including access control list (ACL) and H-QoS without affecting performance. The Carrier Ethernet ASIC incorporates innovative traffic-management capabilities while providing intelligent packet switching and routing operations.

- Service richness—With the Cisco ASR 903 Router, customers will be able to deliver services ranging from basic TDM, ATM, and Ethernet services to advanced feature-rich and secure MPLS services, including Pseudo Wire Emulation (PWE), Carrier Ethernet (CE), Multiprotocol Label Switching Transport Profile (MPLS-TP), MPLS Layer 2 VPNs (MPLS L2VPNs), and MPLS Layer 3 VPNs. The service offering is enhanced with rich operations, administration, and management (OAM) functions including: IEEE 802.1ag Connectivity Fault Management (CFM), IP service-level agreement (IP SLA), Y.1731 Fault Management and Performance Management, Bidirectional Forwarding Detection (BFD), and MPLS OAM.

Specifications

Model	Cisco ASR 903
Dimensions (H x W x D)	5.22 x 17.44 x 9.22 in. (132.6 x 443 x 234.2 mm)
Chassis Height	3RU
Cisco ASR 900 Series RSP	Dual redundant RSPs in 2 slots
Cisco ASR 900 Series IMs	6 Interface Module slots
"Commons" Components	· Two RSPs · One fan tray · Two Power Supplies (either DC or AC)
Reliability and Availability	· Fan redundancy · Feed redundancy · Power-supply redundancy · RSP redundancy · Software redundancy
Rack Mounting	Yes: · ETSI · 19 inch · 23 inch
Airflow	Side-to-Side
Capacity	
RSP	· 55Gbps · Active /Standby non-blocking operation mode in dual RSP redundant configuration · Fully redundant in dual RSP redundant configuration · Built-in service-intelligence and traffic- prioritization capability
Thermal	· Twelve high-efficiency fans per tray · Variable-speed fans for optimal thermal performance · Fully operational in single fan failure scenario
Power	· Maximum 550Watt input power · Up to 2 power supplies (AC or DC) Note: Mixing of AC and DC modules is not supported. · Module redundancy: 1:1 · Modules operate in load share mode.

Selected Part Numbers and Ordering Information

Cisco ASR 903 Series Aggregation Services Routers —Chassis, Fan tray, RSPs, Power supplies	
ASR-903	ASR 903 Router Chassis
A903-FAN	ASR 903 FAN Tray
A900-PWR550-A	ASR 900 550W AC Power Supply
A900-PWR550-D	ASR 900 550W DC Power Supply
A900-RSP1A-55	ASR 900 Route Switch Processor 1, Base Scale, 55Gbps
A900-RSP1B-55	ASR 900 Route Switch Processor 1, Large Scale, 55Gbps
Cisco ASR 903 Series Aggregation Services Routers —Interface Modules	
A900-IMA8T	ASR 900 8 port 10/100/1000 Ethernet Interface Module
A900-IMA8S	ASR 900 8 port SFP Gigabit Ethernet Interface Module
A900-IMA1X	ASR 900 1 port 10GE XFP Interface Module
A900-IMA16D	ASR 900 16 port T1/E1 Interface Module

A900-IMA4OS	ASR 900 4 OC3/STM1 or 1 OC12/STM4 Interface Module
Cisco ASR 903 Series License Options	
Metro Services	Layer 2 feature license targeted for Layer 2 aggregation: · Enhanced QoS, with deep buffers and Hierarchical QoS · Layer 2 features for L2 VPN including EVC framework · Ethernet OAM · Synchronous Ethernet · IPv4/IPv6 host connectivity
Metro IP Services	Layer 3 feature license targeted for Layer 3 aggregation: · IP routing protocols (OSPF, ISIS, EIGRP) · Layer 3 multicast PIM SM and SSM · Bidirectional Forwarding Detection (BFD) · Multi-VRF CE (VRF lite) with service awareness · IEEE 1588-2008 Ordinary Clock and Transparent Clock
Metro Aggregation Services	MPLS feature license targeted for MPLS aggregation: · BGP · MPLS label imposition/disposition · MPLS Traffic Engineering (TE) and Fast Reroute (FRR) · Pseudowire Emulation (EoMPLS/CESoPSN/SAToP) · MPLS VPN · VPWS/VPLS/H-VPLS · MPLS OAM · MPLS Transport Profile (MPLS-TP)
ATM License	The ATM license allows service providers to enable ATM functionality on TDM interfaces only when required. One license is required for each chassis that needs ATM functionality to be enabled in the system. This includes ATM Pseudo Wires over MPLS (ATMoMPLS), ATM local switching, ATM interworking and local ATM termination
1 OC3 port license	The OC3 port license allows service providers to enable 1 OC3 port only when required, supporting a pay-as-you-grow strategy. One license is required for each OC3 port that needs to be enabled in the system.
1 OC12 port license	The OC12 port license allows service providers to enable 1 OC12 port only when required, supporting a pay-as-you-grow strategy. One license is required for each OC12 port that needs to be enabled in the system.
1588-2008 BC/MC license	The 1588-2008 license allows service providers to enable IEEE 1588-2008 Boundary Clock (BC) and/or Master Clock (MC) only when required. One license is required for each chassis that needs IEEE 1588-2008 BC or MC functionality to be enabled in the system.

For More Information

http://www.cisco.com/go/asr900

Connected Grid Routers

Cisco 2000 Series Connected Grid Router



The Cisco Connected Grid portfolio of solutions is designed specifically for the harsh, rugged environments often found in the energy and utility industries. These solutions include the Cisco 2010 Connected Grid Router (CGR 2010), which has been designed to support the communications infrastructure needs of the energy delivery infrastructure across the generation, transmission, and distribution sectors. This infrastructure includes utility- and customer-owned energy infrastructure such as substation applications supporting electrical transmission and distribution, renewable generation, oil and gas, water, distributed generation, co-generation, and trackside operations. The infrastructure also includes communications infrastructure for delivery applications such as transmission pipelines, distribution mains, and service lines for oil and gas and water. Designed for highly secure, reliable, and scalable infrastructure, the CGR 2010 is an ideal platform to support the Smart Grid and other energy delivery infrastructure needs of customers. These ruggedized products have been extensively tested and are KEMA certified to meet challenging substation compliance standards, including IEEE 1613 and IEC 61850-3.

The Cisco CGR 2010 is a rugged router optimized for use in the multitude of different communication networks found in the energy and utility industries. One example application for the Cisco CGR 2010 is for substation networks in harsh environments common in utility transmission and distribution substations. The CGR 2010 provides operators with the benefits of improved security, manageability, and network reliability. The CGR 2010 uses Cisco IOS Software, which is the operating system powering millions of Cisco routers deployed worldwide. Cisco IOS Software delivers the benefits of integrated security for North American Electric Reliability Corporation/Critical Infrastructure Protection (NERC/CIP) compliance, quality of service, and network management to help ensure integrity and priority of operational data communications.

Primary Cisco CGR 2010 features:

- Rugged industrial design, featuring no fans or moving parts, and an extended operational temperature range
- Substation compliance with IEC-61850-3 and IEEE 1613 for utility substation environments
- Integrated security to help address compliance with critical infrastructure protection mandates
- High availability design for maximum network uptime and redundancy
- Network and device management tools for deployments, upgrades, and remote monitoring
- Advanced quality of service (QoS) capabilities to support mission-critical communications such as substation communications such as SCADA (Supervisory Control and Data Acquisition)
- Comprehensive network security features based on open standards

Specifications

Feature	Cisco CGR 2010
Grid Router WAN Interface Card (GRWIC) Slots	4
Gigabit Ethernet density	2 (dual-purpose ports: 100/1000 fiber SFP and/or 10/100/1000 Gigabit copper)
T1/E1 WAN Module	Yes—1 or 2 port T1/E1 CSU/DSU module
Serial RS-232 Module	Yes—Up to 8 ports on a single module. 32 ports maximum with all 4 slots populated
Ethernet Switch Module	Yes—6-port or 10-port module
Flash Memory (External)	256 MB (default) – second compact flash slot can be populated with additional flash memory
DRAM Memory	1024 MB (default)
Power Supply	External high AC/DC and low DC power supply options available for redundant power supply support
Dimensions (H x W x D)	3.5 x 17.25 x 15 in. (88.9 x 438.2 x 381 mm)

Selected Part Numbers and Ordering Information

CGR-2010/K9	Cisco CGR2010 w/2GE, 4 GRWIC slots, 256MB CF, 1GB DRAM, IPB
CGR-2010-SEC/K9	Cisco CGR2010 security bundle w/SEC license PAK

For More Information

http://www.cisco.com/go/cgr2000

Small Business Routers

Cisco SRP 500 Series Services Ready Platforms

The Cisco SRP 500 Series Services Ready Platforms are flexible, cost-effective fixed-configuration customer premises equipment (CPE) with embedded intelligence to enable service providers to create, provision, and deploy premium revenue-generating services--a variety of high-quality IP voice, data, security, wireless, and application services--to small businesses on an as-needed basis. These platforms will help enable service providers to deliver differentiated, converged service offers that increase bandwidth usage and average revenue per user while reducing customer churn.



Key Features and Benefits

- Embedded intelligence to support a variety of high-quality voice, data, security, wireless, and application services.
- Integrated voice ports powered by an industry-leading voice Session Initiation Protocol (SIP) stack to deliver clear, high-quality voice service.
- Integrated stateful packet inspection (SPI) firewall and high-speed IP Security (IPsec) VPN capabilities with support for Triple Data Encryption Standard (3DES) to help keep small business data safe.
- 4-port managed Ethernet switch to connect devices in the office. One port can be designated as the network edge, while VLAN support allows for highly secure segmentation of network resources.
- Integrated 802.1 1n wireless access point to enable employees to connect to the network while away from their desks.
- Third-generation (3G) wireless data readiness with built-in USB modem drivers.
- Interoperability with industry-leading DSL access multiplexers (DSLAMs), soft switches, and voice gateways to enable scalable, end-to-end multiservice network deployments.
- Support for industry-standard TR-069 and XML-based provisioning for zero-touch deployments.
- Easy integration with other Cisco Small Business Series products to enable adaptability as customer needs change.

Specifications

Feature	Cisco SRP 521W	Cisco SRP 526W	Cisco SRP 527W
WAN	10/100 Mbps Fast Ethernet	Asymmetric DSL (ADSL) 2+ Annex B	ADSL 2+ Annex A
Backup WAN	Wireless data using supported 3G USB modem	Wireless data using supported 3G USB modem	Wireless data using supported 3G USB modem
LAN	4 ports 10/100 Mbps Fast Ethernet	4 ports 10/100 Mbps Fast Ethernet	4 ports 10/100 Mbps Fast Ethernet
Voice Ports	2 FXS, 1 FXO (relay	2 FXS, 1 FXO (relay	2 FXS, 1 FXO (relay
USB 2.0 Ports	1	1	1

Selected Part Numbers and Ordering Information

Ethernet	
SRP521W-K9-G1	Cisco SRP 521W, FE WAN, 802.11n FCC, 2FXS/1FXO, US power
SRP521W-K9-G5	Cisco SRP 521W, FE WAN, 802.11n ETSI, 2FXS/1FXO, EU/UK power
SRP521W-K9-G4	Cisco SRP 521W, FE WAN, 802.11n non-FCC, 2FXS/1FXO, ANZ power
ADSL2/2+	
SRP526W-K9-G5	Cisco SRP 526W, ADSL2+ Annex B, 802.11n ETSI, 2FXS/1FXO, EU/UK power
SRP527W-K9-G1	Cisco SRP 527W, ADSL2+ Annex A, 802.11n FCC, 2FXS/1FXO, US power
SRP527W-K9-G4	Cisco SRP 527W, ADSL2+ Annex A, 802.11n non-FCC, 2FXS/1FXO, ANZ power
SRP527W-K9-G5	Cisco SRP 527W, ADSL2+ Annex A, 802.11n ETSI, 2FXS/1FXO, EU/UK power

For More Information

http://www.cisco.com/go/srp500

Cisco RV Series Small Business Routers

The Cisco RV Series Wireless-N VPN Firewall combines highly secure connectivity—to the Internet as well as from other locations and remote workers—with a high-speed, 802.11n wireless access point, a 4-port switch, an intuitive, browser-based device manager, and support for the Cisco FindIT Network Discovery Utility, all at a very affordable price. Its combination of high performance, business-class features, and top-quality user experience takes basic connectivity to a new level.



Key Features and Benefits

- High-speed, standards-based 802.11n wireless connectivity to help employees stay productive while away from their desks
- Integrated 4-port 10/100 switch with quality of service (QoS) support for enhanced voice, video, and data traffic
- Support for separate "virtual" networks enables you to control access to sensitive information and to set up highly secure wireless guest access
- IP Security (IPsec) VPN support with hardware acceleration to deliver highly secure, high-performance connections to multiple locations and traveling employees
- Support for static routing, Routing Information Protocol (RIP) Versions 1 and 2, and inter-VLAN routing to enable flexible connection sharing
- Proven stateful packet inspection (SPI) firewall, plus advanced wireless security to help keep business assets safe
- Simplified configuration through an intuitive, browser-based device manager
- Support for the Cisco FindIT Network Discovery Utility.

Specifications

Feature	Cisco RV110W	Cisco RV120W	Cisco RV220W
WAN	10/100 Mbps Fast Ethernet	10/100 Mbps Fast Ethernet	10/100/1000 Mbps Gigabit Ethernet
Wireless Support	802.11n	802.11n	802.11a/b/g/n
LAN	4 ports 10/100 Mbps Fast Ethernet	4 ports 10/100 Mbps Fast Ethernet	4 ports 10/100/1000 Mbps Gigabit Ethernet

VPN Connectivity	IPsec	IPsec	SSL and IPsec
Maximum VPN Connections	5	10	5 (SSL) 25 (IPsec)
Optional Cisco ProtectLink Gateway Security	No	No	Yes
Online model comparison chart: http://www.cisco.com/en/US/products/ps9923/prod_models_comparison.html			

Selected Part Numbers and Ordering Information

RV110W	Cisco RV 110W Wireless-N VPN Firewall
RV120W	Cisco RV 120W Wireless-N VPN Firewall
RV220W	Cisco RV 220W Wireless-N VPN Firewall

For More Information

http://www.cisco.com/go/smbrouters

Cisco Routing Services

Cisco Routing and Switching Services use leading practices and time-tested methodologies to help you to:

- Successfully integrate new technologies and applications onto the routing and switching platform
- Reduce risk, delays, and the total cost of network deployments
- Keep network devices and applications secure, available, and operating reliably
- Optimize your secure wired and wireless networks to meet future needs
- Achieve operational excellence

Services from Cisco and our partners help you plan, build, and run a more intelligent, responsive, integrated routing and switching network. Services for routing and switching include:

- Routing and Switching Planning Services
  Support successful integration through accurate assessment of the network and overall readiness to support proposed solutions.
- Routing and Switching Design Services
  Reduce risk, delays, and the total cost of network deployments with an implementation-ready design that you can use to engineer your network.
- Cisco Network Optimization Service
  Optimize your network for borderless business evolution and innovation using Cisco expertise and leading practices.
- Cisco Network Availability and Operations Optimization Service
  Effectively adopt, manage, and scale technologies and applications in your converged network environment by optimizing your operational processes and network management tools.
- Cisco SMARTnet Service
  Direct, anytime access to Cisco engineers and an extensive range of technical resources.
- Cisco Application Support Service
  Strengthen application availability, functionality, and reliability.
- Cisco Focused Technical Support Service
  Priority, high-touch technical support for faster issue resolution.
- Cisco Foundation Technology Remote Management Service
  Comprehensive monitoring, issue resolution, and day-to-day management of network devices.

For more information about Cisco Routing and Switching Services, visit http://www.cisco.com/go/services/routing-switching.

Chapter 2: Switching

This chapter provides only a subset of Cisco products and part numbers. Also, you will see products listed multiple times because they have dual roles and are used differently in small, medium, and large networks.

Switching At-a-Glance

Product	Features	Page
CAMPUS LAN—CORE/DISTRIBUTION SWITCHES		
Cisco Catalyst 6500 Series Switches	· Highly scalable system that is the foundation of the Borderless Network (securely connect anyplace at anytime), the Cisco Catalyst 6500 Series delivers granular scalability and virtualization (anyplace), secure identity-based access with TrustSec (anywhere), and remotely managed operational efficiency (anytime). · Simplifies operations, reduces network costs, and increases resiliency through its Virtual Switch System 4T technology · Automates network services, energy control and minimizes total cost of ownership with backward compatibility and features such as GOLD, OBFL, SmartCallHome, EnergyWise · Delivers comprehensive features for operational management, integrated services, QoS, and high availability · Integrates services through its updated portfolio of service modules · Infrastructure ready for IPV6 deployment – full IPV4 and IPV6 feature parity	2–5
Cisco Nexus 7000 Series Switches	· Designed to scale beyond 15 terabits per second with high density 10G today and built in support for 40- and 100-Gigabit connectivity · Enables data center consolidation of LAN and SAN networks over a simplified, single network. · Offers extensive industry leading NX-OS innovations for exceptional intra and inter data center scalability for virtualization and cloud deployments · Offers the industry's highest availability for continuous operation	See 6–6
Cisco Catalyst 4500E Series Switches	· Flexible modular system that can support non-blocking 48 Gigabit per slot and 848 Gigabit per system with multiple media line cards and 1G/10G uplink · Leadership in power delivery/availability and energy management with Universal PoE (UPoE), Energy Efficient Ethernet (EEE), and Cisco EnergyWise · Operational simplicity including flexible NetFlow, Packet Sniffer, Auto SmartPorts, and network automation with Embedded Event Manager · Supports hardware acceleration for Layer 2 through Layer 4 intelligent network services · Redefines high-availability with complete hardware redundancy and true In-Service Software Upgrade · Provides flexible QoS, comprehensive security suite, and non-stop forwarding to maximize uptime and network resiliency · IPv6 leadership in campus access with first hop security and integrates simultaneous IPv4 and IPv6 support	2–9
Cisco Catalyst 4900M Series Switches	· Optimized for small-to-medium aggregation · Supports up to 24 ports with 10 Gigabit Ethernet Fiber interfaces · Supports up to 16 ports with 10 Gigabit Ethernet copper interfaces · Supports up to 32 ports with 1 Gigabit Fiber Ethernet · Supports up to 40 ports with 1 Gigabit Ethernet copper interfaces · Provides up to 320 Gbps forwarding capacity · Supports critical routing protocols and IPv6 in hardware including multicast · Features hot-swappable, redundant power supply and fans	2–14
Cisco Catalyst 3750-X Series Switches	· Stackable enterprise-class fixed-configuration switches are ideal for campus and branch offices. · Deliver scalable in-depth security solutions with Flexible NetFlow for real-time traffic flow analysis and MACsec HW encryption · Deploy video with confidence using built-in with Traffic Simulator and Mediatrace technologies · Ensure investment protection for evolving business needs with four optional uplink network modules with GE or 10GE ports · Increased power availability and operational efficiency with Cisco StackPower and EnergyWise technologies · Support full HW redundancy with dual redundant, modular power supplies and fans · Provide scalability and ease of management with Cisco StackWise Plus technology · Ensure most efficient and comprehensive PoE+ support in the industry with 30W on every port in 1RU · Reduce operational overhead with Smart Operations	2–22

CAMPUS LAN—ACCESS/AGGREGATION SWITCHES		
Cisco Catalyst 4500E Series Switches	· Flexible modular system that can support non-blocking 48 Gigabit per slot and 848 Gigabit per system with multiple media line cards and 1G/10G uplinks · Leadership in power delivery/availability and energy management with Universal PoE (UPOE), Energy Efficient Ethernet (EEE) and EnergyWise · Operational simplicity including flexible Netflow, Packet Sniffer, Auto Smart Ports and network automation with Embedded Event Manager · Supports hardware acceleration for Layer-2 through -4 intelligent network services · Redefines high-availability with complete hardware redundancy and true In-Service Software Upgrade · Provides flexible QoS, comprehensive security suite, and non-stop forwarding to maximize uptime and network resiliency · IPv6 leadership in campus access with first hop security and integrates simultaneous IPv4 and IPv6 support	2–9
Cisco Catalyst 3750 Series Switches	· Next-generation energy-efficient Layer 3 Fast Ethernet stackable switches support Cisco EnergyWise technology. · Consumes less power than their predecessors and are the ideal access layer switch for enterprise, retail, and branch-office environments · Maximizes productivity and provide investment protection	2–16
Cisco Catalyst 3750-E Series Switches	· Stackable, fixed-configuration switches with Cisco StackWise Plus technology and a 64-Gbps interconnect provide a unified, resilient system of up to nine switches · Offers Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6 · Offers up to forty-eight 10/100/1000 ports plus two 10-Gigabit Ethernet ports per stackable switch · Offers field-replaceable and upgradable power supplies and fan · Fully backward-compatible with the Cisco Catalyst 3750 Series Switches	2–20
Cisco Catalyst 3750-X Series Switches	· Stackable enterprise-class fixed-configuration switches are ideal for campus and branch offices. · Deliver scalable in-depth security solutions with Flexible NetFlow for real-time traffic flow analysis and MACsec HW encryption · Deploy video with confidence using built-in with Traffic Simulator and Mediatrace technologies · Ensure investment protection for evolving business needs with four optional uplink network modules with GE or 10GE ports · Increased power availability and operational efficiency with Cisco StackPower and EnergyWise technologies · Support full HW redundancy with dual redundant, modular power supplies and fans · Provide scalability and ease of management with Cisco StackWise Plus technology · Ensure most efficient and comprehensive PoE+ support in the industry with 30W on every port in 1RU · Reduce operational overhead with Smart Operations	2–22
Cisco Catalyst 3560 Series Switches	· Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6. · Fast Ethernet and Gigabit Ethernet connectivity. · Up to forty-eight 10/100/1000 ports plus 4 Small Form-Factor Pluggable (SFP) ports.	2–25
Cisco Catalyst 3560-E Series Switches	· Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6 · Up to forty-eight 10/100/1000 ports plus two 10-Gigabit Ethernet ports per switch · Field-replaceable and -upgradable power supplies and fan	2–28
Cisco Catalyst 3560-X Series Switches	· Standalone fixed-configuration switches are ideal for campus environments and branch offices. · Deliver scalable in-depth security solutions with Flexible NetFlow for real-time traffic flow analysis and MACsec HW encryption · Deploy video with confidence using built-in with Traffic Simulator and Mediatrace technologies · Ensure investment protection for evolving business needs with four optional uplink network modules with GE or 10GE ports · Ensure most efficient and comprehensive PoE+ support in the industry with 30W on every port in 1RU · Reduce operational overhead with Smart Operations	2–30
Cisco Catalyst 2960-S Series Switches	· Stackable switches offer 48- and 24-port Gigabit Ethernet Enhanced Power over Ethernet FlexStack technology · Cisco FlexStack technology in these stackable and standalone switches delivers enhanced LAN services for midsize enterprise and branch-office networks. · Layer 2 switching with intelligent Layer 2–4 services. · Enhanced Power over Ethernet for next-generation high-power devices with 48 and 24 full PoE ports · Cisco Catalyst smart operations automates infrastructure deployment · Unprecedented low levels of box power consumption	2–32
Cisco Catalyst 2960 Series Switches	· 48-port and 24-port Fast Ethernet Power over Ethernet switch · Standalone fixed-configuration switches are ideal for midmarket and branch-office networks. · Layer 2 switching with intelligent Layer 2–4 services. · Fast Ethernet connectivity. · Power over Ethernet (PoE) support includes 24 full PoE ports and 24-port configurations with PoE supported on 8 ports.	2–34

CAMPUS LAN—COMPACT SWITCHES		
Cisco Catalyst 3560-C Series Switches ***NEW PRODUCT***	· 8 and 12 port Gigabit and Fast Ethernet PoE and non-PoE switches · PD/PSE capability enabling PoE power pass through for simplified power and network cabling infrastructure · MACsec encryption for enhanced security · Smart operations for zero-touch deployment and ongoing operational simplicity · Enhanced Power over Ethernet (PoE+) for up to 30W per port · Fanless for silent operation	2–37
Cisco Catalyst 2960-C Series Switches ***NEW PRODUCT***	· 8 and 12 port Fast Ethernet PoE and non-PoE switches · 8 port Gigabit Ethernet · PD/PSE capability enabling PoE power pass through for simplified power and network cabling infrastructure · Smart operations for zero-touch deployment and ongoing operational simplicity · Fanless for silent operation	2–38
CAMPUS LAN—SMALL BUSINESS SWITCHES		
Cisco ESW 500 Series Switches	· Ethernet switches for small business networks · Provides Small Form-Factor Pluggable (SFP) expansion slots for fiber-optic or Gigabit Ethernet uplink connectivity · Supports an optional redundant power supply that provides uninterrupted failover to help ensure continuous operation	2–39
Cisco 300 Series Managed Switches ***NEW PRODUCT***	· Designed to be easy to use and manage by small businesses and the partners who serve them · Rigorously tested to deliver the high availability and performance of a Cisco switch · Provide a high level of security and fine-grained control to safeguard the network from unauthorized users · Offer embedded QoS intelligence to prioritize delay-sensitive services such as voice and video	2–40
DATA CENTER SWITCHES		
Cisco Nexus Switches	For product information, refer to "Chapter 6: Data Center."	See 6–1
Cisco Catalyst 6500 Series Switches	· Hardware optimized multicast platform that provides scalability for traditional data center (large QoS, ACL, NetFlow tables, 16 k BDs and so on) · Simplifies operations, reduces network costs, and increases resiliency through its Virtual Switch System 4T technology · Automates network services, energy control and minimizes total cost of ownership with backward compatibility with features such as GOLD, OBFL, SmartCallHome · Delivers comprehensive features for operational management, integrated services, QoS, and high availability · Supports data center interconnect capabilities and a suite of network virtualization features including VPLS in hardware · Infrastructure ready for IPV6 deployment–full IPV4 and IPV6 feature parity	2–5
Cisco Catalyst 4900M Series Switches	· Optimized for small-to-medium aggregation · Supports up to 24 ports with 10 Gigabit Ethernet Fiber interfaces · Supports up to 16 ports with 10 Gigabit Ethernet copper interfaces · Supports up to 32 ports with 1 Gigabit Fiber Ethernet · Supports up to 40 ports with 1 Gigabit Ethernet copper interfaces · Provides up to 320 Gbps forwarding capacity · Supports critical routing protocols and IPv6 in hardware including multicast · Features hot-swappable, redundant power supply and fans	2–14
Cisco Catalyst 4900 Series Switches	· Ideal solution for data center top or rack deployments and for space constrained branch core deployments that require high performance wire speed services in a 1RU form factor. · The Cisco Catalyst 4900 Series Switches are data center top-of-rack optimized switches with emphasis on buffering for high throughput and full mesh traffic profiles. They offer: - Layer 2–4 switching and intelligent services with dynamic IP routing - Up to 48 1 Gigabit copper ports and up to four 10GE ports for branch core aggregation - Up to 28 SFP ports and two 10GE ports for branch core aggregation - Dual, hot-swappable internal AC or DC power supplies - Hot-swappable fan trays - Data center optimized cooling with front-to-back and back-to-front cooling - Application visibility via NetFlow-lite and eight line-rate bid-dir SPAN/RSPAN	2–15

SERVICE PROVIDER—AGGREGATION SWITCHES		
Cisco Catalyst 6500 Series Switches	· Highly scalable system that is the foundation of the Borderless Network (securely connect anyplace at anytime), the Cisco Catalyst 6500 Series delivers granular scalability and virtualization (anyplace), secure identity-based access with TrustSec (anywhere), and remotely managed operational efficiency (anytime). · Simplifies operations, reduces network costs, and increases resiliency through its Virtual Switch System 4T technology · Automates network services, energy control and minimizes total cost of ownership with backward compatibility and features such as GOLD, OBFL, SmartCallHome · Delivers comprehensive features for operational management, integrated services, QoS, and high availability · Provides WAN connectivity through its MPLS capabilities and SIP modules. Provides native VPLS capability in a Supervisor 2T infrastructure · Infrastructure ready for IPV6 deployment–full IPV4 and IPV6 feature parity	2–5
Cisco ME 3800X Series Ethernet Switches	· Converged, full-featured aggregation platform designed specifically for the mobile, business, and residential markets · Complements the Cisco 7600 Series Routers and Cisco ASR 9000 Series Aggregation Services Routers by providing a rich and scalable feature set of Layer 2 and Layer 3 VPN services in a compact package	2–42
Cisco ME 6500 Series Ethernet Access Switches	· Delivers high performance, reliability, and QoS for small and remote offices · Addresses triple-play implementations supporting voice, video, and data services · Promotes adoption of VPN services for ETTH, ETTB, and DSLAM deployments · Extends advanced MPLS, QoS, multicase, and IPv6 features into Ethernet access and aggregation networks	2–44
SERVICE PROVIDER—ETHERNET ACCESS SWITCHES		
Cisco ME 3600X Series Ethernet Access Switches	· Built specifically for the convergence of wireless and wireline services · Enables service providers to initiate Multiprotocol Label Switching (MPLS)-based VPN services from within the access layer	2–45
Cisco ME 3400 Series Ethernet Access Switches	· Helps reduce total cost of ownership and operating expenses · Simplifies deployment with a compact form factor · Promotes continuous switch operation · Helps shield subscribers from malicious users and traffic	2–47
Cisco ME 3400E Series Ethernet Access Switches	· Supports deployment of advanced Ethernet business services · Provides tools to deliver high service availability · Offers a path for flexible and differentiated services · Enhances network services security against malicious use	2–49
Cisco Catalyst 4500E Series Ethernet Access Switch	· Provides residential and business services · Supports voice, video, data, wholesale, L2, and L3 VPN services · High performance, scalable and easy to manage solution that reduces CapEx and OpEx, improving quality of experience	2–50
CONNECTED GRID SWITCHES		
Cisco 2500 Series Connected Grid Switches	· Designed specifically for the harsh, rugged environments often found in the energy and utility industries · KEMA certified to meet challenging compliance standards such as IEC 61850-3 and IEEE 1613 · Tools for easy deployment, management, and replacement · Advanced quality of service (QoS) capabilities to support mission-critical substation applications such as supervisory control and data acquisition (SCADA) and IEC 61850 generic object oriented substation event (GOOSE) messaging	2–54
SERVICES		
Cisco Routing and Switching Services use leading practices and time-tested methodologies to help you to: · Successfully integrate new technologies and applications onto the routing and switching platform · Reduce risk, delays, and the total cost of network deployments · Keep network devices and applications secure, available, and operating reliably · Optimize your secure wired and wireless networks to meet future needs · Achieve operational excellence		2–55

FOR MORE INFORMATION

Product Ordering
To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml.

End-of-Life and End-of-Sale
Please visit the end-of-life and end-of-sale website for a complete and up-to-date listing of products that are no longer being sold or supported, what replacement products are available, and information about product support.
http://www.cisco.com/en/US/products/prod_end_of_life.html

NOTE: This chapter provides only a subset of Cisco products and part numbers. For the most up-to-date and comprehensive information, refer to the Cisco website at http://www.cisco.com, the Cisco ordering website at http://www.cisco.com/en/US/ordering/index.shtml, or reference the URL listed in the "For More Information" section of each product.

For more information about Cisco switching platforms, refer to the Cisco Catalyst Switch Guide at http://www.cisco.com/go/switchguide.

Campus LAN—Core/Distribution Switches

Cisco Catalyst 6500 Series Switches



Cisco Catalyst 6500 Series Switches are the benchmark for innovation in the networking industry. The Cisco Catalyst 6500 offers a high performance, feature-rich platform suitable for deployment in campus, traditional data center, WAN, and Metro-Ethernet networks in a wide variety of applications. As the foundation of the Borderless Network (securely connect anyplace at anytime), the Cisco Catalyst 6500 Series delivers granular scalability and virtualization (anyplace), secure identity-based access with TrustSec (anywhere), and remotely managed operational efficiency (anytime).

- Highly scalable—2Tbps fabric, delivering 80 Gbps switching capacity per slot, scaling to 4 Tbps system capacity with Virtual Switching System (VSS). 80 G-capable system supports up to 360 10 G ports and 1068 1 G ports per VSS system. System offers performance up to 720 Mpps of IPv4 and 390 Mpps of IPv6. Video optimized multicast hardware including native IPv6 multicast support, scalability up to 256 K multicast entries in the FIB, VPN (mVPN) performance improvements. Scalable and protected control plane that converges faster for mission-critical networking applications. Large table sizes (for example, MAC table, bridge domains, FIB, ACL and more) for scalable deployments.
- VSS—VSS capability activates all available bandwidth across redundant Cisco Catalyst 6500 Switches and eliminates asymmetric routing. Supports interchassis stateful failover with no disruption. EtherChannels provide deterministic sub-second recovery.
- Comprehensive Security Suite—Offers infrastructure consolidation by allowing customers to solve security, compliance, acquisition guest access, and restricted access challenges by providing segmentation, path isolation, privacy, limited fate sharing, membership definition, and address space separation technologies.
- Supports identify (with 802.1x suite), tag (with Secure Group Tag [SGT]), encrypt (MACSec), police (SGACL) with Cisco TrustSec. Data protection with wire-rate link-layer encryption with hardware MACsec support.
- Operational efficiency—Supports investment protection with modular design that facilitates multiple generations of components on one chassis. Highly versatile monitoring of switches across your network with SPAN/RSPAN and ability to virtually connect an analyzer at your desk to almost any port on your network with ERSPAN. Application visibility through Flexible NetFlow, Egress NetFlow, Sampled NetFlow, and CPU Preserving NetFlow Export capabilities. Image recovery and console logging through the Connectivity Management Processor (CMP). Onboard packet capture facility with Mini Port Analyzer.
- High availability—Offers integrated architecture resiliency, thereby providing continuous access to applications, data, and content to customers.
- Seamless hardware recovery—Built for high availability with support for redundant power supplies, hot-swappable fan trays, parity protection, dual fabric channels and dual Supervisors. Pre-emptive health check capability to avoid potential hardware outages using Generic Online Diagnostics (GOLD).
- Service versatility—Comprehensive service module portfolio including firewalls, load balancers, network analysis modules, and WiSMs. Infrastructure that supports virtualization of a service module and runs multiple services or applications in a virtualized environment.

Ideal for Companies That Need These Features

Cisco Catalyst 6513-E	· High-capacity chassis for Ethernet connectivity provides 2 Tbps scalability for high density core and distribution environments · Spare slots for services modules providing network security and management
Cisco Catalyst 6509-E	· Use in the wiring closet, distribution, core, data center, and WAN edge
Cisco Catalyst 6509-V-E	· Front-access power supplies · Integrated cable management for high-density cabling environments · Front-to-back airflow optimized for high-density data center deployments
Cisco Catalyst 6506-E	· Medium-form factor chassis for the wiring closet, distribution, core, data center, and WAN edge
Cisco Catalyst 6504-E	· Small form factor, high performance, chassis sharing interface modules and supervisor engines with larger chassis for common sparing · Suitable for small and medium-sized enterprise core or distribution, or the metro or enterprise WAN edge
Cisco Catalyst 6503-E	· Low-density wiring-closet chassis sharing interface modules and supervisor engines with larger chassis for common sparing
Cisco Catalyst Supervisor Engine 2T	· 2 Tbps Supervisor high-bandwidth deployments: campus core, distribution, aggregation, and provides investment protection in access and traditional data centers. Supports 1G/10G/40G infrastructure · Compatibility with all Cisco Catalyst 6500 E Series chassis
Cisco Catalyst 6500 Virtual Switching Supervisor Engine 720-10G	· Suitable for campus core, distribution, aggregation, and provides investment protection in access and traditional data centers. Supports 1G and 10G infrastructure · Compatibility with all Cisco Catalyst 6500 chassis (except the Cisco Catalyst 6503 Switch)
Cisco Catalyst 6500 Series Supervisor Engine 720	· Suitable for core, distribution, aggregation, and data center access · Compatibility with all Cisco Catalyst 6500 chassis

Cisco Catalyst 6500 Series Supervisor Engine 32

- Wiring closet access
- Compatibility with all Cisco Catalyst 6500 chassis

Key Features and Benefits

- The Cisco Catalyst 6500 high-end supervisor family uses Virtual Switching System (VSS) technology, built on this supervisor engine, which facilitates easy-to-use, reliable, and scalable switching for enterprise core, distribution, data center, and server access. VSS delivers a system performance of up to 1.44 Tbps by unifying two physical switches into a single, logical entity, offering optimized network convergence, load balancing, and manageability.
- The Cisco Catalyst 6500 with Supervisor Engine 2T switching fabric unlocks 80 Gbps/slot on all Cisco Catalyst 6500 E Series platforms, thereby providing high-density 1 Gbps, 10 Gbps, and 40 Gbps network connectivity on a single chassis. This system offers 720 Mpps distributed switching performance, building the foundation for the Cisco Catalyst 650 Virtual Switching System 4T.
- Cisco Catalyst 6500 with Virtual Switching Supervisor Engine 720-10G—The supervisor engine can be used in standalone mode to deliver up to 48 Mpps of centralized and 450 Mpps of distributed switching performance, building the foundation for the Cisco Catalyst 6500 Virtual Switching System 1440.
- Cisco IOS Software modularity—The Cisco Catalyst 6500 Series reduces planned and unplanned downtime while boosting operational efficiency. Faults within modular subsystems are isolated from all other processes, and can be restarted without losing state (stateful process restarts). While modular IOS image will continue to be supported in 12.2(33)SXI, software patches will no longer be provided starting 12.2(33)SXI3.
- Cisco IOS Embedded Event Manager (EEM)—The Cisco IOS EEM automates proactive administrative tasks and network reactions to unexpected events to further enhance operational efficiency.
- Maximum PoE scalability—The Cisco Catalyst 6500 Series supports up to 500+ Class 3 devices; it accelerates deployment of PoE-enabled devices such as IP telephones and wireless access points. Cisco Intelligent Power Management allocates the optimal amount of power per device.
- Multichassis EtherChannel (MEC) Support—MEC provides redundancy for physical links and switches and can be deployed using VSS on the Cisco Catalyst 6500 Series Switches.
- Cisco Catalyst 6500 Supervisor Engine 32—Optimized for oversubscribed wiring closet deployments; it incorporates a 32-Gbps shared bus architecture with support for up to 15 Mpps of switching performance. Centralizing Layer 2 and Layer 3 forwarding, the supervisor engine is available in two models: 8-port Gigabit Ethernet uplinks or 2-port 10-Gigabit Ethernet uplinks.
- Various integrated service modules allow multigigabit throughput of services such as firewall, intrusion detection, anomaly detection, content switching (load balancing), network analysis, wireless integration, voice gateway, and so on.
- Flexible configuration options—Modular 3-slot, 4-slot, 6-slot, 9-slot, and 13-slot chassis provide flexible configurations with up to 80-GB per-slot capacity.
- End-to-end security—Cisco Catalyst 6500 switches support Cisco Network Admission Control (NAC) and 802.1x, Cisco TrustSec, hardware-based Control Plane Policing (CoPP); DHCP, IPSG; NetFlow; access control lists (ACLs), improved control plane policing, Mini Protocol Analyzer to span control plane traffic, Secure Shell (SSH) Protocol and ASA-SM to provide security for both users and network services.
- Cisco EnergyWise—Helps monitor and reduce company-wide power consumption and carbon footprint by allowing IT operations and facilities to measure and fine-tune power usage to realize significant cost savings. EnergyWise focuses on reducing power utilization on all devices connected to a Cisco network ranging from PoE devices such as IP phones to PCs.

Specifications

Feature	Cisco 6503-E	Cisco 6504-E	Cisco 6506-E	Cisco 6509-E	Cisco 6509-VE	Cisco 6513
Modular Slots	3	4	6	9	9	13
Gigabit Ethernet SFP density	98	146	242	386	384	528
10 Gigabit Ethernet X2 port density	34	50	82	130	130	180
10 Gigabit Ethernet (Xenpack)	8	12	20	32	32	44
10 Gigabit Ethernet RJ45 port density	32	48	80	128	128	176
10/100/1000 density	97	145	241	385	385	577
10/100 density	192	288	480	768	768	1152
100BASE-FX density	98	146	242	386	386	578
Max. watt power consumption (redundant mode)						
AC Internal[1]	1,400	2,700	6,000	8,700	8,700	8,700
DC Internal	950	2,700	6,000	6,000	6,000	6,000
Max. number of 10/100/1000 Class 3 devices (15.4W) Max. power supplies						
AC Internal	48	110	240	384	384	265
WAN Interfaces	DS0 to OC-192					

Available Bandwidth	Scalable to 240 Gbps	Scalable to 320 Gbps	Scalable to 480 Gbps	Scalable to 720 Gbps	Scalable to 720 Gbps	Scalable to 1040 Gbps
Throughput	Scalable to 180 Mpps	Scalable to 240 Mpps	Scalable to 360 Mpps	Scalable to 480 Mpps	Scalable to 480 Mpps	Scalable to 720 Mpps
Redundant Supervisor	Yes					
Hot-Swappable Power Supplies	Yes					
VLAN Maximum	4096					
EtherChannel Capable	Yes; up to 8 links of Fast Ethernet, Gigabit Ethernet or 10GE.					
Management Capabilities	CiscoWorks 2000, RMON, Encapsulated Remote Switched Port Analyzer (ERSPAN), SNMP, Telnet, BOOTP, and Trivial File Transfer Protocol (TFTP), EEM, GOLD, Smart Call Home, Syslog, CMP, MPA					
Rack Unit (RU)	4	5	12	15	21	20
Dimensions (H x W x D)	7 x 17.5 x 21.7 in. (17.8 x 44.1 x 55.2 cm.)	8.7 x 17.5 x 21.6 in. (22.2 x 44.5 x 55.2 cm.)	19.2 x 17.5 x 18.2 in. (48.8 x 44.5 x 46.0 cm.)	24.5 x 17.5 x 18.2 in. (62.2 x 44.5 x 46.0 cm.)	36.75 x 17.2 x 20.7 in. (93.3 x 43.1 x 53.3 cm.)	33.3 x 17.3 x 18.1 in. (84.6 x 43.7 x 46.0 cm.)
Unit weight (chassis only)	33 lbs. (15.0 kgs.)	40 lbs. (18.1 kgs.)	50 lbs. (22.7 kgs.)	60 lbs. (27.3 kgs.)	121 lbs. (54.9 kgs.)	98 lbs. (45.0 kgs.)

Supervisor Engines	**Supervisor Engine 2T VS-S2T-10G VS-S2T-10G-XL**	**Virtual Switching Supervisor Engine 720-10G (VS-S720-10G-3C=) (VS-S720-10G-3CXL=)**	**Supervisor Engine 720 (WS-SUP720-3BXL) (WS-SUP720-3B)**
Chassis supported	All E Series chassis	All (except 6503 non-E)	All
Bandwidth per slot	80 Gbps	40 Gbps	40 Gbps
Total bandwidth	2.04 Tbps	720 Gbps	720 Gbps
Packets per second	720 Mpps	48 Mpps centralized; 456 Mpps distributed	30 Mpps centralized; 425 Mpps distributed
MAC addresses supported	128 K	96K Max./80K effective	64K Max./32K effective
Routes supported	VS-S2T-10G: 256 K (ipv4), 128 K (ipv6) VS-S2T-10G-XL: 1024 K (ipv4), 512 K (ipv6)	256,000 (3C); 1,000,000 (3CXL)	256,000 (3B); 1,000,000 (3BXL)
Onboard memory (DRAM)	2 GB	1 GB	Up to 1GB

Supervisor Engines	**Supervisor Engine 32 (WS-SUP32-10GE-3B) (WS-SUP32-GE-3B)**
Chassis supported	All
Hardware Accelerated Network Based Application Recognition (NBAR)	N/A
Hardware Accelerated Flexible Packet Matching (FPM)	N/A
Total bandwidth	32 Gbps
Packets per second	15 Mpps
MAC addresses supported	64K Max./32K effective
Routes supported	256,000
Onboard Memory (DRAM)	Up to 1 GB

Supervisor Engine 2T/Supervisor 720 Scalability (Unicast)

Supervisor	**VS-S2T-10G**	**VS-S2T-10G-XL**	**WS-SUP720-3B**	**WS-SUP720-3BXL**	**VS-S720-10G-3C**	**VS-S720-10G-3CXL**
IPv4 Routing	Up to 720 Mpps in hardware	Up to 720 Mpps in hardware	Up to 400 Mpps in hardware	Up to 400 Mpps in hardware	Up to 450 Mpps in hardware	Up to 450 Mpps in hardware
IPv6 Routing	Up to 390 Mpps in hardware	Up to 390 Mpps in hardware	Up to 200 Mpps in hardware	Up to 200 Mpps in hardware	Up to 225 Mpps in hardware	Up to 225 Mpps in hardware

IPv4 Routes	256 K	1024 K	256,000	1,000,000	256,000	1,000,000
IPv6 Routes	128 K	512 K	128,000	500,000	128,000	500,000
Online model comparison chart: http://www.cisco.com/en/US/products/hw/switches/ps708/prod_models_comparison.html						

1. Redundant mode

Selected Part Numbers and Ordering Information

Catalyst 6500 Chassis	
WS-C6503-E	Cisco Catalyst 6500 Enhanced 3-slot chassis,4RU,no PS, no Fan Tray
WS-C6504-E	Cisco Catalyst 6500 Enhanced 4-slot chassis,5RU,no PS, no Fan Tray
WS-C6506-E	Cisco Catalyst 6500 Enhanced 6-slot chassis,12RU,no PS, no Fan Tray
WS-C6509-E	Cisco Catalyst 6500 Enhanced 9-slot chassis,15RU,no PS, no Fan Tray
WS-C6509-V-E	Cisco Catalyst 6500 Enhanced 9-slot Chassis (Vertical), No PS, Fan
WS-C6513-E	Cisco Catalyst 6500 13-slot chassis,20RU,no PS, no Fan Tray
Virtual Switching Supervisor Engine 720-10G Bundles	
VS-C6504E-S720-10G	Cisco Catalyst Chassis+Fan Tray+Sup720-10G; IP Base ONLY; NO VSS
VS-C6506E-S720-10G	Cisco Catalyst Chassis+Fan Tray+Sup720-10G; IP Base ONLY; NO VSS
VS-C6509E-S720-10G	Cisco Catalyst Chassis+Fan Tray+Sup720-10G; IP Base ONLY; NO VSS
VS-C6509VE-S720-10G	Cisco Catalyst Chassis+Fan Tray+Sup720-10G; IP Base ONLY; NO VSS
VS-C6513-S720-10G	Cisco Catalyst Chassis+Fan Tray+Sup720-10G; IP Base ONLY; NO VSS
Supervisor Engine 32 Bundles	
WS-C6503E-S32-10GE	Cisco Catalyst 6503E chassis, WS-SUP32-10GE-3B, Fan Tray (req.P/S)
WS-C6504E-S32-10GE	Cisco Catalyst 6504-E Chassis + Fan Tray + Sup32-10GE
WS-C6506E-S32-10GE	Cisco Catalyst 6506E chassis, WS-SUP32-10GE-3B, Fan Tray (req.P/S)
WS-C6509E-S32-10GE	Cisco Catalyst 6509E chassis, WS-SUP32-10GE-3B, Fan Tray (req.P/S)
WS-C6513-S32-10GE	Cisco Catalyst 6513 chassis, WS-SUP32-10GE-3B, Fan Tray (req. P/S)
WS-C6503E-S32-GE	Cisco Catalyst 6503E, WS-SUP32-GE-3B, Fan Tray (req. P/S)
WS-C6504E-S32-GE	Cisco 6504-E Chassis + Fan Tray + Sup32-GE
WS-C6506E-S32-GE	Cisco Catalyst 6506E, WS-SUP32-GE-3B, Fan Tray (req. P/S)
WS-C6509E-S32-GE	Cisco Catalyst 6509E, WS-SUP32-GE-3B, Fan Tray (req. P/S)
WS-C6513-S32-GE	Cisco Catalyst 6513, WS-SUP32-GE-3B, Fan Tray (req. P/S)
Advanced Technology Bundles	
DSN09E-VS720-AC-K9	Cisco Catalyst 6509E Data Center Services Bundle (6509-E Chassis, Dual-AC pwr, Sup720-10G, 3x FWSM, 1x ACE, 6704)
DSN09E-VS720-DC-K9	Cisco Catalyst 6509E Data Center Services Bundle (6509-E Chassis, Dual-DC pwr, Sup720-10G, 3x FWSM, 1x ACE, 6704)
DSN06E-VS720-AC-K9	Cisco Catalyst 6506E Data Center Services Bundle (6506-E Chassis, Dual-AC pwr, Sup720-10G, 3x FWSM, 1x ACE, 6704)
DSN06E-VS720-DC-K9	Cisco Catalyst 6506E Data Center Services Bundle (6506-E Chassis, Dual-DC pwr, Sup720-10G, 3x FWSM, 1x ACE, 6704)
DSN9VE-VS720-AC-K9	Cisco Catalyst 6509VE Data Center Services Bundle (6509-VE Chassis, Dual-AC pwr, Sup720-10G, 3x FWSM, 1x ACE, 6704)
DSN9VE-VS720-DC-K9	Cisco Catalyst 6509VE Data Center Services Bundle (6509-VE Chassis, Dual-DC pwr, Sup720-10G, 3x FWSM, 1x ACE, 6704)
WS-C6504-E-VPN+-K9	Cisco Catalyst 6504E IPSec VPN SPA Security System
WS-C6506-E-VPN+-K9	Cisco Catalyst 6506E IPSec VPN SPA Security System
WS-C6509-E-VPN+-K9	Cisco Catalyst 6509E IPSec VPN SPA Security System
WS-C6513-VPN+-K9	Cisco Catalyst 6513 IPSec VPN SPA Security System
WS-C6503-E-FWM-K9	Cisco Catalyst 6503E Firewall Security System

WS-C6506-E-FWM-K9	Cisco Catalyst 6506E Firewall Security System
WS-C6509-E-FWM-K9	Cisco Catalyst 6509E Firewall Security System
WS-C6513-FWM-K9	Cisco Catalyst 6513 Firewall Security System
WS-C6504E-ACE20-K9	Cisco ACE20 6504E Bundle with 4 Gbps Throughput License
WS-C6509E-ACE20-K9	Cisco ACE20 6509E Bundle with 8 Gbps Throughput License
WS-C6504-E-WISM	Cisco Catalyst 6504-E WiSM bundle (SUP720-3B,WiSM, Fan Tray, (2) P/S)
WS-C6509-E-WISM	Cisco Catalyst 6509-E WiSM bundle (SUP720-3B,WiSM, Fan Tray, no P/S)

For More Information

http://www.cisco.com/go/catalyst6500

Campus LAN—Access/Aggregation Switches

Cisco Catalyst 4500E Series Switches



The Cisco Catalyst 4500E Series is a medium-density modular switch delivering robust intelligent services for unified communications deployments. The simple centralized architecture, media flexibility, and scalability of the Cisco Catalyst 4500 Series deliver maximum investment protection with backward and forward compatibility across several generations dating back to 1999, maximizing return on investment while minimizing recurring operational expenses.

The Cisco Catalyst 4500 E-Series is a high-performance next-generation extension of the Cisco Catalyst 4500 Series Switches. It builds on Cisco Catalyst 4500 Series architecture offering higher services, features, flexibility, and performance while continuing to maximize investment protection across the Cisco Catalyst 4500 Series Switches.

The Cisco Catalyst 4500 Series extends intelligence and operational simplicity to the network edge (wiring closet and FTTH access) for unified communications with intelligent network services, sophisticated quality of service (QoS), predictable performance, advanced security, up to 60 watts of Power over Ethernet (PoE), up to 384 1GE RJ45 ports, up to 100 10GE SFP+ fiber ports, and comprehensive management features. The Cisco Catalyst 4500 Series delivers high levels of integrated resiliency in both hardware and software, minimizing costly downtime for both planned and unplanned network outages and helping maximize workforce productivity.

The Cisco Catalyst 4500E Series Supervisor Engines Supervisor 7-E and Supervisor 6L-E are high performance intelligent modular access switches for unified communications networks.

Ideal for Companies That Need These Features

Supervisors

Cisco Catalyst 4500E Series Supervisor Engine 7-E

- Designed for enterprise-class borderless network access and aggregation
- Centralized 848 Gbps per system (up to 48 Gbps per slot)
- Four ports of 10G SPF+/SFP uplinks
- Hardware readiness for Cisco TrustSec and Virtual Switching System (VSS)
- Running Cisco IOS XE Open Service Platform software that allows hosting third-party applications
- High-performance IPv6 in hardware
- Optimized for simultaneous IPv4 and IPv6 deployments or migration
- Supports E-Series chassis
- Simultaneously supports classic and E-Series line cards in same chassis
- Supports dynamic QoS, security, and IPv6 resource optimization

Cisco Catalyst 4500E Series Supervisor Engine 6L-E

- High performance Layer 2, 3, and 4 switching
- Centralized 280-Gbps switching capacity (225 millions of packets per second throughput)
- Advanced QoS support with up to eight queues per port, dynamic queue sizing, and hierarchical policing to provide flexibility and control
- Up to 24 Gbps per line-card slot
- Dual 10 Gigabit Ethernet uplinks (X2 optics) and supports twin gigabit module
- Support for line-rate forwarding for IPv6 packets
- Dynamic hardware forwarding table allocations for ease of IPv4-to-IPv6 migration

Cisco Catalyst 4500E Series Supervisor Engine 6-E	· Designed for high-density enterprise wiring closets, medium-sized core, distribution, and branch-office collapsed core · High-performance Layer 2, 3, and 4 switching (320-Gbps capacity, 250 mpps) · Enables 24 Gbps per slot when deployed in the Cisco Catalyst 4500 E-Series chassis · High-performance IPv6 in hardware · Optimized for simultaneous IPv4 and IPv6 deployments or migration · Supports classic and E-Series chassis · Simultaneously supports classic and E-Series line cards in same chassis · Supports twin gigabit converter module · Supports dynamic QoS, security, and IPv6 resource optimization
Cisco Catalyst 4500 Supervisor Engine V-10GE	· Designed for high-density enterprise wiring closets and branch-office collapsed core; · Supports high-performance Layer 2, 3, and 4 switching · Compatibility with future versions with two 10-Gigabit Ethernet and four Gigabit Ethernet uplinks · Supports integrated NetFlow · Supports all Cisco Catalyst 4500 chassis
Chassis	
Cisco Catalyst 4510R+E	· High performance, port density, high availability (ISSU) through redundant supervisor engines · Support for both classic and E-Series line cards · Port density up to 384 10/100 /1000 (RJ-45 with or without Power over Ethernet, or up to 100 10-Gigabit Ethernet ports · Up to 848-Gbps nonblocking switching fabric, 250-Mpps forwarding rate using the Supervisor Engine 7-E, or up to 48-Gbps per-slot bandwidth
Cisco Catalyst 4510R-E	· High performance, port density, high availability (ISSU) through redundant supervisor engines · Support for both classic and E-Series line cards · Port density up to 384 10/100/1000 (RJ-45 with or without Power over Ethernet or up to 100 10-Gigabit Ethernet ports · Up to 320-Gbps nonblocking switching fabric, 250-Mpps forwarding rate using the Supervisor Engine 6-E, or up to 24-Gbps per-slot bandwidth except the last 3 slots, which provide 6 Gbps per slot
Cisco Catalyst 4507R-E	· Network resiliency and high availability (ISSU) through redundant supervisor engines · Support for both classic and E-Series line cards · Port density up to 240 10/100/1000 (RJ-45 with or without Power over Ethernet) or up to 60 10-Gigabit Ethernet ports · Up to 280-Gbps, 210-Mpps, or 24-Gbps per-slot bandwidth when used with the Supervisor Engine 6-E, and Supervisor Engine 6L-E
Cisco Catalyst 4507R+E	· Network resiliency and high availability (ISSU) through redundant supervisor engines · Support for both classic and E-Series line cards · Port density up to 240 10/100/1000 (RJ-45 with or without Power over Ethernet) or up to 60 10-Gigabit Ethernet ports · Up to 560-Gbps, 210-Mpps, or 48-Gbps per-slot bandwidth when used with the Supervisor Engine 7-E
Cisco Catalyst 4506-E	· Port density up to 240 10/100/1000 (RJ-45 with or without Power over Ethernet) or 60 10-Gigabit Ethernet ports · Support for both classic and E-Series line cards · Support for up to 280-Gbps, 210-Mpps, or 24-Gbps per-slot bandwidth when used with the Supervisor Engine 6-E and Supervisor Engine 6L-E
Cisco Catalyst 4503-E	· Port density up to 96 10/100/1000 (RJ-45 with or without Power over Ethernet) or 24 10-Gigabit Ethernet ports · Support for both classic and E-Series line cards · Up to 136-Gbps, 102-Mpps, or 24-Gbps per-slot bandwidth when used with the Supervisor Engine 6-E and Supervisor Engine 6L-E · Up to 272-Gbps, 250-Mpps, 94 48-Gbps per-slot bandwidth when used with the Supervisor Engine 7-E

Note: Compatible sparing between Cisco Catalyst 4510R+E, 4510R-E, 4507R-E, 4507R+E 4506-E, and Cisco Catalyst 4503-E chassis provides investment protection with common supervisor engines, power supplies, and switching line cards.

Key Features and Benefits

- Cisco IOS XE Software is the open service platform software for the Cisco Catalyst 4500E Supervisors beginning with the Supervisor 7-E, which allows running third-party applications such as Wireshark on Sup-7E. Cisco continues to evolve Cisco IOS Software to support next-generation switching hardware and provide increased architectural flexibility to deliver quick adoption of future Cisco Borderless Networks services, while making sure of customer investment protection in Cisco IOS Software
- Cisco IOS Flexible NetFlow is the next generation in flow technology, allowing optimization of the network infrastructure, reducing operation costs, improving capacity planning and security incident detection with increased flexibility and scalability. The Cisco Catalyst 4500E Supervisor Engine 7-E is the first Cisco Catalyst supervisor engine to provide optimized application visibility with Flexible NetFlow with a capability of 128K Flexible NetFlow Entries. The Supervisor Engine 7-E, with custom-built ASIC, delivers next-generation flow technology with unprecedented flexibility and comprehensive visibility extending from Layer 2 (MAC, VLAN) to Layer 4 (TCP, UDP flags, and so on)
- Investment protection—Evolutionary centralized modular architecture provides maximum backward compatibility across several generations of Cisco Catalyst 4500E Series Switches. Upgrading all system ports to higher-level functions and features are easy with a simple supervisor-engine upgrade.

- Flexible options—Modular 3- and 6-slot single supervisor chassis and 7- and 10-slot redundant supervisor chassis support numerous connectivity and service configurations with up to 48-GB per-slot capacity.
- Nonstop communications—Redundant supervisor engines offer In Service Software Upgrade (ISSU) and Nonstop Forwarding/Stateful Switchover (NSF/SSO) with 50-ms failover; redundant power supplies offer power circuit redundancy; and hot-swappable fan trays are designed with redundant fans.
- Comprehensive security—These switches support integrated Cisco Network Admission Control (NAC) and 802.1x, hardware-based Control Plane Policing (CoPP); integrated man-in-the-middle and denial-of-service (DoS) attack mitigation; NetFlow; access control lists (ACLs), and Secure Shell (SSH) Protocol.
- Comprehensive management—These switches support LAN Management System (LMS), Cisco Network Assistant, Remote Switched Port Analyzer (RSPAN), Cisco IOS Embedded Event Manager (EEM), IPSLA, Time Domain Reflectometer (TDR), Digital Optical Monitoring (DOM), and Flexible NetFlow.
- High port density—These switches offer up to 384 Fast Ethernet or Gigabit Ethernet ports or 96 10-Gigabit Ethernet ports.
- Ease of use—Cat4500E supports features such as Embedded Event Manager, Auto Smart Ports, Universal Images on SUP7-E that provides simplified deployment and operational Simplicity for Customers.
- IP communications—Supports up to 60 watts per port through Cisco prestandard UPoE and backward compatible with IEEE up to 30W PoE+.
- Cisco EnergyWise on the Cisco Catalyst 4500 E-Series allows IT operations and facilities to measure and fine-tune power usage to realize significant cost savings. EnergyWise focuses on reducing power usage on all devices connected to a Cisco network, ranging from PoE devices such as IP phones and wireless access points to integration with IP-enabled building and lighting controllers. For more information, see the following URL: http://www.cisco.com/en/US/products/ps10195/index.html.
- Cisco Catalyst 4500E Series and Cisco Catalyst 4500 switches extend the warranty from the previously offered 90-day warranty to a limited lifetime warranty (LLW). For more information, see the following URL: http://www.cisco.com/en/US/prod/collateral/switches/ps5718/ps4324/product_bulletin_c25-533284.html.

Specifications

4500 E-Series Chassis	Cisco 4503-E	Cisco 4506-E	Cisco 4507R+-E	Cisco 4510R+-E
Slots	3	6	7	10
Redundant Supervisor Option	No	No	Yes	Yes
Gigabit Ethernet GBIC/SFP density (including uplink)	100	244	244 with Dual Sup 7-Es	388 with Dual Sup 7-Es
10 GE Fiber port density (including uplink)	28	64	64	100
10/100/1000 density (including uplink)	100	244	244	388
100BASE-FX, LX-10, BX-D density	96	240	240	384
Rack Unit (RU)	7	10	11	14
Backplane Capacity using Supervisor 7-E	136 Gbps	560	560 Gbps	848 Gbps
Power Over Ethernet Plus (PoEP) Support (after software upgrade on premium linecard)	Up to 30W of PoE – 25 ports can be enabled @ 30W[1]	Up to 30W of PoE – 25 ports can be enabled @ 30W [1]	Up to 30W of PoE – 25 ports can be enabled @ 30W [1]	Up to 30W of PoE – 25 ports can be enabled @ 30W[1]
Universal Power Over Ethernet (UPoP) Support	Up to 60W of UPoE – 25 ports can be enabled @ 60W[1]	Up to 60W of UPoE – 25 ports can be enabled @ 60W[1]	Up to 60W of UPoE – 25 ports can be enabled @ 60W[1]	Up to 60W of UPoE – 25 ports can be enabled @ 60W[1]
1+1 Power Supply Protection	Yes	Yes	Yes	Yes
Hot-Swappable Power Supplies	Yes	Yes	Yes	Yes
Max. watt power consumption				
AC Internal	6000W	6000W	6000W	6000W
AC External with power shelf	1,400 + power shelf = 7,500	1,400 + power shelf = 7,500	1,400 + power shelf = 7,500	1,400 + power shelf = 7,500
DC Internal	1,400 + UPS = 7,500	1,400 + UPS = 7,500	1,400 + UPS = 7,500	1,400 + UPS = 7,500
Max. number of Class 3 devices (15.4W) Max. power supplies				
AC Internal	108	240	240	289
AC External with power shelf	108	240	240	364
DC Internal	108	240	240	384

Max. number of PoE Plus devices (30W) Max. power supplies				
AC Internal	96	240	240	240
AC External with power shelf	96	240	240	240
DC Internal	96	240	240	240
Max. number of PoE Plus devices (60W) Max. power supplies				
AC Internal	48	120	120	120
AC External with power shelf	48	120	120	120
DC Internal	48	120	120	120
Unit weight (with Fan Tray)	32.25 lbs. (14.63 kgs.)	40.50 lbs. (18.37 kgs)	44.50 lbs. (20.19 kgs)	54.50 lbs. (24.73 kgs)
Dimensions (H x W x D)	12.25 x 17.31 x 12.50 in (31.12 x 43.97 x 31.70 cm)	17.38 x 17.31 x 12.50 in (44.13 x 43.97 x 31.70 cm)	19.19 x 17.31 x 12.50 in (48.74 x 43.97 x 31.70 cm)	24.35 x 17.31 x 12.50 in. (61.84 x 43.97 x 31.70 cm)
Supervisor Engines	**Supervisor 7-E (WS-X45-Sup7-E)**	**Supervisor 6-E (WS-X45-Sup6-E)**	**Supervisor 6L-E (WS-X45-Sup6L-E)**	**Supervisor V-10GE (WS-X4516-10GE)**
Chassis supported	All	All	All	All
Enhanced Layer 3 option	yes	yes	yes	yes
Total bandwidth (Gbps)	848	320	280	136
Packets per second (Mpps)	250 (IPv4) 125 (IPv6)	250 (IPv4) 125 (IPv6)	225 (IPv4) 110 (IPv6)	102
CPU MHz	Dual Core 1500	1300	800	400
NetFlow	Flex NetFlow	no	no	included
Onboard memory (DRAM)	1 GB upgradable to 2 GB	512 MB upgradable to 1 GB	512 MB upgradable to 1 GB	512 MB
On-Board Flash	128 MB	128 MB	64 MB 128 MB	64 MB
Compact Flash Support	Yes	Yes	Yes	Yes
Switching Capacity & Throughput	848 Gbps, 250 Mpps	320 Gbps, 250 Mpps	280 Gbps, 225 Mpps	136 Gbps, 102 Mpps
Multilayer Switching	Enhanced L2/3/4 Services & Routing	Enhanced L2/3/4 Services & Routing	Enhanced L2/3/4 Services & Routing	Enhanced L2/3/4 Services & Routing
(E)IGRP, OSPF, IS:IS, BGP	Yes	Yes	Yes	Yes
Supervisor Redundancy	4507R+E, 4510R+E, 4507R-E, 4510R-E, WS-C4507R, WS-C4507R+E, and WS-C4510R-E	4507R, 4510R, 4507R-E, 4510R-E, WS-C4507R, WS-C4507R+E, and WS-C4510R-E	4507R, 4507R-E, WS-C4507R-E, and WS-C4507R+E	4507R, 4510R, 4507R-E, 4510R-E, WS-C4507R-E, WS-C4507R+E, and WS-C4510R-E.
QoS	8Q/Port, MQC, Dynamic Tx Queue sizing, policing, shaping, congestion avoidance with DBL marking	8Q/Port, MQC, Dynamic Tx Queue sizing, policing, shaping, congestion avoidance with DBL marking	8Q/Port, MQC, Dynamic Tx Queue sizing, policing, shaping, congestion avoidance with DBL marking	4Q/Port, policing, shaping, congestion avoidance
ISL	No	No	No	No
ACLS	Yes	Yes	No	No
IP FIB entries	256K	256K	57K	128K
MAC Addresses	32K Multicast	32K Multicast	55K Unicast, 16K Multicast	32K Unicast, 16K Multicast

Online model comparison chart: http://www.cisco.com/en/US/products/hw/switches/ps4324/prod_models_comparison.html

Selected Part Numbers and Ordering Information

Catalyst 4500 E-Series—Chassis, Supervisors	
WS-C4503-E	Cisco Catalyst 4500 E-Series 3-Slot Chassis, fan, no ps
WS-C4506-E	Cisco Catalyst 4500 E-Series 6-Slot Chassis, fan, no ps
WS-C4507R-E	Cisco Catalyst 4500 E-Series 7-Slot Chassis, fan, no ps, redundant supervisor capable

WS-C4510R-E	Cisco Catalyst 4500 E-Series 10-Slot Chassis, fan, no ps, redundant supervisor capable
WS-C4510R+E	Cisco Catalyst 4500 E-Series 10-Slot Chassis, fan, no ps, redundant supervisor capable
WS-C4507R+E	Cisco Catalyst 4500 E Series 7-Slot 48G/slot capable chassis, fan, no ps, redundant supervisor capable
WS-C4503E-S6L-48V+	Cisco Catalyst 4503-E PoE Bundle, WS-C4503-E WS-X45-SUP6L-E WS-X4648-RJ45V+E
WS-C4506E-S6L-96V+	Cisco Catalyst 4506-E PoE Bundle WS-C4506-E WS-X45-SUP6L-E 2xWS-X4648-RJ45V+E
WS-C4507RES6L-96V+	Cisco Catalyst 4507R-E PoE Bundle WS-C4507R-E WS-X45-SUP6L-E 2xWS-X4648-RJ45V+E
WS-C4510RES6-96V+	Cisco Catalyst 4510R-E PoE Bundle WS-C4510R-E WS-X45-SUP6-E 2xWS-X4648-RJ45V+E
WS-C4510RE-S7+96V+	Cisco Catalyst 4510R_E PoE Bundle WS-C4510R+E WS-X45-SUP7-E 2xWS-X4748-RJ45V+E
BN-CF2-SBA-K9	Cisco SBA Wireless Bundle 1x WS-X4624-SFP-E AIR-CT5508-50-K9 and 1x 4507R-E 1x Sup6L-E IP Base
WS-X45-SUP7-E (=)	Cisco Catalyst 4500 E-Series Sup7-E, 4x10GE(X2) w/ Twin Gig
WS-X45-SUP6-E (=)	Cisco Catalyst 4500 E-Series Sup6-E, 2x10GE(X2) w/ Twin Gig
WS-X45-SUP6L-E (=)	Cisco Catalyst 4500 E-Series Sup6-E Lite, 2x10GE(X2) w/ Twin Gig
WS-X4516-10GE (=)	Cisco Catalyst 4500 Supervisor V-10GE, 2x10GE(X2), 4x1GE (SFP)
WS-C4503E-S6L-1300	Cisco Catalyst 4503-E Chassis, One WS-X4648-RJ45V+E, Sup6L-E, 1300W PS
WS-C4506E-S6L-1300	Cisco Catalyst 4506-E Chassis, Two WS-X4648-RJ45V+E, Sup6L-E, 1300W PS
WS-C4506E-S6L-2800	Cisco Catalyst 4506-E Chassis, Two 24G PoEP Line Cards, Sup6L-E, 2800W PS
WS-C4506E-S6L-4200	Cisco Catalyst 4506-E Chassis, Two 24G PoEP Line Cards, Sup6L-E, 4200W PS
Catalyst 4500 and 4500-E Series Line Cards	
WS-X4624-SFP-E (=)	Catalyst 4500 E-Series 24-Port GE (SFP)
WS-X4148-FX-MT	Cisco Catalyst 4500 FE Switching Module, 48-100FX MMF(MTRJ)
WS-X4148-FX-MT=	Cisco Catalyst 4500 FE Switching Module, 48-100FX MMF(MTRJ) (Spare)
WS-X4148-RJ	Cisco Catalyst 4500 10/100 Auto Module, 48-Ports (RJ-45)
WS-X4148-RJ=	Cisco Catalyst 4500 10/100 Auto Module, 48-Ports (RJ-45)(Spare)
WS-X4248-RJ45V	Cisco Catalyst 4500 PoE 802.3af 10/100, 48-Ports (RJ45)
WS-X4248-RJ45V=	Cisco Catalyst 4500 PoE 802.3af10/100, 48-Ports (RJ45) (Spare)
WS-X4306-GB	Cisco Catalyst 4500 Gigabit Ethernet Module, 6-Ports (GBIC)
WS-X4306-GB=	Cisco Catalyst 4500 GigabitEthernet Module, 6-Ports (GBIC) (Spare)
WS-X4548-GB-RJ45	Cisco Catalyst 4500 Enhanced48-Port 10/100/1000 Base-T (RJ-45)
WS-X4548-GB-RJ45=	Cisco Catalyst 4500 Enhanced 48-Port 10/100/1000 Base-T (RJ-45) (spare)
WS-X4548-RJ45V+	Cisco Catalyst 4500 PoE+ Ready10/100/
WS-X4648-RJ45V+E	Cisco Catalyst 4500 E-Series 48-Port PoE+ Ready 10/100/1000(RJ45)
WS-X4548-RJ45V+=	Cisco Catalyst 4500 PoE+ Ready10/100/1000, 48-Port(RJ45)
WS-X4648-RJ45V+E=	Cisco Catalyst 4500 E-Series 48-Port PoE+ Ready 10/100/1000(RJ45)
WS-X4748-RJ45-E	Cisco Catalyst 4500 E-series 48 port 10/100/1000 data card
WS-X4748-UPOE+E	Cisco Catalyst 4500 E-Series 48-Port 10/100/1000 UPOE
WS-X4748-RJ45V+E	Cisco Catalyst 4500 E-Series 48 port 10/100/1000 PoE+

For More Information

http://www.cisco.com/go/catalyst4500

Cisco Catalyst 4900M Series Switch

The Cisco Catalyst 4900M Switch is a Layer 2–4 fixed-configuration switch that offers high performance for top-of-rack server switching and for small and midsize aggregation deployments. The switch offers high performance, deterministic low latency, full IPv6 hardware forwarding, and media flexibility in a compact 2RU form factor.



Ideal for Companies That Need These Features

Cisco Catalyst 4900M

- Flexibility of Gigabit Ethernet and 10 Gigabit Ethernet ports in the same switch
- Full media flexibility for Gigabit Ethernet and 10-Gigabit Ethernet fiber and copper connectivity
- Wire-speed L2 and L3 switching at speeds less than 3 microseconds
- Up to 24 ports of 10 Gigabit Ethernet and up to 40 ports of Gigabit Ethernet in 2RU with dual power supplies
- Nonblocking Layer 2, 3, and 4 10/100/1000 Gigabit Ethernet, 1000BASE-X, and 10-Gigabit Ethernet performance

Key Features and Benefits

- The Cisco Catalyst 4900M Switch provides packet-size independent low-latency and wire-speed switching.
- The switch provides up to 40 10/100/1000 ports and up to 24 10-Gigabit Ethernet ports (X2).
- The switch has redundant hot-swappable AC or DC power supplies with a hot-swappable fan tray.
- SFP or X2 flexibility on fiber port interfaces covers a wide range of cabling distances.
- Advanced IPv4 and IPv6 Unicast routing protocols (OSPF, EIGRP, IS-IS, and BGPv4) are supported for load balancing and constructing scalable networks.
- Advanced IPv4 and IPv6 Multicast routing protocols (including Multicast Listener Discovery Versions 1 and 2 [MLDv1 and v2] snooping) are supported.
- Intelligent QoS and traffic management, including sharing, shaping, and strict-priority configurations, determine scheduling of egress traffic.

Specifications

Feature	Cisco 4900M
Forwarding bandwidth (Gbps)	320
Maximum stack members	0
Packets per second (Mpps)	250
MAC addresses supported	55,000
Routes supported	200,000
Onboard memory (DRAM)	512MB
10 GbE copper density	16
Gigabit Ethernet SFP density (Using Twin Gigabit)	32
10G X2 fiber port density	24
10/100/1000 density	40
10/100 density	0
AC/DC support	AC/DC
Dimensions (H x W x D)	3.5 x 17.2 x 17.9in (89 x 437 x 455 cm)
Unit weight	25 to 39 (11.3 to 17.6kgs)

Online model comparison chart: http://www.cisco.com/en/US/products/ps6021/prod_models_comparison.html

Selected Part Numbers and Ordering Information

Cisco Catalyst 4900M Switch Series	
WS-C4900M	Cisco Catalyst 4900M 8-port wire speed 10GE base system
WS-X4904-10GE	4 port wire speed 10GE card
WS-X4908-10GE	8 port 2:1 10 GE card

WS-X4920-GB-RJ45	20 port wire speed 10/100/1000 RJ45 card
WS-X4908-10G-RJ45	8 port 2:1 10GE/1GE copper card
PWR-C49M-1000AC	4900M AC power supply, 1000 watts
PWR-C49M-1000DC	4900M DC power supply 1000 watts

For More Information

http://www.cisco.com/go/catalyst4900

Cisco Catalyst 4900 Series Switches



The Cisco Catalyst 4900 Series Switches are Layer 2–4 fixed-configuration switches that offer high-performance for data centers and branch core. The Cisco Catalyst 4900 Series offers high performance, low latency in a compact 1-rack unit (1RU) form factor.

Ideal for Companies That Need These Features

Cisco Catalyst 4948E **Cisco Catalyst 4948E-F**	· 48 ports of Gigabit Ethernet switching in 1RU with dual power supplies with four 10-Gigabit Ethernet uplinks · Nonblocking Layer 2, 3, and 4 10/100/1000 Gigabit Ethernet performance with 10-Gigabit Ethernet uplinks · Option of front-to-back or back-to-front airflow · Application visibility via Netflow-lite and eight line rate bid-dir SPAN/RSPAN
Cisco Catalyst 4948-10GE	· 48 ports of Gigabit Ethernet switching in 1RU with dual power supplies · Nonblocking Layer 2, 3, and 4 10/100/1000 Gigabit Ethernet performance with two 10-Gigabit Ethernet uplinks
Cisco Catalyst 4948	· 48 ports of Gigabit Ethernet switching in 1RU with dual power supplies · Nonblocking Layer 2, 3, and 4 10/100/1000 Gigabit Ethernet performance
Cisco Catalyst 4928-10GE	· 28 ports SFP Gigabit Ethernet switching in 1RU with dual power supplies · Nonblocking Layer 2, 3, and 4 Gigabit Ethernet performance with 10-Gigabit Ethernet uplinks

Key Features and Benefits

- Consistent low-latency and wire-speed switching
- Redundant internal AC or DC power supplies with a hot-swappable fan tray
- SFP or X2 flexibility on fiber port interfaces covers a wide range of cabling distances
- Optimized to handle microbursts with centralized buffer architecture
- Investment protection through data center design with dual-stack IP Version 4 and 6 (IPv4 and v6) support
- Advanced QoS with eight configurable queues for each port[1]
- Data center optimization with true front-to-back and back-to-front airflow[2]
- Enhanced manageability through bidirectional Switched Port Analyzer (SPAN) and Remote SPAN (RSPAN) sessions
- Enhanced application visibility with NetFlow-lite on Cisco Catalyst 4948E and 4948E-F
- Packet-rate policer, control plane and packet policer, and dynamic buffer limiting (DBL) for increased security and network control

Specifications

Feature	Cisco 4948	Cisco 4948-10GE	Cisco 4928-10GE	Cisco 4948E and 4948E-F
Forwarding bandwidth (Gbps)	96	136	96	176
Maximum stack members	0	0	0	0
Total stack bandwidth (Gbps)	0	0	0	0
Packets per second (Mpps)	72	102	72	131
MAC addresses supported	32,768	55,000	55,000	55,000
Routes supported	32,000	32,000	32,000	57,000
Onboard memory (DRAM)	256 MB	256 MB	256MB	512MB

1. Catalyst 4948E feature
2. Catalyst 4948E feature

10 GE density	0	2	2	4
Gigabit Ethernet GBIC/SFP density	4	0	28	48
10 GE XENPAK/X2 port density	0	2	2	4 SFP+
10/100/1000 density	48	48	0	48
10/100 density	0	0	0	0
Max. watt power consumption	300	300	300	300
AC/DC support	AC/DC	AC/DC	AC/DC	AC/DC
Dimensions (H x W x D)	1.75 x 17.3 x 16.1 in. (4.45 x 43.91 x 40.99 cm.)	1.75 x 17.3 x 16.1 in. (4.45 x 43.91 x 40.99 cm.)	1.75 x 17.3 x 16.1 in. (4.45 x 43.91 x 40.99 cm.)	1.75 x 17.5 x 19.4 in
Unit weight	16.5 (7.48 kgs.)	16.5 (7.48 kgs.)	16.5 (7.48 kgs.)	14 lbs

Online model comparison chart: http://www.cisco.com/en/US/products/ps6021/prod_models_comparison.html

Selected Part Numbers and Ordering Information

Cisco Catalyst 4900 Switch Series	
WS-C4948E	Cisco Catalyst 4948E 48 10/100/1000(RJ45)+4 SFP+, opt sw, no p/s
WS-C4948E-S	Cisco Catalyst 4948E 48 10/100/1000(RJ45)+4 SFP+, IP Base IOS, AC p/s
WS-C4948E-E	Cisco Catalyst 4948E 48 10/100/1000(RJ45)+4 SFP+, Ent Ser IOS, AC p/s
WS-C4948E-BDL	Green Bundle 10x WS-C4948E
WS-C4948E-F	Cisco Catalyst 4948E-F 48 10/100/1000(RJ45)+4 SFP+, opt sw, no p/s
WS-C4948E-F-S	Cisco Catalyst 4948E-F 48 10/100/1000(RJ45)+4 SFP+, IP Base IOS, AC p/s
WS-C4948E-F-E	Cisco Catalyst 4948E-F 48 10/100/1000(RJ45)+4 SFP+, Ent Ser IOS, AC p/s
WS-C4948E-F-BDL	Green Bundle 10xWS-C4948E-F
WS-C4948	Cisco Catalyst 4948, optnl sw, 48-Port 10/100/1000+4 SFP, no p/s
WS-C4948-S	Cisco Catalyst 4948, IPB s/w, 48-Port 10/100/1000+4 SFP, 1 AC p/s
WS-C4948-E	Cisco Catalyst 4948, ES s/w, 48-Port 10/100/1000+4 SFP, 1 AC p/s
WS-C4928-10GE	Cisco Catalyst 4928 10 Gigabit Ethernet Switch
WS-C4948-10GE	Cisco Catalyst 4948, optnl sw, 48*10/100/1000+2*10GE(X2), no p/s
WS-C4948-10GE-S	Cisco Catalyst 4948, IPB s/w, 48*10/100/1000+2*10GE(X2), 1 AC p/s
WS-C4948-10GE-E	Cisco Catalyst 4948, ES Image, 48*10/100/1000+2*10GE(X2), 1 AC p/s

For More Information

http://www.cisco.com/go/catalyst4900

Cisco Catalyst 3750 Series Switches

The Cisco Catalyst 3750 Series Switch is an innovative product for midsize organizations and enterprise branch offices. Featuring Cisco StackWise technology, the switch improves LAN operating efficiency by combining ease of use and the highest resiliency available for stackable switches.



Ideal for Companies That Need These Features

Cisco Catalyst 3750

- Enhanced business productivity, resiliency, security, and scalability
- Quick deployment and easy network management
- Deployment of IP telephony, wireless, or Gigabit to the Desktop (GTTD)

Cisco Catalyst 3750V2-24TS

- Low-density access with switch stacking capability, Layer 2+ or Layer 3 features, and one or more fiber uplinks

Cisco Catalyst 3750V2-24PS

- Low-density access with switch stacking capability, Layer 2+ or Layer 3 features, PoE, and one or more fiber uplinks

Cisco Catalyst 3750V2-48TS

- Medium-density access with switch stacking capability, Layer 2+ or Layer 3 features, and one or more fiber uplinks

Cisco Catalyst 3750V2-48PS	· Medium-density access with switch stacking capability, Layer 2+ or Layer 3 features, PoE, and one or more fiber uplinks
Cisco Catalyst 3750G-24T	· Low-density Layer 2+ or Layer 3 GTTD or Ethernet aggregation with stacking capability without any uplinks
Cisco Catalyst 3750G-24TS-1U	· Low-density Layer 2+ or Layer 3 GTTD or Ethernet aggregation with switch stacking capability and fiber uplinks in a 1RU form factor
Cisco Catalyst 3750G-24PS	· Low-density Layer 2+ or Layer 3 GTTD or Ethernet aggregation with switch stacking capability, PoE, and fiber uplinks
Cisco Catalyst 3750G-48TS	· Medium-density Layer 2+ or Layer 3 GTTD or Ethernet aggregation with switch stacking capability and fiber uplinks
Cisco Catalyst 3750G-48PS	· Medium-density Layer 2+ or Layer 3 GTTD or Ethernet aggregation with switch stacking capability, PoE, and fiber uplinks
Cisco Catalyst 3750G-12S/SD	· Aggregation of wiring-closet switches with optical connectivity and stacking
Cisco Catalyst 3750-24FS	· Low-density access using 100BASE-FX fiber connections with switch stacking capability, basic Layer 3 features, and one or more fiber uplinks
Cisco Catalyst WS-C3750G-24WS-S25	· Integrated wireless LAN (WLAN) controller functions into Cisco Catalyst 3750G Series Switches (This switch supports 25 access points.)
Cisco Catalyst WS-C3750G-24WS-S50	· Integrated WLAN controller functions into Cisco Catalyst 3750G Series Switches (This switch supports 50 access points.)

Key Features and Benefits

- Cisco StackWise technology—One IP address and one command-line interface (CLI) simplify management. A 32-Gbps resilient architecture speeds convergence, and 1:N stack master redundancy and Layer 3 uplink resilience as well as cross-stack Cisco EtherChannel technology and quality of service (QoS) increase availability. Autoconfiguration and Cisco IOS Software version check and update accelerate deployment, and hot add and delete of switches keep the stack running.
- Availability—These switches offer fault tolerance, load balancing, and rapid recovery; increased available bandwidth with Per VLAN Spanning Tree Plus (PVST+) by allowing traffic on redundant links; and sub-100-millisecond convergence with Flexlink technology.
- Power over Ethernet (PoE)—The switches provide 370W PoE, which simplifies IP telephony, wireless, and video-surveillance deployments; intelligent power-management features; and PoE combined with Fast Ethernet or Gigabit Ethernet.
- Layer 3—The switches support advanced routing protocols such as Open Shortest Path First (OPSF), Enhanced Interior Gateway Routing Protocol (EIGRP), and Policy Based Routing (PBR) to increase network scale; equal cost routing as well as multicast routing such as Protocol Independent Multicast (PIM); Virtual Route Forwarding Lite (VRFLite) to secure traffic; and IPv6.
- QoS—Traffic shaping smooths a sudden traffic flow outburst without dropping packets; shaped Round Robin guarantees bandwidth to mission-critical applications; and Scavenger Queuing protects against worms overloading resources.
- Management—Cisco Smartports quicken and simplify configuration of advanced Cisco Catalyst intelligent capabilities. Express setup facilitates quick and easy setup through a Web interface, and resource templates help tailor switch resources for the application.
- Security—Dynamic Host Configuration Protocol (DHCP) Snooping allows only trusted ports to relay DHCP messages, eliminating rogue DHCP servers. Cisco Network Admission Control (NAC) prevents the propagation of costly worms and viruses; Dynamic ARP Inspection and IP Source Guard prevent against man-in-the-middle attacks; 802.1x and Identity-Based Network Services allow only authorized persons on the network; and port security prevents MAC address flooding attacks.
- Wireless—The Switch models with integrated wireless LAN (WLAN) controller delivers centralized security policies, intrusion protection, RF management, QoS and Layer 3 fast secure roaming for WLANs. This WLAN controller is part of the Cisco Unified Wireless Network.
- Cisco EnergyWise helps reduce company-wide power consumption and carbon footprint.
- Cisco limited lifetime warranty.

Specifications

Feature	Cisco 3750V2-24TS	Cisco 3750V2-48TS	Cisco 3750V2-24PS	Cisco 3750V2-48PS	Cisco 3750-24FS
Forwarding bandwidth (Gbps)	32	32	32	32	32
Maximum stack members	9	9	9	9	9
Total stack bandwidth (Gbps)	32	32	32	32	32
Packets per second (Mpps)	6.5	13.1	6.5	13.1	6.5
MAC addresses supported	12,000	12,000	12,000	12,000	12,000

Routes supported	11,000	11,000	11,000	11,000	11,000
10 GE density	0	0	0	0	0
Gigabit Ethernet GBIC/SFP density	2	4	2	4	2
10 GE XENPAK/X2 port density	0	0	0	0	0
10/100/1000 density	0	0	0	0	0
10/100 density	24	48	24	48	0
100BASE-FX density	0	0	0	0	24
Measured 100% Throughput power consumption (with max. 15.4 W PoE loads)	39	57	444	458	61
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	24	24	-
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	24	48	-
AC/DC support	AC only	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 17.46 x 11.62 in. (4.4 x 44.3 x 29.5 cm.)	1.73 x 17.46 x 11.62 in. (4.4 x 44.3 x 29.5 cm.)	1.73 x 17.46 x 11.62 in. (4.4 x 44.3 x 29.5 cm.)	1.73 x 17.46 x 11.62 in. (4.4 x 44.3 x 29.5 cm.)	1.73 x 17.5 x 11.8 in. (4.4 x 44.5 x 30.1 cm.)
Unit weight	8.2 lbs. (3.7 kgs.)	9.2 lbs. (4.2 kgs.)	10 lbs. (4.6 kgs.)	11 lbs. (5.0 kgs.)	9.15 lbs. (4.15 kgs.)
Feature	**Cisco 3750G-24T**	**Cisco 3750G-24TS-1U**	**Cisco 3750G-48TS**	**Cisco 3750G-24PS**	**Cisco 3750G-48PS**
Forwarding bandwidth (Gbps)	32	32	32	32	32
Maximum stack members	9	9	9	9	9
Total stack bandwidth (Gbps)	32	32	32	32	32
Packets per second (Mpps)	35.7	38.7	38.7	38.7	38.7
MAC addresses supported	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000
10 GE density	0	0	0	0	0
Gigabit Ethernet GBIC/SFP density	0	4	4	4	4
10 GE XENPAK/X2 port density	0	0	0	0	0
10/100/1000 density	24	24	48	24	48
10/100 density	0	0	0	0	0
100BASE-FX density	0	0	0	0	0
Measured 100% Throughput power consumption (with max. 15.4 W PoE loads)	98	94	152	492	541
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	-	24	24
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	-	24	48
AC/DC support	AC only	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 17.5 x 12.8 in. (4.4 x 44.5 x 32.6 cm.)	1.73 x 17.5 x 14.9 in. (4.4 x 44.5 x 37.8 cm.)	1.73 x 17.5 x 16.1 in. (4.4 x 44.5 x 40.9 cm.)	1.73 x 17.5 x 14.9 in. (4.4 x 44.5 x 37.8 cm.)	1.73 x 17.5 x 16.1 in. (4.4 x 44.5 x 40.9 cm.)
Unit weight	10 lbs. (4.6 kgs.)	12 lbs. (5.5 kgs.)	14 lbs. (6.4 kgs.)	13.5 lbs. (6.1 kgs.)	15.5 lbs. (7.0 kgs.)
Feature	**Cisco 3750G-12S**	**Cisco 3750G-12S-SD**	**Cisco 3750G-24WS-S25**	**Cisco 3750G-24WS-S50**	

Forwarding bandwidth (Gbps)	32	32	32	32
Maximum stack members	9	9	9	9
Total stack bandwidth (Gbps)	32	32	32	32
Packets per second (Mpps)	17.8	17.8	38.7	38.7
MAC addresses supported	12,000	12,000	12,000	12,000
Routes supported	20,000	20,000	11,000	11,000
Onboard memory (DRAM)	128 MB	128 MB	128 MB	128 MB
10 GE density	0	0	0	0
Gigabit Ethernet GBIC/SFP density	12	12	2	2
10 GE XENPAK/X2 port density	0	0	0	0
10/100/1000 density	0	0	24	24
10/100 density	0	0	0	0
Measured 100% Throughput power consumption (with max. 15.4 W PoE loads)	100	72	255	255
AC/DC support	AC only	DC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 17.5 x 12.8 in. (4.4 x 44.5 x 32.6 cm.)	1.73 x 17.5 x 12.8 in. (4.4 x 44.5 x 32.6 cm.)	2.59 x 17.5 x 11.6 in. (6.6 x 44.5 x 29.5 cm)	2.59 x 17.5 x 11.6 in. (6.6 x 44.5 x 29.5 cm)
Unit weight	10 lbs. (4.6 kgs.)	9 lbs. (4.08 kgs.)	21 lbs. (9.5 kgs.)	21 lbs. (9.5 kgs.)

Online model comparison chart: http://www.cisco.com/en/US/products/hw/switches/ps5023/prod_models_comparison.html

Selected Part Numbers and Ordering Information

Cisco Catalyst 3750 Series Gigabit Ethernet Switches	
WS-C3750G-24T-S	Cisco Catalyst 3750G-24 10/100/1000T Standard Multilayer Image
WS-C3750G-24T-E	Cisco Catalyst 3750G-24 10/100/1000T Enhanced Multilayer Image
WS-C3750G-24TS-S1U	Cisco Catalyst 3750G-24 10/100/1000 + 4 SFP Std Multilayer;1RU
WS-C3750G-24TS-E1U	Cisco Catalyst 3750G-24 10/100/1000 + 4 SFP Enh Multilayer;1RU
WS-C3750G-24PS-S	Cisco Catalyst 3750G-24 10/100/1000T PoE + 4 SFP Standard Image
WS-C3750G-24PS-E	Cisco Catalyst 3750G-24 10/100/1000T PoE + 4 SFP Enhanced Image
SWLC3750-25-K9	IP base w/o crypto with web-based dev mgr
WS-C3750G-48TS-S	Cisco Catalyst 3750G-48 10/100/1000T + 4 SFP Standard Multilayer
WS-C3750G-48TS-E	Cisco Catalyst 3750G-48 10/100/1000T + 4 SFP Enhanced Multilayer
WS-C3750G-48PS-S	Cisco Catalyst 3750G-48 10/100/1000T PoE + 4 SFP Standard Image
WS-C3750G-48PS-E	Cisco Catalyst 3750G-48 10/100/1000T PoE + 4 SFP Enhanced Image
WS-C3750G-12S-S	Cisco Catalyst 3750G-12 SFP Standard Multilayer Image
Wireless LAN	
WS-C3750G-24WS-S25	Cisco Catalyst 3750G Integrated Wireless LAN Controller
WS-C3750G-24WS-S50	Cisco Catalyst 3750G Integrated Wireless LAN Controller
Ethernet Switches	
WS-C3750G-48TS-S	Cisco Catalyst 3750G-48 10/100/1000T + 4 SFP Standard Multilayer
WS-C3750G-48TS-E	Cisco Catalyst 3750G-48 10/100/1000T + 4 SFP Enhanced Multilayer
WS-C3750G-48PS-S	Cisco Catalyst 3750G-48 10/100/1000T PoE + 4 SFP Standard Image
WS-C3750G-48PS-E	Cisco Catalyst 3750G-48 10/100/1000T PoE + 4 SFP Enhanced Image

WS-C3750G-12S-S	Cisco Catalyst 3750G-12 SFP Standard Multilayer Image
Cisco Catalyst 3750 Series 10/100 Workgroup Switches	
WS-C3750-24FS-S	Cisco Catalyst 3750v2-24 100BaseFX + 2 SFP Standard Multilayer Image
WS-C3750V2-24PS-S	Cisco Catalyst 3750v2-24 10/100 PoE + 2 SFP Standard Image
WS-C3750V2-24PS-E	Cisco Catalyst 3750v2-24 10/100 PoE + 2 SFP Enhanced Image
WS-C3750V2-24TS-S	Cisco Catalyst 3750v2-24 10/100 + 2 SFP Standard Multilayer Image
WS-C3750V2-24TS-E	Cisco Catalyst 3750v2-24 10/100 + 2 SFP Enhanced Multilayer Image
WS-C3750V2-48PS-S	Cisco Catalyst 3750v2-48 10/100 PoE + 4 SFP Standard Image
WS-C3750V2-48PS-E	Cisco Catalyst 3750v2-48 10/100 PoE + 4 SFP Enhanced Image
WS-C3750V2-48TS-S	Cisco Catalyst 3750v2-48 10/100 + 4 SFP Standard Multilayer Image
WS-C3750V2-48TS-E	Cisco Catalyst 3750v2-48 10/100 + 4 SFP Enhanced Multilayer Image

For More Information

http://www.cisco.com/go/catalyst3750

Cisco Catalyst 3750-E Series Switches

The Cisco Catalyst 3750-E Series with Cisco StackWise Plus technology is an enterprise-class line of stackable wiring-closet switches. Combining 10/100/1000 and Power over Ethernet (PoE) configurations with upgradable 1- to 10-Gigabit Ethernet uplinks, Cisco Catalyst 3750-E Switches help enhance worker productivity by enabling applications such as IP telephony, wireless, and video.



Ideal for Companies That Need These Features

Cisco Catalyst 3750-E	· Enhanced business productivity, resiliency, security, and scalability · Quick deployment and easy management of their networks · 1- to 10-Gigabit Ethernet upgradable uplinks · Deployment of IP telephony, wireless, or Gigabit to the Desktop (GTTD
Cisco Catalyst 3750E-24TD	· Low-density access with switch stacking capability, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks
Cisco Catalyst 3750E-24PD	· Low-density access with switch stacking capability, Layer 2+ or Layer 3 features, PoE, and one or more 10-Gigabit Ethernet fiber uplinks
Cisco Catalyst 3750E-24TD-SD	· Low-density access with switch stacking capability, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks, DC power
Cisco Catalyst 3750E-48TD	· Medium-density access with switch stacking capability, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks
Cisco Catalyst 3750E-48TD-SD	· Medium-density access with switch stacking capability, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks, DC power
Cisco Catalyst 3750E-48PD	· Medium-density access with switch stacking capability, Layer 2+ or Layer 3 features, PoE, and one or more 10-Gigabit Ethernet fiber uplinks
Cisco Catalyst 3750E-48PD	· Medium-density access with switch stacking capability, full 15.4W of PoE on every port, Layer 2+ or Layer 3 features, PoE, and one or more 10-Gigabit Ethernet fiber uplinks

Key Features and Benefits

- Cisco StackWise Plus technology—One IP address and one command-line interface (CLI) simplify management. A 64-Gbps resilient architecture speeds convergence, and 1:N stack master redundancy and Layer 3 uplink resilience as well as cross-stack Cisco EtherChannel technology and quality of service (QoS) increase availability. Autoconfiguration and Cisco IOS Software version check and update accelerate deployment, and hot add and delete of switches keep the stack running.
- The Cisco TwinGig Converter Module facilitates migrating uplinks from 1-Gigabit Ethernet (Small Form-Factor Pluggable [SFP]) to 10-Gigabit Ethernet (X2) field-replaceable and -upgradable power supplies and fan tray.
- Availability—The Cisco Catalyst 3750-E Series Switches offer fault tolerance, load balancing, and rapid recovery; increased available bandwidth with Per VLAN Spanning Tree Plus (PVST+) by allowing traffic on redundant link; and sub-100-millisecond convergence with Flexlink technology.
- Power over Ethernet (PoE)—The switches offer 1150W PoE, which simplifies IP telephony, wireless, and video-surveillance deployments. It provides intelligent power-management features and PoE combined with Fast Ethernet or Gigabit Ethernet. Each port may support up to 20W of power.
- Layer 3—Advanced routing protocols such as Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), and Policy Based Routing (PBR) increase network scale. The switches provide equal cost routing as well as multicast routing such as Protocol Independent Multicast (PIM), Virtual Route Forwarding Lite (VRFLite) to secure traffic, and IPv6.

- Quality of service (QoS)—Traffic shaping smooths a sudden traffic flow outburst without dropping packets; shaped Round Robin guarantees bandwidth to mission-critical applications; and Scavenger Queuing protects against worms overloading resources.
- Management—Cisco Smartports quicken and simplify configuration of advanced Cisco Catalyst intelligent capabilities; express setup facilitates quick and easy setup through a Web interface; and resource templates help tailor switch resources for the application.
- Security—Dynamic Host Configuration Protocol (DHCP) Snooping allows only trusted ports to relay DHCP messages, eliminating rogue DHCP servers. Cisco Network Admission Control (NAC) prevents the propagation of costly worms and viruses; Dynamic ARP Inspection and IP Source Guard prevent against man-in-the-middle attacks; 802.1x and Identity-Based Network Services allow only authorized persons on the network; and port security prevents MAC address flooding attacks.
- Field-replaceable and -upgradable power supplies and fan.
- Cisco TwinGig Converter Module for migrating uplinks from 1 Gigabit Ethernet (Small Form-Factor Pluggable [SFP]) to 10 Gigabit Ethernet (X2).
- Cisco EnergyWise helps reduce company-wide power consumption and carbon footprint.
- Cisco limited lifetime warranty.

Specifications

Feature	Cisco 3750E-24TD	Cisco 3750E-24TD-SD	Cisco 3750E-48TD	Cisco 3750E-48TD-SD	Cisco 3750E-24PD	Cisco 3750E-48PD	Cisco 3750E-48PD Full Power
Forwarding bandwidth (Gbps)	128	128	128	128	128	128	128
Maximum stack members	9	9	9	9	9	9	9
Total stack bandwidth (Gbps)	64	64	64	64	64	64	64
Packets per second (Mpps)	6.5	6.5	13.1	13.1	6.5	13.1	6.5
MAC addresses supported	12,000	12,000	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000	11,000	11,000
10 GE density	2	2	2	2	2	2	2
10 GE XFP	2	2	2	2	2	2	2
10/100/1000 density	24	24	48	48	24	48	48
10/100 density	24	24	48	48	24	48	48
100BASE-FX density	0	0	0	0	0	0	24
Measured 100% Throughput power consumption (with Max. 15.4 W PoE loads)	99	99	149	149	375	375	744
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	-	-	24	48	48
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	-	-	24	48	48
AC/DC support	AC and DC	DC power	AC and DC	DC power	AC and DC	AC and DC	AC and DC
Dimensions (H x W x D)	1.75 x 17.5 x 18.1 in.: (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.1 in.: (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.1 in: (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.1 in: (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.1 in: (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.1 in: (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.1 in: (4.45 x 44.5 x 46.0 cm.)
Unit weight	17.9 lbs. (8.1 kgs.)	17.9 lbs. (8.1 kgs.)	18.3 lbs. (8.3 kgs.)	18.3 lbs. (8.3 kgs.)	18.8 lbs. (8.6 kgs.)	19.2 lbs. (8.75 kgs.)	20.9 lbs. (9.5 kgs.)

Online model comparison chart: http://www.cisco.com/en/US/products/ps7077/prod_models_comparison.html

Selected Part Numbers and Ordering Information

Catalyst 3750-E Series 10/100/1000 Workgroup Switches[1]	
WS-C3750E-24TD-S	Cisco Catalyst 3750E 24 10/100/1000+2*10GE(X2), 265W, IPB s/w
WS-C3750E-24TD-S D	Cisco Catalyst 3750E 24 10/100/1000+2*10GE(X2), 265W DC, IPB s/w
WS-C3750E-24TD-E	Cisco Catalyst 3750E 24 10/100/1000+2*10GE(X2), 265W, IPS s/w
WS-C3750E-48TD-S	Cisco Catalyst 3750E 48 10/100/1000+2*10GE(X2), 265W, IPB s/w
WS-C3750E-48TD-SD	Cisco Catalyst 3750E 48 10/100/1000+2*10GE(X2), 265W DC, IPB s/w

WS-C3750E-48TD-E	Cisco Catalyst 3750E 48 10/100/1000+2*10GE(X2), 265W, IPS s/w
WS-C3750E-24PD-S	Cisco Catalyst 3750E 24 10/100/1000 PoE+2*10GE(X2), 750W, IPB s/w
WS-C3750E-24PD-E	Cisco Catalyst 3750E 24 10/100/1000 PoE+2*10GE(X2), 750W, IPS s/w
WS-C3750E-48PD-S	Cisco Catalyst 3750E 48 10/100/1000 PoE+2*10GE(X2), 750W, IPB s/w
WS-C3750E-48PD-E	Cisco Catalyst 3750E 48 10/100/1000 PoE+2*10GE(X2), 750W, IPS s/w
WS-C3750E-48PD-SF	Cisco Catalyst 3750E 48 10/100/1000 PoE+2*10GE(X2), 1150W, IPB s/w
WS-C3750E-48PD-EF	Cisco Catalyst 3750E 48 10/100/1000 PoE+2*10GE(X2), 1150W, IPS s/w
Catalyst 3750-E Series Product Activation Keys	
3750E-IPS-LIC-B=	IP Services for 3750-E 24 ports, upgrade from IP Base
3750E48-IPS-LIC-B=	IP Services for 3750-E 48 ports, upgrade from IP Base

1. S=IP Base; E=IP Services

For More Information

http://www.cisco.com/go/catalyst3750E

Cisco Catalyst 3750-X Series Switch



The Cisco Catalyst 3750-X Series Switches are an enterprise-class line of stackable switches. These switches provide high availability, scalability, security, energy efficiency, and ease of operation with innovative features such as Cisco StackPower technology, IEEE 802.3at Power over Ethernet Plus (PoE+) configurations, optional network modules, redundant power supplies, and Media Access Control Security (MACsec) features.

The Cisco Catalyst 3750-X Series with Cisco StackWise Plus technology provides scalability, ease of management, and investment protection for evolving business needs. The Cisco Catalyst 3750-X enhances productivity by enabling applications such as IP telephony, wireless, and video for the borderless network experience.

Ideal for Companies That Need These Features

Cisco Catalyst 3750-X	Enabling the Next Generation Workspace, with · In-Depth Security Solutions with TrustSec · Video with Medianet · High Availability with Best in Class Resiliency Capabilities · Most Efficient and Comprehensive PoE support in the Industry · Quick deployment and easy management of their networks
Cisco Catalyst 3750X-24T-L	· Low-density access with switch stacking capability, LAN Base feature set, and two 10-Gigabit Ethernet Small Form-Factor Pluggable Plus (SFP+) uplinks
Cisco Catalyst 3750X-48T-L	· Medium-density access with switch stacking capability, LAN Base feature set, and two 10-Gigabit Ethernet SFP+ uplinks
Cisco Catalyst 3750X-24P-L	· Low-density access with switch stacking capability, LAN Base feature set, PoE+, and two 10-Gigabit Ethernet SFP+ uplinks
Cisco Catalyst 3750X-48P-L	· Medium-density access with switch stacking capability, LAN Base feature set, PoE+, and two 10-Gigabit Ethernet SFP+ uplinks
Cisco Catalyst 3750X-48PF-L	· Medium-density access with switch stacking capability, LAN Base feature set, PoE+, two 10-Gigabit Ethernet SFP+ uplinks, and 1100 AC power supply
Cisco Catalyst 3750X-24T-S	· Low-density access with switch stacking capability, IP Base feature set, and two 10-Gigabit Ethernet SFP+ uplinks
Cisco Catalyst 3750X-48T-S	· Medium-density access with switch stacking capability, IP Base feature set, and two 10-Gigabit Ethernet SFP+ uplinks
Cisco Catalyst 3750X-24P-S	· Low-density access with switch stacking capability, IP Base feature set, PoE+, and two 10-Gigabit Ethernet SFP+ uplinks
Cisco Catalyst 3750X-48P-S	· Medium-density access with switch stacking capability, IP Base feature set, PoE+, and two 10-Gigabit Ethernet SFP+ uplinks

Cisco Catalyst 3750X-48PF-S	· Medium-density access with switch stacking capability, IP Base feature set, PoE+, two 10-Gigabit Ethernet SFP+ uplinks, and 1100W AC power supply
Cisco Catalyst C3750X-12S-S	· Aggregation Solution for the Small Core/Mid-Market/Branch office, stackable 12 GE SFP Ethernet ports, with 350W AC power supply 1 RU, IP Base feature set
Cisco Catalyst C3750X-24S-S	· Aggregation Solution for the Small Core/Mid-Market/Branch office, stackable 24 GE SFP Ethernet ports, with 350W AC power supply 1 RU, IP Base feature set
Cisco Catalyst C3750X-12S-E	· Aggregation Solution for the Small Core/Mid-Market/Branch office, stackable 12 GE SFP Ethernet ports, with 350W AC power supply 1 RU, IP Services feature set
Cisco Catalyst C3750X-24S-E	· Aggregation Solution for the Small Core/Mid-Market/Branch office, stackable 24 GE SFP Ethernet ports, with 350W AC power supply 1 RU, IP Services feature set

Key Features and Benefits

- 24 and 48 10/100/1000 PoE+, non-PoE models, and 12 and 24 GE SFP port models
- Four optional uplink network modules with GE or 10 GE ports
- Industry first PoE+ with 30W power on all ports in 1 rack unit (RU) form factor
- Dual redundant, modular power supplies and fans
- Media Access Control Security (MACsec) hardware-based encryption
- Flexible NetFlow and switch-to-switch hardware encryption with the uplink Service Module Open Shortest Path First (OSPF) for routed access in IP Base image
- IPv4 and IPv6 routing, multicast routing, advanced quality of service (QoS), and security features in hardware
- Enhanced limited lifetime warranty (LLW) with next business day (NBD) advance hardware replacement and 90 day access to Cisco Technical Assistance Center (TAC) support
- Enhanced Cisco EnergyWise for operational cost optimization by measuring actual power consumption of the PoE devices, reporting, and reducing energy consumption across the network
- USB Type-A and Type-B ports for storage and console respectively and an out-of-band Ethernet management port.
- Cisco StackPower™ technology: An innovative feature and industry first for sharing power among stack members
- Cisco StackWise Plus technology for ease of use and resiliency with 64 Gbps of throughput
- Investment protection with backward compatibility with all other models of Cisco Catalyst 3750 Series Switches

Specifications

Feature	Cisco 3750X-24T-L	Cisco 3750X-48T-L	Cisco 3750X-24P-L	Cisco 3750X-48P-L	Cisco 3750X-48PF-L
Forwarding bandwidth (Gbps)	160	160	160	160	160
Maximum stack members	9	9	9	9	9
Total stack bandwidth (Gbps)	64	64	64	64	64
Packets per second (Mpps)	65.5	101.2	65.5	101.2	101.2
MAC addresses supported	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000
10 GE density	2	2	2	2	2
10 GE SFP+	2	2	2	2	2
10/100/1000 density	24	48	24	48	48
10/100 density	24	48	24	48	48
100BASE-FX density	0	0	0	0	0
Measured 100% Throughput power consumption (without PoE loads, 1 Gps uplink module)	93.5	120.4	99.3	133.9	137.2
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	24	48	48
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	24	48	48
AC/DC support	AC and DC	AC and DC	AC and DC	AC and DC	AC and DC

Dimensions (H x W x D)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 19.5 in (4.45 x 44.5 x 49.5 cm.)
Unit weight	15.6 lbs. (7.1 kgs.)	16.3 lbs. (7.4 kgs.)	15.8 lbs. (7.2 kgs.)	16.5 lbs. (7.5 kgs.)	16.7 lbs. (7.6 kgs.)
Feature	**Cisco 3750X-24T-S**	**Cisco 3750X-48T-S**	**Cisco 3750X-24P-S**	**Cisco 3750X-48P-S**	**Cisco 3750X-48PF-S**
Forwarding bandwidth (Gbps)	160	160	160	160	160
Maximum stack members	9	9	9	9	9
Total stack bandwidth (Gbps)	64	64	64	64	64
Packets per second (Mpps)	65.5	101.2	65.5	101.2	101.2
MAC addresses supported	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000
10 GE density	2	2	2	2	2
10 GE SFP+	2	2	2	2	2
10/100/1000 density	24	48	24	48	48
10/100 density	24	48	24	48	48
100BASE-FX density	0	24	0	0	0
Measured 100% Throughput power consumption (without PoE load, I Gbps uplink module)	93.5	120.4	99.3	133.9	137.2
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	24	48	48
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	24	48	48
AC/DC support	AC and DC	AC and DC	AC and DC	AC and DC	AC and DC
Dimensions (H x W x D)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 19.5 in (4.45 x 44.5 x 49.5cm.)
Unit weight	15.6 lbs. (7.1 kgs.)	16.3 lbs. (7.4 kgs.)	15.8 lbs. (7.2 kgs.)	16.5 lbs. (7.5 kgs.)	16.7 lbs. (7.6 kgs.)
Feature	**Cisco 3750X-12S-S**	**Cisco 3750X-24S-S**	**Cisco 3750X-12S-SE**	**Cisco 3750X-24S-E**	
Forwarding bandwidth (Gbps)	160	160	160	160	
Maximum stack members	9	9	9	9	
Total stack bandwidth (Gbps)	64	64	64	64	
Packets per second (Mpps)	35.7	65.5	35.7	65.5	
MAC addresses supported	12,000	12,000	12,000	12,000	
Routes supported	11,000	11,000	11,000	11,000	
10 GE density	2	2	2	2	
10 GE SFP+	2	2	2	2	
10/100/1000 density	12	24	12	24	
Measured 100% Throughput power consumption (without PoE load, I Gbps uplink module)	87.1	108.9	87.1	108.9	
AC/DC support	AC and DC	AC and DC	AC and DC	AC and DC	

Dimensions (H x W x D)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)
Unit weight	15. lbs. (6.8 kgs.)	15. 4 lbs. (7.0 kgs.)	15. lbs. (6.8kgs.)	15. 4 lbs. (7.0 kgs.)

Online model comparison chart: http://www.cisco.com/en/US/products/ps10745/prod_models_comparison.html

Selected Part Numbers and Ordering Information

Catalyst 3750-X Series 10/100/1000 Workgroup Switches[1]	
WS-C3750X-24T-L	Cisco 3750-X stackable 24 10/100/1000 Ethernet ports, with 350W AC power supply 1 RU, LAN Base feature set
WS-C3750X-48T-L	Cisco 3750-X stackable 48 10/100/1000 Ethernet ports, with 350W AC power supply 1 RU, LAN Base feature set
WS-C3750X-24P-L	Cisco 3750-X stackable 24 10/100/1000 Ethernet PoE+ ports, with 715W AC power supply 1 RU, LAN Base feature set
WS-C3750X-48P-L	Cisco 3750-X stackable 48 10/100/1000 Ethernet PoE+ ports, with 715W AC power supply 1 RU, LAN Base feature set
WS-C3750X-48PF-L	Cisco 3750-X stackable 48 10/100/1000 Ethernet PoE+ ports, with 1100W AC power supply 1 RU, LAN Base feature set
WS-C3750X-24T-S	Cisco 3750-X stackable 24 10/100/1000 Ethernet ports, with 350W AC power supply 1 RU, IP Base feature set
WS-C3750X-48T-S	Cisco 3750-X stackable 48 10/100/1000 Ethernet ports, with 350W AC power supply 1 RU, IP Base feature set
WS-C3750X-24P-S	Cisco 3750-X stackable 24 10/100/1000 Ethernet PoE+ ports, with 715W AC Power Supply 1 RU, IP Base feature set
WS-C3750X-48P-S	Cisco 3750-X stackable 48 10/100/1000 Ethernet PoE+ ports, with 715W AC Power Supply 1 RU, IP Base feature set
WS-C3750X-48PF-S	Cisco 3750-X stackable 48 10/100/1000 Ethernet PoE+ ports, with 1100W AC power supply 1 RU, LAN Base feature set
WS-C3750X-12S-S	Stackable 12 GE SFP Ethernet ports, with 350W AC power supply 1 RU, IP Base feature set
WS-C3750X-24S-S	Stackable 24 GE SFP Ethernet ports, with 350W AC power supply 1 RU, IP Base feature set
WS-C3750X-12S-E	Stackable 12 GE SFP Ethernet ports, with 350W AC power supply 1 RU, IP Services feature set
WS-C3750X-24S-E	Stackable 24 GE SFP Ethernet ports, with 350W AC power supply 1 RU, IP Services feature set

1. 1.L=LAN Base; S=IP Base

For More Information

http://www.cisco.com/go/3750x

Cisco Catalyst 3560 Series Switches

The Cisco Catalyst 3560 Series Switches are fixed-configuration switches combining Gigabit Ethernet connectivity and Power over Ethernet (PoE) for small enterprise LAN access and branch office deployments.



Ideal for Companies That Need These Features

Cisco Catalyst 3560 Series	· Enhanced business productivity, resiliency, security, and scalability · Quick deployment and easy network management · Deployments of IP telephony, wireless, or Gigabit to the Desktop (GTTD)
Cisco Catalyst 3560-8PC Compact	· Small density PoE with compact form-factor and no fan for deployments in conference rooms and classrooms
Cisco Catalyst 3560-12PC Compact	· Small density PoE with compact form-factor and no fan for deployments in conference rooms and classrooms
Cisco Catalyst 3560V2-24TS	· Low-density access, Layer 2+ or Layer 3 features, and one or more fiber uplinks

Cisco Catalyst 3560V2-48TS	· Medium-density access, Layer 2+ or Layer 3 features, and one or more fiber uplinks
Cisco Catalyst 3560V2-24PS	· Low-density access, PoE, Layer 2+ or Layer 3 features, and one or more fiber uplinks
Cisco Catalyst 3560V2-48PS	· Medium-density access, PoE, Layer 2+ or Layer 3 features, and one or more fiber uplinks
Cisco Catalyst 3560V2-24TS-SD	· Low-density access, Layer 2+ or Layer 3 features, and one or more fiber uplinks, DC power supply
Cisco Catalyst 3560G-24TS	· Low-density 10/100/1000 access, Layer 2+ or Layer 3 features, and one or more fiber uplinks
Cisco Catalyst 3560G-24PS	· Low-density 10/100/1000 access, PoE, Layer 2+ or Layer 3 features, and one or more fiber uplinks
Cisco Catalyst 3560G-48TS	· Medium-density 10/100/1000 access, Layer 2+ or Layer 3 features, and one or more fiber uplinks
Cisco Catalyst 3560G-48PS	· Medium-density 10/100/1000 access, PoE, Layer 2+ or Layer 3 features, and one or more fiber uplinks

Key Features and Benefits

- Availability—The Cisco Catalyst 3560 Series Switches offer fault tolerance, load balancing, and rapid recovery; increased available bandwidth with Per VLAN Spanning Tree Plus (PVST+) by allowing traffic on redundant links; and sub-100-millisecond convergence with Flexlink technology.
- Power over Ethernet (PoE)—The switches provide 370W PoE, which simplifies IP telephony, wireless, and video-surveillance deployments; intelligent power-management features; and PoE combined with Fast Ethernet or Gigabit Ethernet.
- Layer 3—The switches support advanced routing protocols such as Open Shortest Path First (OPSF), Enhanced Interior Gateway Routing Protocol (EIGRP), and Policy Based Routing (PBR) to increase network scale; equal cost routing as well as multicast routing such as Protocol Independent Multicast (PIM); Virtual Route Forwarding Lite (VRFLite) to secure traffic; and IPv6.
- QoS—Traffic shaping smooths a sudden traffic flow outburst without dropping packets; shaped Round Robin guarantees bandwidth to mission-critical applications; and Scavenger Queuing protects against worms overloading resources.
- Management—Cisco Smartports quicken and simplify configuration of advanced Cisco Catalyst intelligent capabilities. Express setup facilitates quick and easy setup through a Web interface, and resource templates help tailor switch resources for the application.
- Security—Dynamic Host Configuration Protocol (DHCP) Snooping allows only trusted ports to relay DHCP messages, eliminating rogue DHCP servers. Cisco Network Admission Control (NAC) prevents the propagation of costly worms and viruses; Dynamic ARP Inspection and IP Source Guard prevent against man-in-the-middle attacks; 802.1x and Identity-Based Network Services allow only authorized persons on the network; and port security prevents MAC address flooding attacks.
- Cisco EnergyWise helps reduce company-wide power consumption and carbon footprint.
- Cisco limited lifetime warranty.

Specifications

Feature	Cisco 3560V2-24TS	Cisco 3560V2-48TS	Cisco 3560V2-24PS	Cisco 3560V2-48PS	Cisco 3560V2-24TS-SD	Cisco 3560G-24TS
Forwarding bandwidth (Gbps)	32	32	32	32	32	32
Packets per second (Mpps)	6.5	13.1	6.5	13.1	6.5	38.7
MAC addresses supported	12,000	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000	11,000
Onboard memory (DRAM/Flash)	128/32 MB	128/32 MB	128/16 MB	128/16 MB	128/32 MB	128/32 MB
Gigabit Ethernet GBIC/SFP density	2	4	2	4	2	4
10/100/1000 density	0	0	0	0	0	24
10/100 density	24	48	24	48	24	0
Measured 100% Throughput power consumption (with Max. 15.4 W PoE loads)	24	41	435	452	24	74
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	24	24	-	-
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	24	48	-	-

AC/DC support	AC only	AC only	AC only	AC only	DC power supply	AC only
Dimensions (H x W x D)	1.73 x 17.46 x 11.62 in.; (4.4 x 44.3 x 29.5 cm.)	1.73 x 17.46 x 11.62 in.; (4.4 x 44.3 x 29.5 cm.)	1.73 x 17.46 x 11.62 in.; (4.4 x 44.3 x 29.5 cm.)	1.73 x 17.46 x 11.62 in.; (4.4 x 44.3 x 29.5 cm.)	1.73 x 17.46 x 11.62 in.; (4.4 x 44.3 x 29.5 cm.)	1.73 x 17.5 x 14.9 in.; (4.4 x 44.5 x 37.8 cm.)
Unit weight	8.2 lbs. (3.7 kgs.)	9 lbs. (4 kgs.)	10 lbs. (4.6 kgs.)	11 lbs. (5 kgs.)	8 lbs. (3.7 kgs.)	12 lbs. (5.4 kgs.)

Feature	Cisco 3560G-48TS	Cisco 3560G-24PS	Cisco 3560G-48PS	Cisco 3560-12PC-S	Cisco 3560-8PC-S
Forwarding bandwidth (Gbps)	32	32	32	32	32
Packets per second (Mpps)	38.7	38.7	38.7	3.2	2.7
MAC addresses supported	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000
Onboard memory (DRAM/Flash)	128/32 MB	128/32 MB	128/32 MB	128/32 MB	128/32 MB
Gigabit Ethernet GBIC/SFP density	4	4	4	1	1
10/100/1000 density	48	24	48	1	1
10/100 density	0	0	0	12	8
Measured 100% Throughput power consumption (with Max. 15.4 W PoE loads)	124	496	534	145	145
PoE: Max. 802.3af Class 3 devices (15.4W)	-	24	24	8	8
PoE: Max. 802.3af Class 2 devices (7.3W)	-	24	48	12	8
AC/DC support	AC only	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 17.5 x 16.1 in.; (4.4 x 44.5 x 40.9 cm.)	1.73 x 17.5 x 14.9 in.; (4.4 x 44.5 x 37.8 cm.)	1.73 x 17.5 x 16.1 in.; (4.4 x 44.5 x 40.9 cm.)	1.73 x 10.6 x 9.1 in. (4.4 x 27 x 23 cm)	1.73 x 10.6 x 9.1 in. (4.4 x 27 x 23 cm)
Unit weight	13.5 lbs. (6.1 kgs.)	14 lbs. (6.4 kgs.)	15.5 lbs. (7.0 kgs.)	5 lb (2.3 kg)	5 lb (2.3 kg)

Online model comparison chart: http://www.cisco.com/en/US/products/hw/switches/ps5528/prod_models_comparison.html

Selected Part Numbers and Ordering Information

Cisco Catalyst 3560 Series 10/100/1000 Workgroup Switches[1]	
WS-C3560G-48PS-S	Cisco Catalyst 3560G-48 10/100/1000T PoE + 4 SFP Standard Image
WS-C3560G-48PS-E	Cisco Catalyst 3560G-48 10/100/1000T PoE + 4 SFP Enhanced Image
WS-C3560G-24PS-S	Cisco Catalyst 3560G-24 10/100/1000T PoE + 4 SFP Standard Image
WS-C3560G-24PS-E	Cisco Catalyst 3560G-24 10/100/1000T PoE + 4 SFP Enhanced Image
WS-C3560G-48TS-S	Cisco Catalyst 3560G-48 10/100/1000T + 4 SFP Standard Image
WS-C3560G-48TS-E	Cisco Catalyst 3560G-48 10/100/1000T + 4 SFP Enhanced Image
WS-C3560G-24TS-S	Cisco Catalyst 3560G-24 10/100/1000T + 4 SFP Standard Image
WS-C3560G-24TS-E	Cisco Catalyst 3560G-24 10/100/1000T + 4 SFP Enhanced Image
Cisco Catalyst 3560V2 Series 10/100 Workgroup Switches	
WS-C3560V2-48PS-S	Cisco Catalyst 3560G v2-48 10/100 PoE + 4 SFP Standard Image
WS-C3560V2-48PS-E	Cisco Catalyst 3560G v2-48 10/100 PoE + 4 SFP Enhanced Image
WS-C3560V2-24PS-S	Cisco Catalyst 3560G v2-24 10/100 PoE + 2 SFP Standard Image
WS-C3560V2-24PS-E	Cisco Catalyst 3560G v2-24 10/100 PoE + 2 SFP Enhanced Image

WS-C3560V2-48TS-S	Cisco Catalyst 3560G v2-48 10/100 + 4 SFP Standard Image
WS-C3560V2-48TS-E	Cisco Catalyst 3560G v2-48 10/100 + 4 SFP Enhanced Image
WS-C3560V2-24TS-S	Cisco Catalyst 3560G v2-24 10/100 + 2 SFP Standard Image
WS-C3560V2-24TS-E	Cisco Catalyst 3560G v2-24 10/100 + 2 SFP Enhanced Image
WS-C3560V2-24TS-SD	Cisco Catalyst 3560G v2-24 10/100 + 2 SFP Standard Image with DC power supply
WS-C3560-8PC-S	Cisco Catalyst 3560G-8 10/100 PoE + 1 1000BT or 1 SFP Standard Image
WS-C3560-12PC-S	Cisco Catalyst 3560G-12 10/100 PoE + 1 1000BT or 1 SFP Standard Image

1. S=IP Base; E=IP Services

For More Information

http://www.cisco.com/go/catalyst3560

Cisco Catalyst 3560-E Series Switches

The Cisco Catalyst 3560-E Series is an enterprise-class line of standalone wiring closet switches that ease the deployment of secure converged applications. Combining 10/100/1000 and Power over Ethernet (PoE) configurations with uplinks that easily upgrade from 1 to 10 Gigabit Ethernet, these switches enhance worker productivity by enabling applications such as IP telephony, wireless, and video.



Ideal for Companies That Need These Features

Cisco Catalyst 3560-E Series	· Enhanced business productivity, resiliency, security, and scalability · Quick deployment and easy network management · Deployment of IP telephony, wireless, or Gigabit to the Desktop (GTTD) · 1- to 10-Gigabit Ethernet upgradable uplinks
Cisco Catalyst 3560E-24TD	· Low-density access, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks
Cisco Catalyst 3560E-24TD-SD	· Low-density access, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks, DC power
Cisco Catalyst 3560E-48TD	· Medium-density access, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks
Cisco Catalyst 3560E-48TD-SD	· Medium-density access, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks, DC power
Cisco Catalyst 3560E-24PD	· Low-density access, PoE, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks
Cisco Catalyst 3560E-48PD	· Medium-density access, PoE, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks
Cisco Catalyst 3560E-48PD Full Power	· Medium-density 10/100/1000 access, full 15.4W of PoE on every port, Layer 2+ or Layer 3 features, PoE, and 1 or more 10-Gigabit Ethernet fiber uplinks
Cisco Catalyst 3560E-48TD	· Medium-density access, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks
Cisco Catalyst 3560E-12SD	· Low-density Gigabit Ethernet fiber aggregation, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks
Cisco Catalyst 3560E-12D	· Low-density 10-Gigabit Ethernet fiber aggregation and Layer 2+ or Layer 3 features

Key Features and Benefits

- Availability—The Cisco Catalyst 3560-E Series Switches offer fault tolerance, load balancing, and rapid recovery; increased available bandwidth with Per VLAN Spanning Tree Plus (PVST+) by allowing traffic on redundant link; and sub-100-millisecond convergence with Flexlink technology.
- Power over Ethernet (PoE)—The switches offer 1150W PoE, which simplifies IP telephony, wireless, and video-surveillance deployments. It provides intelligent power-management features and PoE combined with Fast Ethernet or Gigabit Ethernet.
- Layer 3—Advanced routing protocols such as Open Shortest Path First (OPSF), Enhanced Interior Gateway Routing Protocol (EIGRP), and Policy Based Routing (PBR) increase network scale. The switches provide equal cost routing as well as multicast routing such as Protocol Independent Multicast (PIM), Virtual Route Forwarding Lite (VRFLite) to secure traffic, and IPv6.
- Quality of service (QoS)—Traffic shaping smooths a sudden traffic flow outburst without dropping packets; shaped Round Robin guarantees bandwidth to mission-critical applications; and Scavenger Queuing protects against worms overloading resources.

- Management—Cisco Smartports quicken and simplify configuration of advanced Cisco Catalyst intelligent capabilities; express setup facilitates quick and easy setup through a Web interface; and resource templates help tailor switch resources for the application.
- Security—Dynamic Host Configuration Protocol (DHCP) Snooping allows only trusted ports to relay DHCP messages, eliminating rogue DHCP servers. Cisco Network Admission Control (NAC) prevents the propagation of costly worms and viruses; Dynamic ARP Inspection and IP Source Guard prevent against man-in-the-middle attacks; 802.1x and Identity-Based Network Services allow only authorized persons on the network; and port security prevents MAC address flooding attacks.
- Field-replaceable and -upgradable power supplies and fan.
- Cisco TwinGig Converter Module for migrating uplinks from 1 Gigabit Ethernet (Small Form-Factor Pluggable [SFP]) to 10 Gigabit Ethernet (X2).
- Cisco EnergyWise helps reduce company-wide power consumption and carbon footprint.
- Cisco limited lifetime warranty.

Specifications

Feature	Cisco 3560E-24TD	Cisco 3560E-24TD-SD	Cisco 3560E-48TD	Cisco 3560E-48TD-SD	Cisco 3560E-24PD	Cisco 3560E-48PD	Cisco 3560-48PD Full Power
Forwarding bandwidth (Gbps)	128	128	128	128	128	128	128
Packets per second (Mpps)	65.5	65.5	101.2	101.2	65.5	101.2	101.2
MAC addresses supported	12,000	12,000	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000	11,000	11,000
Onboard memory (DRAM/ Flash)	128/32 MB	128/32 MB	128/32 MB	128/32 MB	128/16 MB	128/16 MB	128/16 MB
10/100/1000 density	24	24	48	48	24	48	48
10/100 density	24	24	48	48	24	48	48
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	-	-	24	48	48
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	-	-	24	48	48
AC/DC support	AC and DC	DC power	AC and DC	DC power	AC and DC	AC and DC	AC and DC
Dimensions (H x W x D)	1.73 x 17.5 x 18.1 in. (4.45 x 44.5 x 46.0 cm.)	1.73 x 17.5 x 18.1 in. (4.45 x 44.5 x 46.0 cm.)	1.73 x 17.5 x 18.1 in. (4.5 x 44.5 x 46.0 cm.)	1.73 x 17.5 x 18.1 in. (4.5 x 44.5 x 46.0 cm.)	1.73 x 17.5 x 18.1 in. (4.45 x 44.5 x 46.0 cm.)	1.73 x 17.5 x 18.1 in. (4.45 x 44.5 x 46.0 cm.)	1.73 x 17.5 x 21.7 in. (4.45 x 44.5 x 55.2 cm.)
Unit weight	17.9 lbs. (8.1 kgs.)	17.9 lbs. (8.1 kgs.)	18.8lbs. (8.6kgs.)	18.8lbs. (8.6kgs.)	18.3 lbs. (8.3kgs.)	19.2 lbs. 8.75kgs.)	20.9 lbs. (9.5 kgs.)

Online model comparison chart: http://www.cisco.com/en/US/products/ps7078/prod_models_comparison.html

Selected Part Numbers and Ordering Information

Cisco Catalyst 3560-E Series 10/100/1000 Workgroup Switches[1]	
WS-C3560E-24TD-S	Cisco Catalyst 3560E 24 10/100/1000+2*10GE(X2),265W,IPB s/w
WS-C3560E-24TD-SD	Cisco Catalyst 3560E 24 10/100/1000+2*10GE(X2),DC,265W,IPB s/w
WS-C3560E-24TD-E	Cisco Catalyst 3560E 24 10/100/1000+2*10GE(X2),265W,IPS s/w
WS-C3560E-48TD-S	Cisco Catalyst 3560E 48 10/100/1000+2*10GE(X2),265W,IPB s/w
WS-C3560E-48TD-SD	Cisco Catalyst 3560E 48 10/100/1000+2*10GE(X2),265W DC,IPB s/w
WS-C3560E-48TD-E	Cisco Catalyst 3560E 48 10/100/1000+2*10GE(X2),265W,IPS s/w
WS-C3560E-24PD-S	Cisco Catalyst 3560E 24 10/100/1000 PoE+2*10GE(X2),750W,IPB s/w
WS-C3560E-24PD-E	Cisco Catalyst 3560E 24 10/100/1000 PoE+2*10GE(X2),750W,IPS s/w
WS-C3560E-48PD-S	Cisco Catalyst 3560E 48 10/100/1000 PoE+2*10GE(X2),750W,IPB s/w
WS-C3560E-48PD-E	Cisco Catalyst 3560E 48 10/100/1000 PoE+2*10GE(X2),750W,IPS s/w
WS-C3560E-48PD-SF	Cisco Catalyst 3560E 48 10/100/1000 PoE+2*10GE(X2),1150W,IPB s/w
WS-C3560E-48PD-EF	Cisco Catalyst 3560E 48 10/100/1000 PoE+2*10GE(X2),1150W,IPS s/w
WS-C3560E-12SD-S	Cisco Catalyst 3560E 12 SFP + 2*10GE(X2), IPB s/w

WS-C3560E-12SD-E	Cisco Catalyst 3560E 12 SFP + 2*10GE(X2), IPS s/w
WS-C3560E-12D-S	Cisco Catalyst 3560E 12*10GE(X2), IPB s/w
WS-C3560E-12D-E	Cisco Catalyst 3560E 12*10GE(X2), IPS s/w
Cisco Catalyst 3560-E Series Product Activation Keys	
3560E-IPSLCB-QTY	IP Services for 3560 E, upgrade from the IP Base Feature Set

1. S=IP Base; E=IP Services

For More Information

http://www.cisco.com/go/catalyst3560E

Cisco Catalyst 3560-X Series Switches

The Cisco Catalyst 3560-X Series Switches are an enterprise-class line of standalone switches. These switches provide high availability, scalability, security, energy efficiency, and ease of operation with innovative features such as IEEE 802.3at Power over Ethernet Plus (PoE+) configurations, optional network modules, redundant power supplies, and Media Access Control Security (MACsec) features. The Cisco Catalyst 3560-X enhances productivity by enabling applications such as IP telephony, wireless, and video for borderless network experience.



Ideal for Companies That Need These Features

Cisco Catalyst 3560-X Series	Enabling the Next Generation Workspace, with: · In-Depth Security Solutions with TrustSec · Video with Medianet · High Availability with Best in Class Resiliency Capabilities · Most Efficient and Comprehensive PoE support in the Industry · Quick deployment and easy management of their network · Four optional uplink network modules with GE or 10GE ports
Cisco Catalyst 3560X-24T-L	· Low-density access, LAN Base feature set, and two 10-Gigabit Ethernet SFP+ uplinks
Cisco Catalyst 3560X-48T-L	· Medium-density access, LAN Base feature set, and two 10-Gigabit Ethernet SFP+ uplinks
Cisco Catalyst 3560X-24P-L	· Low-density access, LAN Base feature set, PoE+, and two 10-Gigabit Ethernet SFP+ uplinks
Cisco Catalyst 3560X-48P-L	· Medium-density access, LAN Base feature set, PoE+, and two 10-Gigabit Ethernet SFP+ uplinks
Cisco Catalyst 3560X-48PF-L	· Medium-density access, LAN Base feature set, PoE+, two 10-Gigabit Ethernet SFP+ uplinks, and 1100 WAC power supply
Cisco Catalyst 3560X-24T-S	· Low-density access, IP Base feature set, and two 10-Gigabit Ethernet SFP+ uplinks
Cisco Catalyst 3560X-48T-S	· Medium-density access, IP Base feature set, and two 10-Gigabit Ethernet SFP+ uplinks
Cisco Catalyst 3560X-24P-S	· Low-density access, IP Base feature set, PoE+, and two 10-Gigabit Ethernet SFP+ uplinks
Cisco Catalyst 3560X-48P-S	· Medium-density access, IP Base feature set, PoE+, and two 10-Gigabit Ethernet SFP+ uplinks
Cisco Catalyst 3560X-48PF-S	· Medium-density access, IP Base feature set, PoE+, two 10-Gigabit Ethernet SFP+ uplinks, and 1100 WAC power supply

Key Features and Benefits

- 24 and 48 10/100/1000 PoE+, non-PoE models
- Four optional uplink network modules with GE or 10GE ports Industry first PoE+ with 30W power on all ports in 1 rack unit (RU) form factor
- Dual redundant, modular power supplies and fans
- Media Access Control Security (MACsec) hardware-based encryption
- Flexible NetFlow and switch-to-switch hardware encryption with the uplink Service Module Open Shortest Path First (OSPF) for routed access in IP Base image
- IPv4 and IPv6 routing, Multicast routing, advanced quality of service (QoS), and security features in hardware
- Enhanced limited lifetime warranty (LLW) with next business day (NBD) advance hardware replacement and 90 day access to Cisco Technical Assistance Center (TAC) support

- Enhanced Cisco EnergyWise for operational cost optimization by measuring actual power consumption of the PoE devices, reporting, and reducing energy consumption across the network
- USB Type-A and Type-B ports for storage and console respectively and an out-of-band Ethernet management port.

Specifications

Feature	Cisco 3560X-24T-L	Cisco 3560X-48T-L	Cisco 3560X-24P-L	Cisco 3560X-48P-L	Cisco 3560X-48PF-L
Forwarding bandwidth (Gbps)	160	160	160	160	160
Maximum stack members	0	0	0	0	0
Total stack bandwidth (Gbps)	-	-	-	-	-
Packets per second (Mpps)	65.5	101.2	65.5	101.2	101.2
MAC addresses supported	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000
10 GE density	2	2	2	2	2
10 GE SFP+	2	2	2	2	2
10/100/1000 density	24	48	24	48	48
10/100 density	24	48	24	48	48
100BASE-FX density	0	0	0	0	0
Measured 100% Throughput power consumption (without PoE loads, 1 Gps uplink module)	93.5	120.4	99.3	133.9	137.2
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	24	48	48
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	24	48	48
AC/DC support	AC and DC	AC and DC	AC and DC	AC and DC	AC and DC
Dimensions (H x W x D)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 19.5 in (4.45 x 44.5 x 49.5 cm.)
Unit weight	15.4 lbs. (7.0 kgs.)	16.1 lbs. (7.3 kgs.)	15.7 lbs. (7.1 kgs.)	16.4 lbs. (7.4 kgs.)	16.6 lbs. (7.5 kgs.)
Feature	**Cisco 3560X-24T-S**	**Cisco 3560X-48T-S**	**Cisco 3560X-24P-S**	**Cisco 3560X-48P-S**	**Cisco 3560X-48PF-S**
Forwarding bandwidth (Gbps)	160	160	160	160	160
Maximum stack members	0	0	0	0	0
Total stack bandwidth (Gbps)	-	-	-	-	-
Packets per second (Mpps)	65.5	101.2	65.5	101.2	101.2
MAC addresses supported	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000
10 GE density	2	2	2	2	2
10 GE SFP+	2	2	2	2	2
10/100/1000 density	24	48	24	48	48
10/100 density	24	48	24	48	48
100BASE-FX density	0	24	0	0	0
Measured 100% Throughput power consumption (without PoE load, I Gbps uplink module)	93.5	120.4	99.3	133.9	137.2
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	24	48	48

PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	24	48	48
AC/DC support	AC and DC	AC and DC	AC and DC	AC and DC	AC and DC
Dimensions (H x W x D)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.0 in (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 19.5 in (4.45 x 44.5 x 49.5cm.)
Unit weight	15.4 lbs. (7.0 kgs.)	16.1 lbs. (7.3 kgs.)	15.7 lbs. (7.1 kgs.)	16.4 lbs. (7.4 kgs.)	16.6 lbs. (7.5 kgs.)
Online model comparison chart: http://www.cisco.com/en/US/products/ps10744/prod_models_comparison.html					

Selected Part Numbers and Ordering Information

Catalyst 3560-X Series 10/100/1000 Workgroup Switches[1]	
WS-C3560X-24T-L	Cisco 3560-X standalone 24 10/100/1000 Ethernet ports, with 350W AC power supply 1 RU, LAN Base feature set
WS-C3560X-48T-L	Cisco 3560-X standalone 48 10/100/1000 Ethernet ports, with 350W AC power supply 1 RU, LAN Base feature set
WS-C3560X-24P-L	Cisco 3560-X standalone 24 10/100/1000 Ethernet PoE+ ports, with 715W AC power supply 1 RU, LAN Base feature set
WS-C3560X-48P-L	Cisco 3560-X standalone 48 10/100/1000 Ethernet PoE+ ports, with 715W AC power supply 1 RU, LAN Base feature set
WS-C3560X-48PF-L	Cisco 3560-X standalone 48 10/100/1000 Ethernet PoE+ ports, with 1100W AC power supply 1 RU, LAN Base feature set
WS-C3560X-24T-S	Cisco 3560-X standalone 24 10/100/1000 Ethernet ports, with 350W AC power supply 1 RU, IP Base feature set
WS-C3560X-48T-S	Cisco 3560-X standalone 48 10/100/1000 Ethernet ports, with 350W AC power supply 1 RU, IP Base feature set
WS-C3560X-24P-S	Cisco 3560-X standalone 24 10/100/1000 Ethernet PoE+ ports, with 715W AC power supply 1 RU, IP Base feature set
WS-C3560X-48P-S	Cisco 3560-X standalone 48 10/100/1000 Ethernet PoE+ ports, with 715W AC power supply 1 RU, IP Base feature set
WS-C3560X-48PF-S	Cisco 3560-X standalone 48 10/100/1000 Ethernet PoE+ ports, with 1100W AC power supply 1 RU, IP Base feature set

1. 1.L=LAN Base; S=IP Base

For More Information

http://www.cisco.com/go/3560x

Cisco Catalyst 2960-S Series Switches



The Cisco Catalyst 2960-S Series Switches are the leading Layer 2 edge switches providing improved ease of use, highly secure business operations, improved sustainability, and a borderless network experience. These switches include new Cisco FlexStack switch stacking capability with 1- and 10-Gigabit Ethernet connectivity and Enhanced Power over Ethernet (PoE+).

The Cisco Catalyst 2960-S Series Switches are fixed-configuration access switches designed for enterprise, midmarket, and branch-office networks to provide lower total cost of ownership.

Ideal for Companies That Need These Features

Cisco Catalyst 2960-S

- Intelligent services at entry-level functions
- Quality of service (QoS), enhanced security, and availability
- Easy deployment and network management
- Unprecedented low box power consumption

Key Features and Benefits

- 1- and 10-Gigabit Ethernet uplink flexibility with Small Form-Factor Pluggable Plus (SFP+), providing business continuity and fast transition to 10 Gigabit Ethernet
- 24 or 48 ports of Gigabit Ethernet desktop connectivity
- Cisco FlexStack stacking module with 20 Gbps of throughput, allowing ease of operation with single configuration and simplified switch upgrade
- Enhanced Power over Ethernet (PoE+) with up to 30W per port that allows you to support the latest PoE+ capable devices
- Power-supply options, with 740W or 370W fixed power supplies for PoE+ switches

- USB storage for file backup, distribution, and simplified operations
- A wide range of software features to provide ease of operation, highly secure business operations, sustainability, and a borderless network experience
- Cisco EnergyWise technology, which helps reduce company-wide power consumption and carbon footprint.
- Enhanced limited lifetime hardware warranty, including next-business-day replacement with 90-day service and support

Specifications

Feature	Cisco 2960S-48FPD-L	Cisco 2960S-48LPD-L	Cisco 2960S-24PD-L	Cisco 2960S-48TD-L	Cisco 2960S-24TD-L	Cisco 2960S-48FPS-L
Forwarding bandwidth (Gbps)	88	88	88	88	88	88
Maximum Stack Members	4	4	4	4	4	4
Total Bandwidth of Stack (Gbps)	20	20	20	20	20	20
Packets per second (Mpps)	101.2	101.2	65.5	101.2	65.5	77.4
MAC addresses supported	8,000	8,000	8,000	8,000	8,000	8000
Onboard memory (DRAM)	128 MB	128 MB	128 MB	128 MB	128 MB	128 MB
10 GE SFP+ Density	2	2	2	2	2	0
Gigabit Ethernet GBIC/SFP density	-	-	-	-	-	4
10/100/1000 density	48	48	24	48	24	48
10/100 density	-	-	-	-	-	-
100BASE-FX density	-	-	-	-	-	-
PoE: Max. 802.3af Class 3 devices (15.4W)	48	24	24	0	0	48
PoE: Max. 802.3af Class 2 devices (7.3W)	48	48	24	0	0	48
Measured 100% Throughput power consumption (Watts)	81	71	55	55	39	79
AC/DC support	AC only	AC only	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.75 x 17.5 x 15.2 in. (4.5 x 44.5 x 38.6 cm.)	1.75 x 17.5 x 15.2 in. (4.5 x 44.5 x 38.6 cm.)	1.75 x 17.5 x 15.2 in. (4.5 x 44.5 x 38.6 cm.)	1.75 x 17.5 x 11.8 in. (4.5 x 44.5 x 29.9 cm.)	1.75 x 17.5 x 11.8 in. (4.5 x 44.5 x 29.9 cm.)	1.75 x 17.5 x 15.2 in. (4.5 x 44.5 x 38.6 cm.)
Unit weight	13 lbs. (5.9 kgs.)	12.5 lbs. (5.7 kgs.)	12.5 lbs. (5.7 kgs)	9.5 lbs. (4.3 kgs.)	9.5 lbs. (4.3 Kgs.)	13 lbs. (5.9 kgs.)
Feature	**Cisco 2960S-48LPS-L**	**Cisco 2960S-24PS-L**	**Cisco 2960S-48TS-L**	**Cisco 2960S-24TS-L**	**Cisco 2960S-48TS-S**	**Cisco 2960S-24TS-S**
Forwarding bandwidth (Gbps)	88	88	88	88	88	88
Maximum Stack Members	4	4	4	4	4	4
Total Bandwidth of Stack (Gbps)	20	20	20	20	20	20
Packets per second (Mpps)	77.4	41.7	77.4	41.7	74.4	38.7
MAC addresses supported	8,000	8,000	8,000	8,000	8,000	8000
Onboard memory (DRAM)	128 MB	128 MB	128 MB	128 MB	128 MB	128 MB
10 GE SPF+ Density	0	0	0	0	0	0
Gigabit Ethernet GBIC/SFP density	4	4	4	4	4	4
10/100/1000 density	48	24	48	24	48	24

10/100 density	-	-	-	-	-	-
100BASE-FX density	-	-	-	-	-	-
PoE: Max. 802.3af Class 3 devices (15.4W)	24	24	0	0	0	0
PoE: Max. 802.3af Class 2 devices (7.3W)	48	24	0	0	0	0
Measured 100% Throughput power consumption (Watts)	71	55	52	40	53	36
AC/DC support	AC only	AC only	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.75 x 17.5 x 15.2 in. (4.5 x 44.5 x 38.6 cm.)	1.75 x 17.5 x 15.2 in. (4.5 x 44.5 x 38.6 cm.)	1.75 x 17.5 x 11.8 in. (4.5 x 44.5 x 29.9 cm.)	1.75 x 17.5 x 11.8 in. (4.5 x 44.5 x 29.9 cm.)	1.75 x 17.5 x 11.8 in. (4.5 x 44.5 x 29.9 cm.)	1.75 x 17.5 x 11.8 in. (4.5 x 44.5 x 29.9 cm.)
Unit weight	12.5 lbs. (5.7 kgs.)	12.5 lbs. (5.7 kgs.)	10.5 lbs. (4.8 kgs.)	10 lbs. (4.5 kgs.)	10.5 lbs. (4.8 kgs.)	10 lbs. (4.5 kgs.)

Online model comparison chart: http://www.cisco.com/en/US/products/ps6406/prod_models_comparison.html

Selected Part Numbers and Ordering Information

Cisco Catalyst 2960-S Series LAN Base Switches	
WS-C2960S-48FPD-L	Cisco Catalyst 2960-S 48 Ethernet 10/100/1000 PoE+ ports, 740W PoE capacity, 2 10 Gigabit Ethernet or 2 1 Gigabit Ethernet SFP+ uplink ports, optional Cisco FlexStack stacking support, LAN Base image
WS-C2960S-48LPD-L	Cisco Catalyst 2960-S 48 Ethernet 10/100/1000 PoE+ ports, 370W PoE capacity, 2 10 Gigabit Ethernet or 2 1 Gigabit Ethernet SFP+ uplink ports, optional Cisco FlexStack stacking support, LAN Base image
WS-C2960S-24PD-L	Cisco Catalyst 2960-S 24 Ethernet 10/100/1000 PoE+ ports, 370W PoE capacity, 2 10 Gigabit Ethernet or 2 1 Gigabit Ethernet SFP+ uplink ports, optional Cisco FlexStack stacking support, LAN Base image
WS-C2960S-48TD-L	Cisco Catalyst 2960-S 48 Ethernet 10/100/1000 ports, 2 10 Gigabit Ethernet or 2 1 Gigabit Ethernet SFP+ uplink ports, optional Cisco FlexStack stacking support, LAN Base image
WS-C2960S-24TD-L	Cisco Catalyst 2960-S 24 Ethernet 10/100/1000 ports, 2 10 Gigabit Ethernet or 2 1 Gigabit Ethernet SFP+ uplink ports, optional Cisco FlexStack stacking support, LAN Base image
WS-C2960S-48FPS-L	Cisco Catalyst 2960-S 48 Ethernet 10/100/1000 PoE+ ports, 740W PoE capacity, 4 1 Gigabit Ethernet SFP uplink ports, optional Cisco FlexStack stacking support, LAN Base image
WS-C2960S-48LPS-L	Cisco Catalyst 2960-S 48 Ethernet 10/100/1000 PoE+ ports, 370W PoE capacity, 4 1 Gigabit Ethernet SFP uplink ports, optional Cisco FlexStack stacking support, LAN Base image
WS-C2960S-24PS-L	Cisco Catalyst 2960-S 24 Ethernet 10/100/1000 PoE+ ports, 370W PoE capacity, 4 1 Gigabit Ethernet SFP uplink ports, optional Cisco FlexStack stacking support, LAN Base image
WS-C2960S-48TS-L	Cisco Catalyst 2960-S 48 Ethernet 10/100/1000 ports, 4 1 Gigabit Ethernet SFP uplink ports, optional Cisco FlexStack stacking support, LAN Base image
WS-C2960S-24TS-L	Cisco Catalyst 2960-S 24 Ethernet 10/100/1000 ports, 4 1 Gigabit Ethernet SFP uplink ports, optional Cisco FlexStack stacking support, LAN Base image
WS-2960S-48TS-S	Cisco Catalyst 2960-S 48 Ethernet 10/100/1000, 2 One Gigabit Ethernet SFP uplink ports, LAN Lite software
WS-C2960S-24TS-S	Cisco Catalyst 2960-S 24 Ethernet 10/100/1000, 2 One Gigabit Ethernet SFP uplink ports, LAN Lite software

For More Information

http://www.cisco.com/go/catalyst2960

Cisco Catalyst 2960 Series Switches

The Cisco Catalyst 2960 Series Switches are fixed-configuration switches offering Fast Ethernet and Power over Ethernet (PoE) with intelligent LAN services for midmarket and branch-office networks. The Cisco Catalyst 2960 LAN Base Switches offer enhanced security, quality of service (QoS), and availability, and the Cisco Catalyst 2960 LAN Lite Switches offer entry-level features with scalable management and easy troubleshooting.



Ideal for Companies That Need These Features

Cisco Catalyst 2960 Series
- Intelligent services at entry-level functions
- QoS, enhanced security, and availability
- Easy deployment and network management

Key Features and Benefits

- Power over Ethernet (PoE)—Cisco Catalyst 2960 Series Switches offer 370W PoE, which simplifies IP telephony, wireless, and video surveillance deployments. It also provides intelligent power-management features.
- Security—Network security is enabled through a wide range of authentication methods, data-encryption technologies, and Cisco Network Admission Control (NAC) based on users, ports, and MAC addresses.
- Availability—The 802.1S/W standard facilitates standards-based fault tolerance, load balancing, and rapid recovery. Flexlink provides sub-100-msec convergence, and Per-VLAN Spanning Tree Plus (PVST+) increases available bandwidth by allowing traffic on redundant links.
- Quality of service (QoS)—Network control and bandwidth optimization are achieved through advanced QoS, granular rate limiting, access control lists (ACLs), and multicast services.
- Management—Cisco Network Assistant is a GUI-based management tool for configuration management and troubleshooting. Cisco Smartports automatically detects connected Cisco devices and recommends preset configurations for the switch port connected to the device.
- Cisco EnergyWise helps reduce company-wide power consumption and carbon footprint.
- Cisco limited lifetime warranty.

Specifications

Feature	Cisco 2960-24TC-L	Cisco 2960-24TT-L	Cisco 2960-48TC-L	Cisco 2960-48TT-L	Cisco 2960-24-S
Forwarding bandwidth (Gbps)	16	16	16	16	16
Packets per second (Mpps)	6.6	6.6	10.1	10.1	3.6
MAC addresses supported	8,000	8,000	8,000	8,000	8,000
Onboard memory (DRAM)	64 MB	64 MB	64 MB	64 MB	64 MB
Gigabit Ethernet GBIC/SFP density	2	0	2	0	0
10/100/1000 density	2	2	2	2	0
10/100 density	24	24	48	48	24
100BASE-FX density	0	0	0	0	0
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	-	-	-
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	-	-	-
Measured 100% Throughput power consumption (with Max. PoE loads)	27	28	39	42	22
AC/DC support	AC only	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm)
Unit weight	8 lbs. (3.6 kgs.)	8 lbs. (3.6 kgs.)	8 lbs. (3.6 kgs.)	8 lbs. (3.6 kgs.)	8 lbs. (3.6 kgs.)

Feature	Cisco 2960-24TC-S	Cisco 2960-48TC-S	Cisco 2960-48TT-S	Cisco 2960-48PST-L	Cisco 2960-48PST-S
Forwarding bandwidth (Gbps)	16	16	16	16	16
Packets per second (Mpps)	6.5	10.1	10.1	6.5	13.3
MAC addresses supported	8,000	8,000	8,000	8,000	8,000
Onboard memory (DRAM)	64 MB	64 MB	64 MB	64 MB	64 MB
Gigabit Ethernet GBIC/SFP density	2	2	0	2	2
10/100/1000 density	2	22	2	2	2

10/100 density	24	48	48	48	48
100BASE-FX density	0	0	0	0	0
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	-	24	24
PoE: Max. 802.3af Class 2 devices (7.3W)	-	-	-	48	48
Measured 100% Throughput power consumption (with Max. PoE loads)	27	39	42	460	460
AC/DC support	AC only	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 17.5 x 12.9 in. (4.4 x 44.5 x 32.8 cm.)	1.73 x 17.5 x 13 in. (4.4 x 44.5 x 33.2 cm.)
Unit weight	8 lbs. (3.6 kgs.)	8 lbs. (3.6 kgs.)	8 lbs (3.6 kgs.)	12 lbs. (5.4 kgs.)	12 lbs. (5.4 kgs.)

Feature	**Cisco 2960-8TC-S**	**Cisco 2960-8TC-L**	**Cisco 2960G-8TC-L**
Forwarding bandwidth (Gbps)	16	16	32
Packets per second (Mpps)	2.7	2.7	11.9
MAC addresses supported	8,000	8,000	8,000
Onboard memory (DRAM)	64 MB	64 MB	64 MB
Gigabit Ethernet GBIC/SFP density	1	1	1
10/100/1000 density	1	1	7
10/100 density	8	8	0
100BASE-FX density	0	0	0
PoE: Max. 802.3af Class 3 devices (15.4W)	-	-	-
PoE: Max. 802.3af Class 3 devices (7.3W)	-	-	-
Measured 100% Throughput power consumption (with Max. PoE loads)	12	12	22
AC/DC support	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 10.6 x 6.4 in. (4.4 x 27 x 16.3 cm)	1.73 x 10.6 x 6.4 in. (4.4 x 27 x 16.3 cm)	1.73 x 10.6 x 8.1 in. (4.4 x 27 x 20.5 cm)
Unit weight	3 lbs. (1.4 kgs.)	3 lbs. (1.4 kgs.)	3 lbs. (1.4 kgs.)

Feature	**Cisco 2960-24LT-L**	**Cisco 2960-24PC-L**	**Cisco 2960-24LC-S**	**Cisco 2960-24PC-S**
Forwarding bandwidth (Gbps)	16	16	16	16
Packets per second (Mpps)	6.5	6.5	6.5	6.5
MAC addresses supported	8,000	8,000	8,000	8,000
Onboard memory (DRAM)	64 MB	64 MB	64 MB	64 MB
Gigabit Ethernet GBIC/SFP density	0	2	2	2
10/100/1000 density	2	2	2	2
10/100 density	24	24	24	24
100BASE-FX density	0	0	0	0
PoE: Max. 802.3af Class 3 devices (15.4W)	8	24	8	24
PoE: Max. 802.3af Class 2 devices (7.3W)	8	24	8	24

Measured 100% Throughput power consumption (with Max. PoE loads)	162	433	162	433
AC/DC support	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 17.5 x 12.9 in. (4.4 x 44.5 x 32.8 cm.)	1.73 x 17.5 x 13 in (4.4 x 44.5 x 33.2 cm)	1.73 x 17.5 x 13 in. (4.4 x 44.5 x 33.2 cm)
Unit weight	8 lbs. (3.6 kgs.)	10 lbs. (4.5 kgs.)	10 lbs. (4.5 kgs.)	12 lbs. (5.4 kgs.)
Online model comparison chart: http://www.cisco.com/en/US/products/ps6406/prod_models_comparison.html				

Selected Part Numbers and Ordering Information

Cisco Catalyst 2960 Series LAN Base Switches	
WS-C2960-24PC-L	Cisco Catalyst 2960-24 10/100 PoE + 2T/SFP LAN Base Image
WS-C2960-48PST-L	Cisco Catalyst 2960-48 10/100 PoE + 2 1000BT + 2 SFP LAN Base Image
WS-C2960-24TC-L	Cisco Catalyst 2960-24 10/100 + 2T/SFP LAN Base Image
WS-C2960-24LT-L	Cisco Catalyst 2960-24 10/100 (8 PoE) + 2 1000BT LAN Base Image
WS-C2960-24TT-L	Cisco Catalyst 2960-24 10/100 + 2 1000BT LAN Base Image
WS-C2960-48TC-L	Cisco Catalyst 2960-48 10/100 + 2 T/SFP LAN Base Image
WS-C2960-48TT-L	Cisco Catalyst 2960-48 10/100 + 2 1000BT LAN Base Image
WS-C2960PD-8TT-L	Cisco Catalyst 2960-8 10/100 + 1 1000BT (PoE input) LAN Base Image
WS-C2960-8TC-L	Cisco Catalyst 2960-8 10/100 + 1 T/SFP LAN Base Image
WS-C2960G-8TC-L	Cisco Catalyst 2960G-8 10/100/1000, 1 T/SFP LAN Base Image
Cisco Catalyst 2960 Series LAN Lite Switches	
WS-C2960-24-S	Cisco Catalyst 2960-24 10/100 LAN Lite Image
WS-C2960-24TC-S	Cisco Catalyst 2960-24 10/100 + 2T/SFP LAN Lite Image
WS-C2960-48TT-S	Cisco Catalyst 2960-48 10/100 +2 1000BT LAN Lite Image
WS-C2960-48TC-S	Cisco Catalyst 2960-48 10/100 + 2T/SFP LAN Lite Image
WS-C2960-24LC-S	Cisco Catalyst 2960-24 10/100 (8 PoE) + 2T/SFP LAN Lite Image
WS-C2960-24PC-S	Cisco Catalyst 2960-24 10/100 PoE + 2T/SFP LAN Lite Image
WS-C2960-48PST-S	Cisco Catalyst 2960-48 10/100 PoE + 2 1000BT + 2 SFP LAN Lite Image
WS-C2960-8TC-S	Cisco Catalyst 2960-8 10/100 +1 T/SFP LAN Lite Image

For More Information

http://www.cisco.com/go/catalyst2960

Campus LAN—Compact Switches

Cisco Catalyst 3560-C Series Compact Switches

The Cisco Catalyst 3560-C Series compact switches are small form-factor Gigabit Ethernet and Fast Ethernet switches designed for deployments outside the wiring closet. Enterprise and commercial customers can deliver advanced security services, unified communications, wireless, IP video cameras, and other applications for the office workspace, branch office, classroom, cruise ship, and other wiring-constrained environments.



Highlights of the Cisco Catalyst 3560-C Series include:

- PoE pass-through—An innovative feature and industry first for passing power from the compact switch to end devices
- Media Access Control Security (MACsec) hardware-based encryption
- Enhanced Power over Ethernet (PoE+) for up to 30W per port

- USB and console port for file backup and simplified operations
- Fanless for silent operation
- Cisco Catalyst Smart Operation and AutoSmart ports
- Enhanced limited lifetime hardware warranty (E-LLW) with next-business-day (NBD) advance hardware replacement and 90-day access to Cisco Technical Assistance Center (TAC) support

Specifications

Feature	WS-C3560CG-8TC-S	WS-C3560CG-8PC-S	WS-C3560CPD-8PT-S	WS-C3560C-8PC-S	WS-C3560C-12PC-S
Forwarding bandwidth (Gbps)	10	10	10	2.8	3.2
Packets per second (Mpps)	13.2	13.2	13.2	3.8	4.6
VLANS	1005	1005	1005	1005	1005
Onboard memory (DRAM)	128 MB	128 MB	128 MB	128 MB	128 MB
Gigabit Ethernet GBIC/SFP density	2	2	0	2	2
10/100/1000 density	10	10	10	2	2
10/100 density	-	-	-	8	12
PoE Budget	0W	124W	15.4W[1]	124W	124W
Dimensions (H x W x D)	1.75x10.6x8.4 (in) 44.4x269x213 (cm)	1.75x10.6x9.4 (in) 44.4x269x238 (cm)		1.75x10.6x9.4 (in) 44.4x269x238 (cm)	1.75x10.6x9.4 (in) 44.4x269x238 (cm)
Unit weight	3.0 1.35(kg)	4.1 1.86(kg)	3.3 1.5(kg)	4.1 1.86(kg)	4.25 1.92(kg)

Online model comparison chart: http://www.cisco.com/en/US/products/ps11290/prod_models_comparison.html#3560

1. PoE Budget of PoE Pass-through switches is dependant on the amount of PoE provided on the uplinks

Selected Part Numbers and Ordering Information

WS-C3560CG-8TC-S	Cisco Catalyst 3560-C Switch 8 GE, 2 x Dual Purpose Uplink, IP Base
WS-C3560CG-8PC-S	Cisco Catalyst 3560-C Switch 8 GE PoE, 2 x Dual Purpose, IP Base
WS-C3560CPD-8PT-S	Cisco Catalyst 3560-C PD PSE Switch 8 GE PoE, 2 x 1G Copper Uplink, IP Base
WS-C3560C-8PC-S	Cisco Catalyst 3560-C Switch 8 FE PoE, 2 x Dual Purpose Uplink, IP Base
WS-C3560C-12PC-S	Cisco Catalyst 3560-C Switch 12 FE PoE, 2 x Dual Purpose Uplink, IP Base

For More Information

http://www.cisco.com/go/compactswitches

Cisco Catalyst 2960-C Series Compact Switches

The Cisco Catalyst 2960-C Series compact switches are small form-factor Gigabit Ethernet and Fast Ethernet switches designed for deployments outside the wiring closet. Enterprise and commercial customers can deliver advanced security services, unified communications, wireless, IP video cameras, and other applications for the office workspace, branch office, classroom, cruise ship, and other wiring-constrained environments.



Cisco Catalyst 2960-C Series highlights include:

- PoE pass-through—An innovative feature and industry first for passing power from the compact switch to end devices
- Power over Ethernet
- USB and console port for file backup and simplified operations
- Cisco Catalyst Smart Operation and Autosmart ports
- Fanless for silent operation
- Enhanced limited lifetime hardware warranty (E-LLW) with next business day (NBD) advance hardware replacement and 90 day access to Cisco Technical Assistance Center (TAC) support

Specifications

Feature	WS-C2960CP-8TT-L	WS-C2960CP-8PT-L	WS-C2960CG-8TC-L	WS-C2960C-8TC-L	WS-C2960C-8TC-S	WS-C2960C-8PC-L	WS-C2960C-12PC-L
Forwarding bandwidth (Gbps)	2.8	2.8	10	2.8	2.8	2.8	3.2
Packets per second (Mpps)	3.8	3.8	13.2	3.8	3.8	3.8	4.6
VLANS	255	255	255	255	255	2552	255
Onboard memory (DRAM)	128 MB	128 MB	128 MB	128 MB	128 MB	128 MB	128 MB
Gigabit Ethernet GBIC/SFP density	0	0	2	2	2	2	2
10/100/1000 density	2	2	2	2	2	2	2
10/100 density	8	8	0	8	8	8	8
PoE Budget	0W	22.4W[1*]	0W	0W	0W	124W	124W
Dimensions (H x W x D)	1.75x10.6x6.8 (in) 44.4x269x172(cm)	1.75x10.6x6.8 (in) 44.4x269x172(cm)	1.75x10.6x8.4 44.4x269x213	1.75x10.6x8.4 (in) 44.4x269x213(cm)	1.75x10.6x8.4 (in) 44.4x269x213(cm)	1.75x10.6x9.4 (in) 44.4x269x238(cm)	1.75x10.6x9.4 (in 44.4x269x238(cm)
Unit weight	2.4 1.08(kg)	2.4 1.08(kg)	2.4 1.35(kg)	2.8 1.27(kg)	3.0 1.27(kg)	4.1 1.86(kg)	4.1 1.86(kg)

1. PoE budget of PoE pass-through switches depends on the amount of PoE provided on the uplinks.

Selected Part Numbers and Ordering Information

WS-C2960CPD-8TT-L	Cisco Catalyst 2960-C PSE Switch 8 FE, 2 x 1G, PoE+ LAN Base
WS-C2960CPD-8PT-L	Cisco Catalyst 2960-C PD PSE Switch, 8 FE PoE, 2 x 1G, PoE+ LAN Base
WS-C2960CG-8TC-L	Cisco Catalyst 2960-C Switch 8 GE, 2 x Dual Purpose Uplink, LAN Base
WS-C2960C-8TC-L	Cisco Catalyst 2960-C Switch 8 FE, 2 x Dual Purpose Uplink, LAN Base
WS-C2960C-8TC-S	Cisco Catalyst 2960-C Switch 8 FE, 2 x Dual Purpose Uplink, LAN Lite
WS-C2960C-8PC-L	Cisco Catalyst 2960-C PoE Switch 8 FE PoE, 2 x Dual Purpose Uplink, LAN Base
WS-C2960C-12PC-L	Cisco Catalyst 2960-C PoE Switch 12 FE PoE, 2 x Dual Purpose Uplink, LAN Base

For More Information

http://www.cisco.com/go/compactswitches

Campus LAN—Small Business Switches

Cisco ESW 500 Series Switches



The Cisco ESW 500 Series switches are designed to integrate easily with Cisco Small Business products and with the Cisco Smart Business Communications System, to provide a complete data, voice, video, and wireless networking solution for small businesses. These switches are cost-effective, easy to use, and deliver the performance and reliability needed by small businesses. They can be supported by a Cisco partner or by in-house networking support staff.

Key Features and Benefits

- Uses QoS to prioritize delay-sensitive and high-bandwidth network traffic, enhance network performance, and support demanding services, such as real-time voice and video
- Offers enhanced security, including IEEE 802.1X port security to limit access to authorized users and applications, access control lists (ACLs) to restrict access to sensitive portions of the network and guard against attacks, and virtual LANs (VLANs) to segment traffic and workgroups
- Provides Small Form-Factor Pluggable (SFP) expansion slots for fiber-optic or Gigabit Ethernet uplink connectivity
- Supports an optional redundant power supply that provides uninterrupted failover to help ensure continuous operation

- Offers a choice of two simple graphical user interfaces (GUIs) for easier configuration, management, and troubleshooting. (Cisco ESW 500 Series Switches include an embedded web-based configuration utility designed specifically for setting up the switch, and can also be configured with Cisco Configuration Assistant version 2.0 or later for system deployments)

Specifications

Product	Product Number	Copper FE ports	Copper GigE ports	SFP GigE ports	Combo SFP GigE ports[1]	PoE support	PoE ports @7.5 Watts	PoE ports @15.4 Watts
Gigabit Ethernet Switches with PoE	ESW-540-8P	N/A	8	None	1	Yes	8	
	ESW-540-24P	N/A	24	None	4	Yes	24	
Gigabit Ethernet Switches without PoE	ESW-540-24	N/A	24	None	4	No	N/A	N/A
	ESW-540-48	N/A	48	None	4	No	N/A	N/A
Fast Ethernet Switches with PoE	ESW-520-8P	8	None	None	1	Yes	8	4
	ESW-520-24P	24	4	None	2	Yes	24	12
	ESW-520-48P	48	2	2	None	Yes	48	24
Fast Ethernet Switches without PoE	ESW-520-24	24	4	None	2	No	N/A	N/A
	ESW-520-48	48	2	2	None	No	N/A	N/A
Online model comparison chart: http://www.cisco.com/en/US/products/ps10143/prod_models_comparison.html								

1. Combo SFP slots include one 10/100/1000BASET Ethernet port and 1 SFP-based Gigabit Ethernet slot for fiber, 1 port active at a time.

Selected Part Numbers and Ordering Information

ESW-520-8P-K9	Cisco ESW 500 Eight 10/100 PoE ports; 1 expansion port: One 10/100/1000BASE-T and 1 combo* SFP slot
ESW-520-24-K9	Cisco ESW 500 Twenty-four 10/100 Ethernet ports; 4 expansion ports: Two 10/100/1000BASE-T and 2 combo* SFP slots
ESW-520-24P-K9	Cisco ESW 500 24 10/100 PoE ports; 4 expansion ports: Two 10/100/1000BASE-T and 2 combo* SFP slots
ESW-520-48-K9	Cisco ESW 500 Forty-eight 10/100 Ethernet ports; 4 expansion ports: Two 10/100/1000BASE-T and 2 SFP slots
ESW-520-48P-K9	Cisco ESW 500 Forty-eight 10/100 PoE ports; 4 expansion ports: Two 10/100/1000BASE-T and 2 SFP slots
ESW-540-8P-K9	Cisco ESW 500 Eight 10/100/1000 PoE ports; 1 expansion port: One 10/100/1000BASE-T and 1 combo* SFP slot
ESW-540-24-K9	Cisco ESW 500 Twenty-four 10/100/1000 Ethernet ports; 4 expansion ports: 4 combo* SFP slots
ESW-540-24P-K9	Cisco ESW 500 Twenty-four 10/100/1000 PoE ports; 4 expansion ports: 4 combo* SFP slots
ESW-540-48-K9	Cisco ESW 500 Forty-eight 10/100/1000 Ethernet ports; 4 expansion ports: 4 combo* SFP slots

For More Information

http://www.cisco.com/go/esw500

Cisco 300 Series Managed Switches



The Cisco 300 Series Managed Switches constitute a broad portfolio of fixed-configuration managed Ethernet switches. Models are available with 8 to 48 ports of Fast Ethernet and 10 to 52 ports of Gigabit Ethernet connectivity, providing optimal flexibility to create exactly the right network foundation for your business. However, unlike other small business switching solutions that provide managed network capabilities only in the costliest models, all Cisco 300 Series Switches support the advanced security management capabilities and network features you need to support business-class data, voice, security, and wireless technologies. At the same time, these switches are simple to deploy and configure, allowing you to take advantage of the managed network services your business needs.

Key Features and Benefits

- Securely connects employees with each other and all of the business resources using high-performance Fast Ethernet and Gigabit Ethernet connections
- Increases the connectivity range of switches on different floors or across the business using a mini-Gigabit Interface Converter (mini-GBIC)
- Provides an intuitive, web-based interface to simplify the configuration and management of network devices
- Connects and powers network endpoints such as IP telephony, wireless devices, and IP surveillance with PoE switches to simplify the deployment of advanced technology and lower costs
- Isolates critical business services from guest traffic to improve network performance and enhance network security with VLANs
- Delivers predictable results for latency-sensitive applications such as voice or video over latency-insensitive traffic (such as bulk data transfers) with QoS
- Provides native support for IPv6, the newest version of the Internet Protocol, as well as for the previous IPv4 standard, to enable the migration to the next generation of networking applications and operating systems without an extensive equipment upgrade

Specifications

Category	Switch Model	SKU	Copper FE ports	Copper GigE ports	Combo mini-GBIC GigE ports*	PoE Support	PoE Ports @7.5 Watt	PoE ports @15.4 Watt
Gigabit Ethernet Switches with PoE	SG300-10P	SRW2008P-K9	-	8	2	62W	8	4
	SG300-10MP	SRW2008MP-K9	-	8	2	124W	8	8
	SG300-28P	SRW2024P-K9	-	26	2	180W	24	12
Gigabit Ethernet Switches without PoE	SG300-10	SRW2008-K9	-	8	2	-	-	-
	SG300-20	SRW2016-K9	-	18	2	-	-	-
	SG300-28	SRW2024-K9	-	26	2	-	-	-
	SG300-52	SRW2048-K9	-	50	2	-	-	-
Fast Ethernet Switches with PoE and GigE uplinks	SF302-08P	SRW208P-K9	8	0	2	62W	8	4
	SF302-08MP	SRW208MP-K9	8	0	2	124W	8	8
	SF300-24P	SRW224G4P-K9	24	2	2	180W	24	12
	SF300-48P	SRW248G4P-K9	48	2	2	375W	48	24
Fast Ethernet Switches without PoE and with GigE uplinks	SF302-08	SRW208G-K9	8	0	2	-	-	-
	SF300-24	SRW224G4-K9	24	2	2	-	-	-
	SF300-48	SRW248G4-K9	48	2	2	-	-	-
Fast Ethernet Switches without PoE and without GigE uplinks	SF300-08	SRW208-K9	8	0	0	-	-	-

Online model comparison chart: http://www.cisco.com/en/US/products/ps10898/prod_models_comparison.html

Selected Part Numbers and Ordering Information

SRW2008P-K9	8-port GigE Switch with PoE + 2 combo mini-GBIC ports
SRW2008MP-K9	8-port GigE Switch with maximum PoE + 2 combo mini-GBIC ports
SRW2024P-K9	26-port GigE Switch with PoE + 2 combo mini-GBIC ports
SRW2008-K9	8-port GigE Switch + 2 combo mini-GBIC ports
SRW2016-K9	18-port GigE Switch + 2 combo mini-GBIC ports
SRW2024-K9	26-port GigE Switch + 2 combo mini-GBIC ports
SRW2048-K9	50-port GigE Switch + 2 combo mini-GBIC ports
SRW208P-K9	8-port FE Switch with PoE + 2 combo mini-GBIC ports
SRW208MP-K9	8-port FE Switch with maximum PoE + 2 combo mini-GBIC ports
SRW224G4P-K9	24-port FE Switch with PoE + 2 GigE ports + 2 combo mini-GBIC ports
SRW248G4P-K9	48-port FE Switch with PoE + 2 GigE ports + 2 combo mini-GBIC ports
SRW208G-K9	8-port FE Switch + 2 combo mini-GBIC ports

SRW224G4-K9	24-port FE Switch + 2 GigE ports + 2 combo mini-GBIC ports
SRW248G4-K9	48-port FE Switch + 2 GigE ports + 2 combo mini-GBIC ports
SRW208-K9	8-port FE Switch

Each combo mini-GBIC port includes one 10/100/1000BaseT Ethernet port and 1 mini-GBIC Gigabit Ethernet port for fiber—with one port active at a time.

For More Information

www.cisco.com/go/smbswitches

Service Provider—Aggregation Switches

Cisco ME 3800X Series Carrier Ethernet Switch Router



The Cisco ME 3800X Series Carrier Ethernet Switch Router is a converged, full-featured aggregation platform designed specifically for the mobile, business, and residential markets. With low power consumption and high service scale, this 1-rack-unit (1RU) switch router is optimized for small aggregation and remote point-of-presence (POP) applications, making it a highly cost-effective option. The Cisco ME 3800X Series expands the Cisco Carrier Ethernet aggregation portfolio while complementing the Cisco 7600 Series Routers and Cisco ASR 9000 Series Aggregation Services Routers by providing a rich and scalable feature set of Layer 2 and Layer 3 VPN services in a compact package.

Ideal for Companies That Need These Features

Cisco ME 3800X-24FS

- 24 Gigabit Ethernet Small Form-Factor Pluggable (SFP) ports with two 10 Gigabit Ethernet SFP Plus (SFP+) uplinks
- Modular AC and DC power supply
- Small footprint aggregation device

Key Features and Benefits

The Cisco ME 3800X Series helps service providers deliver advanced services for residential broadband, mobile, and Metro Ethernet applications. The highlights of this aggregation platform are as follows:

- Cisco Carrier Ethernet application-specific integrated circuit (ASIC)—Powered by Cisco's Carrier Ethernet ASIC, designed specifically for the needs of service providers, the Cisco ME 3800X Series delivers essential Carrier Ethernet technologies including: hierarchical QoS (H-QoS), Multiprotocol Label Switching (MPLS), Virtual Private LAN Services (VPLS), and Hierarchical Virtual Private LAN Services (H-VPLS). The ASIC provides line-rate performance and enables advanced services including access control list (ACL) and H-QoS without affecting performance. This Carrier Ethernet ASIC incorporates innovative traffic-management capabilities while providing intelligent packet switching and routing operations.
- Service richness—With the Cisco ME 3800X Series, each service is assigned enhanced QoS and security attributes. The Cisco ME 3800X Series accomplishes advanced per-traffic-class metering and offers bidirectional packets and bytes statistics. The service offering is enhanced with rich operations, administration, and management (OAM) functions including: Layer 2 Connectivity Fault Management (CFM), IP service-level agreement (IP SLA) for Layer 3, and MPLS OAM.
- Service scale—The Cisco ME 3800X Series delivers unmatched service scalability in a 1RU footprint. With support for 256,000 MAC addresses and 8000 bridge domains, this switch router delivers high performance and high scale for point-to-point and multipoint VPN services. A total buffer size of 256 MB is available to provide per-service advanced QoS capabilities. This amount of buffer is required when stringent applications such as financial or video must be protected against the effect of 10- to 1-Gbps speed mismatch. The quantity of statistical counters enables the Cisco ME 3800X Series to provide a high level of service metering and monitoring throughout its range of scale.
- High-performance hardware—The Cisco ME 3800X Series provides two slots for hot-swappable and redundant power supplies. Three fans are integrated into each power supply, providing fan redundancy. High availability is also achieved on the Cisco ME 3800X Series through proactive diagnostic tools including Generic On-Line Diagnostics (GOLD) and Onboard Failure Logging (OBFL). These tools help service providers avoid potential problems before they occur and troubleshoot and diagnose after they are identified.
- Advanced SLAs—Service-aware QoS allows service providers to expand and differentiate their services portfolio with highly advanced and differentiating SLAs. The hierarchical QoS capabilities of the Cisco ME 3800X Series scale to eight queues per service, three levels of scheduling, and buffer volumes capable of accommodating today's most demanding wireline and wireless applications.
- Mobile timing and synchronization services—The Cisco ME 3800X Series provides the timing services required in today's converged access network to support mobile solutions, including Radio Access Network (RAN) applications, and offers integrated support for the Building Integrated Timing Supply (BITS) interface. The Cisco ME 3800X Series also supports synchronous Ethernet (SyncE) and can source network clocking information.

Specifications

Features	Cisco ME 3800X-24FS
Forwarding bandwidth (Gbps)	44 (full duplex)
Packets per second (Mpps)	65
MAC addresses supported	256,000
Routes supported	80,000
GE density	24
10GE density	2
AC/DC support	AC and DC modular and redundant
Dimensions (H x W x D)	1.72-in. x 17.50-in. x 20.33-in. (4.47cm x 44.45cm x 51.6cm)
Unit weight	14.50 lb (6.57 kg)

Selected Part Numbers and Ordering Information

Cisco ME 3800X Series Ethernet Access Switches	
ME-3800X-24FS-M	Cisco ME 3800X 24FS Switch Router
PWR-ME3KX-AC	AC power supply and fan module for ME-3800X-24FS-M
PWR-ME3KX-DC	DC power supply and fan module for ME-3800X-24FS-M
ME-FANTRAY	Fan tray module for ME-3800X-24FS-M. The fan tray is required in the second slot when only one power supply is in the system.
Cisco ME 3800X Series License Options	
METROETHERNETSERVICES	Layer 2 feature license targeted for Layer 2 aggregation · Enhanced QoS, with deep buffers and Hierarchical QoS · Layer 2 features for L2 VPN including EVC framework · Ethernet OAM · Synchronous Ethernet and SynchE ESMC support
METROIPSERVICES	Layer 3 feature license targeted for Layer 3 aggregation · IPv6 and IPv4 routing (OSPF, ISIS, EIGRP,BGP) · Layer 3 multicast PIM SM and SSM · Bidirectional Forwarding Detection (BFD) · Multi-VRF CE (VRF lite) with service awareness (ARP, ping, SNMP, syslog, traceroute, FTP, TFTP)
METROAGGREGATIONSERVICES	MPLS feature license targeted for MPLS aggregation · MPLS label imposition/disposition · MPLS Traffic Engineering (TE) and Fast Reroute (FRR) · Ethernet over MPLS (EoMPLS) · H-VPLS · VPLS · MPLS VPN · MPLS OAM
SERVICESCALABILITY	· Enables full scalability for Layer 2, IP routing, and MPLS resources
Cisco ME 3800X SFP and SFP+ Options	
SFP	GLC-FE-100FX, GLC-FE-100EX, GLC-FE-100ZX, GLC-FE-100LX, GLC-FE-100BX-U, GLC-FE-100BX-D, GLC-LH-SM, GLC-SX-MM, GLC-ZX-SM, GLC-T, CWDM-SFP-1470, CWDM-SFP-1490, CWDM-SFP-1510, CWDM-SFP-1530, CWDM-SFP-1550, CWDM-SFP-1570, CWDM-SFP-1590, CWDM-SFP-1610, GLC-EX-SMD, GLC-BX-U, GLC-BX-D, SFP-GE-L, SFP-GE-S, SFP-GE-T, DWDM-SFP-xx, CAB-SFP-50CM
SFP+	SFP-10G-SR, SFP-10G-LR, SFP-10G-ER, SFP-10G-ZR, SFP-10G-LRM, SFP-H10GB-CUxM

For More Information

http://www.cisco.com/en/US/products/ps10965/index.html

Cisco ME 6500 Series Ethernet Switches



The Cisco ME 6500 Series Ethernet Switch is a next-generation, fixed-configuration switch built for space-optimized and power-constrained networks. Based on groundbreaking and industry-leading Cisco Catalyst 6500 technology, the Cisco ME 6500 Series cost-effectively delivers on the stringent performance, reliability, and quality-of-service (QoS) requirements of next-generation enterprise WAN edge deployments in a space- and power-optimized 1.5-rack unit (1.5RU) package. The Cisco ME 6500 Series extends the most advanced Multiprotocol Label Switching (MPLS), QoS, multicast, and IPv6 features into Ethernet access and aggregation networks, enabling scalable and service-rich Gigabit Ethernet access for both fiber and copper deployments. It is equipped standard with the Policy Feature Card 3C (PFC3C) and Multilayer Switch Feature Card 2A (MSFC2A).

Ideal for Companies That Need These Features

Cisco ME 6524 with 24 Gigabit Ethernet SFP downlinks	· 24 Gigabit Ethernet Small Form-Factor Pluggable (SFP) downlinks · 8 Gigabit Ethernet SFP uplinks · Redundant power supplies (product ID ME-C6524GS-8S)
Cisco ME 6524 with 24 Ethernet 10/100/1000 downlinks	· 24 Ethernet 10/100/1000 downlinks · 8 Gigabit Ethernet SFP uplinks · Redundant power supplies (product ID ME-C6524GT-8S)

Key Features and Benefits

- Optimal Gigabit Ethernet density—With up to 32 Gigabit Ethernet ports, all fiber-based, the Cisco ME 6524 can aggregate multiple customers who require Gigabit Ethernet connectivity. The uplink interfaces offer flexible connectivity options by accommodating a broad range of Small Form-Factor Pluggable (SFP) optics, including coarse wavelength-division multiplexing (CWDM) and dense wavelength-division multiplexing (DWDM) optics.
- Flexible network deployment options—The switch features highly scalable Layer 2 services with features such as intelligent 802.1Q tunneling and Layer 2 Protocol Tunneling. The PFC3C daughter card enables in-hardware Multiprotocol Label Switching (MPLS) technologies for MPLS VPNs, and Ethernet over MPLS (EoMPLS). For service offerings facing an increasing demand for IP address space, hardware-enabled IPv6 protocols provide a scalable and high-performance end-to-end IP service delivery.
- Optimal performance and scalability—The Cisco ME 6524 offers high-performance CPU for Layer 2 and Layer 3 protocol convergence and stability. The switch features scalable Layer 2 switching, IP routing, and MPLS functions in hardware without affecting performance.
- Increased service availability—The Cisco ME 6524 helps ensure service and network uptime with its support of Cisco EtherChannel protocols, rapid convergence protocols such as IEEE 802.1w/802.1s and Flexlink, and gateway load-balancing protocols. In order to minimize service outage due to a power supply failure, the Cisco ME 6524 can be configured with redundant AC or DC or a combination of AC and DC power supplies that are field-replaceable and hot-swappable.
- Integrated security—The Cisco ME 6524 offers a comprehensive set of security features to mitigate denial-of-service (DoS) attacks, to restrict access to the network, and to safeguard network resources. Port- and VLAN-based access control lists (ACLs) restrict the unwanted traffic based on traffic and users; CPU rate limiters and control plane policing (CoPP) limit the amount of traffic that enters the network; Port Security limits the number of MAC addresses that can be learned; Dynamic Host Configuration Protocol (DHCP) Snooping and dynamic Address Resolution Protocol (ARP) inspection prevent threats from the DHCP server, default gateways, or address spoofing attacks. These integrated security features are hardware-enabled so they can be enabled concurrently without jeopardizing the system performance as the traffic level increases.

Specifications

Feature	Cisco ME 6524 GS-8S	Cisco ME 6524 GT-8S
Forwarding bandwidth (Gbps)	32	32
Packets per second (Mpps)	15	15
MAC addresses supported	96,000	96,000
Routes supported IPv4	256,000	256,000
Routes supported IPv6	128,000	128,000
EoMPLS Tunnels	4096	4096
MPLS VPNs	512	512
NetFlow Entries	128,000	128,000
Onboard memory (DRAM/ Flash)	· Switch processor—256 MB of default DRAM upgradeable to 512 MB or 1 GB / 128MB boot flash · Route processor—512 MB of default DRAM upgradeable to 1 GB / 64-MB boot flash	· Switch processor—256 MB of default DRAM upgradeable to 512 MB or 1 GB / 128MB boot flash · Route processor—512 MB of default DRAM upgradeable to 1 GB / 64-MB boot flash

10/100/1000 density		24
Gigabit SFP density	24 Downlinks and 8 Uplinks	8 (Uplinks)
AC/DC support	AC and DC	AC and DC
Dimensions (H x W x D)	2.625 x 17.45 x 19 in. (6.7 x 44.3 x 48.3 cm)	2.625 x 17.45 x 19 in. (6.7 x 44.3 x 48.3 cm)
Unit weight	29.13 lb (13.21 Kg)	29.13 lb (13.21 Kg)
Online model comparison chart: http://www.cisco.com/en/US/products/ps6845/prod_models_comparison.html		

Selected Part Numbers and Ordering Information

Cisco ME 6500 Series Switches[1]	
ME-C6524GS-8S	24 Gigabit Ethernet SFP interfaces + 8 Gigabit Ethernet SFP uplinks, 1 Fan Tray
ME-C6524GT-8S	24 Ethernet 10/100/1000 interfaces + 8 Gigabit Ethernet SFP uplinks, 1 Fan Tray
PWR-400W-DC	400W DC Power Supply for the Cisco ME 6524
PWR-400W-AC	400W AC Power Supply for the Cisco ME 6524
MEM-XCEF720-256M	Default Memory on the Cisco ME 6524 Switch Processor
MEM-XCEF720-512M	512-MB Memory Upgrade Option for the Switch Processor on the Cisco ME 6524
MEM-XCEF720-1GB	1-GB Memory Upgrade Option for the Switch Processor on the Cisco ME 6524
EM-MSFC2-512MB	Default Memory on the Cisco ME 6524 Router Processor
MEM-MSFC3-1GB	1-GB Memory Upgrade Option for the Router Processor on the Cisco ME 6524
MEM-C6K-CPTFL512M	Optional External Compact Flash memory 512 MB
Cisco ME 6500 Series Product Activation Keys	
S523IBL	12218ZU Cisco ME 6524 IOS IP BASE LAN only
S523IBK9L	12218ZU Cisco ME 6524 IOS IP BASE SSH LAN only
S523AIK9L	12218ZU Cisco IOS Advanced IP Services
Online model comparison chart: http://www.cisco.com/en/US/products/ps6845/prod_models_comparison.html	

1. S=IP Base; E=IP Services

For More Information

http://www.cisco.com/en/US/products/ps6845/index.html

Service Provider—Ethernet Access Switches

Cisco ME 3600X Series Ethernet Switches



The Cisco ME 3600X Series Ethernet Access Switches represent Cisco's first series of switches built specifically for the convergence of wireless and wireline services. A natural evolution to Cisco's Carrier Ethernet portfolio, the Cisco ME 3600X Series extends the transport speed of the portfolio to 10 Gbps in the access layer for business and mobile applications. It also enables service providers to initiate Multiprotocol Label Switching (MPLS)-based VPN services from within the access layer. Designed around critical Carrier Ethernet features that simplify network operation, the Cisco ME 3600X Series enables premium services with enhanced service-level agreement (SLA) capabilities. An optional "pay-as-you-grow" feature and service activation model gives service providers a flexible, cost-effective solution.

Ideal for Companies that Need These Features

Cisco ME 3600X-24TS

- 24 10/100/1000 ports with two 10 Gigabit Ethernet Small Form-Factor Pluggable Plus (SFP+) uplinks
- Modular AC and DC power supply
- MPLS and 10GE in 1RU platform

Cisco ME 3600X-24FS

- 24 Gigabit Ethernet SFP ports with two 10 Gigabit Ethernet SFP+ uplinks
- Modular AC and DC power supply
- MPLS and 10GE in 1RU platform

Key Features and Benefits

- Cisco Carrier Ethernet ASIC—Powered by the Cisco Carrier Ethernet application-specific integrated circuit (ASIC)—designed specifically with service providers in mind—the Cisco ME 3600X Series delivers essential Carrier Ethernet technologies, including: hierarchical quality of service (H-QoS), MPLS, VPLS, and H-VPLS. This custom and advanced ASIC design provides uninterrupted line-rate performance while delivering complex and taxing services such as access control list (ACL) and H-QoS. The Carrier Ethernet ASIC integrates Cisco traffic-management innovation to deliver intelligent packet switching and routing operations.
- MPLS in the access layer—The Cisco ME 3600X Series extends MPLS into the access layer by enabling service providers to initiate MPLS-based Layer 2 and Layer 3 VPN services from within the access layer. The Cisco ME 3600X Series gives service providers the ability to expand MPLS toward their network edge to gain the advantages of a single unified MPLS control plane across their network.
- "Pay-as-you-grow" investment model—The use of licensing to activate features on the Cisco ME 3600X Series allows service providers to customize and schedule their investment in access features for a time when network growth and customer demand justify the investment. Unlike investments in the core and edge, where the physical location of network assets has minimal effect on their accessibility and usage, the return on investment (ROI) on an access element is heavily influenced by its location in the network and proximity to customers. The ability to deploy the Cisco ME 3600X Series and later activate features as demand and growth dictate, with little if any need for service calls, delivers highly measurable investment protection. This allows flexible timing for migrating from 1 Gbps to 10 Gbps, deploying MPLS services, and boosting service capacity.
- Advanced service-level agreements—Service-aware quality of service (QoS) allows service providers to expand and differentiate their services portfolio with highly advanced and differentiating SLAs. The H-QoS capabilities of the Cisco ME 3600X Series scale to eight queues per service, three levels of scheduling, and buffer volumes capable of accommodating today's most demanding wireline and wireless applications.
- Mobile timing and synchronization services—The Cisco ME 3600X Series provides the timing services required in today's converged access network to support mobile solutions, including Radio Access Network (RAN) applications, and offers integrated support for the Building Integrated Timing Supply (BITS) interface. The Cisco ME 3600X Series also supports synchronous Ethernet (SyncE) and can source network clocking information.
- Operational efficiency for Carrier Ethernet access deployments—The Cisco ME 3600X Series features important enhancements that help service providers simplify and facilitate the management of their network, resulting in diminishing operational costs. This unique feature set enables deployment of the Cisco ME 3600X Series in a variety of applications, including business service with 10 Gigabit Ethernet User Network Interface (UNI) and Ethernet mobile backhaul. These features enhance performance awareness, facilitate troubleshooting, and simplify service turn-up and restoration, ultimately reducing operational cost. "Dying gasp" for power indicators and four external alarm inputs to detect changes in remote sites further help service providers manage the health of network elements.

Specifications

Feature	Cisco ME 3600X-24TS	Cisco ME 3600X-24FS
Forwarding bandwidth (Gbps)	44 (full duplex)	44
Packets per second (Mpps)	65	65
MAC addresses supported	16,000	16,000
Routes supported	20,000	20,000
GE density	24	24
10GE density	2	2
AC/DC support	AC and DC modular and redundant	AC and DC modular and redundant
Dimensions (H x W x D)	1.72-in. x 17.50-in. x 20.33-in. (4.47cm x 44.45cm x 51.6cm)	1.72-in. x 17.50-in. x 20.33-in. (4.47cm x 44.45cm x 51.6cm)
Unit weight	14.15 lb (6.41 kg)	14.50 lb (6.57 kg)

Selected Part Numbers and Ordering Information

Cisco ME 3600X Series Ethernet Access Switches	
ME-3600X-24TS-M	Cisco ME 3600X 24TS Switch
ME-3600X-24FS-M	Cisco ME 3600X 24FS Switch
PWR-ME3KX-AC	AC power supply and fan module for ME-3600X-24TS-M and ME-3600X-24FS-M
PWR-ME3KX-DC	DC power supply and fan module for ME-3600X-24TS-M and ME-3600X-24FS-M
ME-FANTRAY	Fan tray module for ME-3600X-24TS-M and ME-3600X-24FS-M. The fan tray is required in the second slot when only one power supply is in the system.
Cisco ME 3600X Series license Options	

METROIPACCESS	· Layer 2 and Layer 3 feature license targeted for Layer 2 and Layer 3 premium Services · Enhanced QoS, with deep buffers and Hierarchical QoS · Ethernet OAM, IP-SLA · Layer 2 features for L2 VPN including EVC framework · Layer 3 features for advanced IP routing protocols including IP Routing protocols like RIPv1/v2, EIGRP, OSFP, BGPv4, HSRP,VRRP · Layer 3 IPv4 and v6 Unicast Routing · Secured Layer 3: Multi-VRF CE · Timing: SynchE and ESMC
ADVANCEDMETROIPACCESS	· MPLS features license targeted for MPLS deployment in the access and MPLS based VPN Services · MPLS label imposition / Disposition on all ports · MPLS Traffic engineering and Fast Reroute · Ethernet over MPLS (EoMPLS) · VPLS · H-VPLS · MPLS VPN · MPLS OAM
10GEUPGRADE	The 10GE Upgrade license allows service providers to enable 10 Gigabit Ethernet on the uplink only when required, supporting a pay-as-you-grow strategy.
Cisco ME 3600X SFP and SFP+ Options	
SFP	GLC-FE-100FX, GLC-FE-100EX, GLC-FE-100ZX, GLC-FE-100LX, GLC-FE-100BX-U, GLC-FE-100BX-D, GLC-LH-SM, GLC-SX-MM, GLC-ZX-SM, GLC-T, CWDM-SFP-1470, CWDM-SFP-1490, CWDM-SFP-1510, CWDM-SFP-1530, CWDM-SFP-1550, CWDM-SFP-1570, CWDM-SFP-1590, CWDM-SFP-1610, GLC-EX-SMD, GLC-BX-U, GLC-BX-D, SFP-GE-L, SFP-GE-S, SFP-GE-T, DWDM-SFP-xx, CAB-SFP-50CM
SFP+	SFP-10G-SR, SFP-10G-LR, SFP-10G-ER, SFP-10G-ZR, SFP-10G-LRM, SFP-H10GB-CUxM

For More Information

http://www.cisco.com/en/US/products/ps10956/index.html

Cisco ME 3400 Series Ethernet Access Switches

The Cisco ME 3400 Series Ethernet Access Switches are a series of next-generation Layer 2 and Layer 3 customer-located devices for service providers. Both software and hardware are built to meet the requirements for residential and business Ethernet access services.



Ideal for Companies That Need These Features

Cisco ME-3400-24TS	· 24 10/100 ports with two Small Form-Factor Pluggable (SFP) uplinks · AC and DC versions available · Business and residential access
Cisco ME-3400-24FS	· Twenty-four 100-MB SFP ports with two SFP uplinks · AC version only · Fiber-to-the-home application
Cisco ME-3400G-2CS	· Two dual-purpose (10/100/1000 and SFP) ports with two SFP uplinks · AC version only · Single-tenant unit access
Cisco ME-3400G-12CS	· 12 dual-purpose (10/100/1000 and SFP) ports with 4 SFP uplinks · Redundant AC and DC versions available · Gigabit access · Small Layer 2 aggregation

Key Features and Benefits

Service provider-friendly hardware

- Small form factor—The Cisco ME 3400 Series Switches are designed with a compact form factor to accommodate deployment in small spaces. Combined with various mounting options, the switches can be deployed in space-constrained places.
- Industry-standard certifications—The Cisco ME 3400 Series is certified for both Network Equipment Buildings Standards Level 3 (NEBS3) and European Telecommunications Standards Institute (ETSI) standards.

Metro-specific software

- User-Network Interface (UNI), Enhanced Network Interface (ENI), and Network-Node Interface (NNI) port types—The Cisco ME 3400 Series software introduces the concepts of UNI, ENI, and NNI for Ethernet access switches. Because the software can identify the application of each port, it can provide many

powerful default behaviors, thereby simplifying deployment, troubleshooting, and provisioning of the Cisco ME 3400 Series.

- QoS—The Cisco ME 3400 Series supports the Cisco Modular QoS CLI (MQC) to provide a modular and highly extensible framework for deploying QoS. By using an application-specific integrated circuit (ASIC)-based QoS solution, the Cisco ME 3400 Series provides policing, marking, shaping, and scheduling without affecting performance.
- Comprehensive security solution—As Metro Ethernet networks expand, it is a challenge to provide the same level of security as other access technologies. Cisco ME 3400 Series Switches provide a comprehensive security solution for Ethernet access networks by addressing their security features with respect to each of three areas: subscriber, switch, and network security.
- Ethernet operations, administration, and maintenance (Ethernet OAM)—The Cisco ME 3400 Series supports industry-standard OAM&P tools including IEEE 802.1ag Connectivity Fault Management (CFM) and the Ethernet Local Management Interface (E-LMI) protocols. IEEE 802.1ag allows operators to monitor and troubleshoot end-to-end Ethernet networks and allows service providers to check connectivity, isolate network issues, and identify customers affected by network problems. The E-LMI protocol, developed by the Metro Ethernet Forum (MEF), enables service providers to automatically configure the customer-edge device to match the subscribed service. This automatic provisioning not only reduces the effort to set up the service, but also reduces the amount of coordination required between the service provider and enterprise customer. In addition, the Cisco ME 3400 Series supports the IEEE 802.3ah Ethernet in the First Mile standard for service providers to perform link monitoring, fault isolation/detection, and loopback on the link between the customer equipment and the service provider network.

Specifications

Feature	Cisco ME 3400-24TS	Cisco ME 3400-24FS	Cisco ME 3400G-2CS	Cisco ME 3400G-12CS
Forwarding bandwidth (Gbps)	8.8	8.8	8.8	32
Packets per second (Mpps)	6.5	6.5	6.5	26
MAC addresses supported	8,000	8,000	8,000	8,000
Routes supported	5,000	5,000	5,000	5,000
GE density	2	2	4	16
FE density	24	24	0	0
AC/DC support	AC and DC	AC power	AC	Redundant AC and DC
Dimensions (H x W x D)	1.73 x 17.5 x 9.52 in. (4.4 x 44.5 x 24.2 cm)	1.73 x 17.5 x 9.52 in. (4.4 x 44.5 x 24.2 cm)	1.73 x 10.6 x 7.1 in. (4.4 x 26.9 x 18.2 cm)	1.73 x 17.5 x 11.0 in. (4.4 x 44.5 x 27.9 cm)
Unit weight	6.9 lb (2.9 kg)	7.5 lb (2.9 kg)	3.5 lb (1.6 kg)	AC: 9.3 lb (4.2 kg); DC: 9.0 lb (4.1 kg)

Online model comparison chart: http://www.cisco.com/en/US/products/ps6580/prod_models_comparison.html

Selected Part Numbers and Ordering Information

Cisco ME 3400 Series Ethernet Access Switches	
ME-3400-24TS-A	Cisco ME 3400 24 10/100 +2 SFP, AC PS
ME-3400-24TS-D	Cisco ME 3400 24 10/100 +2 SFP, DC PS
ME-3400-24FS-A	Cisco ME 3400 24 100mb SFP +2 SFP, AC PS
ME-3400G-2CS-A	Cisco ME 3400 2 dual-purpose +2 SFP, AC PS
ME-3400G-12CS-A	Cisco ME 3400 12 dual-purpose +4 SFP, redundant AC PS
ME-3400G-12CS-D	Cisco ME 3400 12 dual-purpose +4 SFP, redundant DC PS
Cisco ME 3400 Series Software Options	
METROBASE	· Standard Layer 2 feature image targeted for triple play services · Advanced QoS—Ingress policing, egress shaping · Robust multicast—IGMP filtering/throttling, MVR · Complete security—UNI/NNI, Control Plane Security, Configuration File Security
METROACCESS	· Enhanced Layer 2 feature images targeted for premium triple player services and Layer 2 VPN services · Advanced L2 tunneling—802.1q Tunneling, Layer 2 Protocol Tunneling · Enhanced scalability—Configurable Per VLAN MAC Learning · Fast convergence—Flex Link
METROIPACCESS	· Layer 3 feature images targeted for Layer 3 VPN services · IP routing (RIPv1/v2, EIGRP, OSFP, BGPv4) · Secured Layer 3—Multi-VRF CE · Enhanced routing—Policy-based routing (PBR)

For More Information

http://www.cisco.com/en/US/products/ps6580/

Cisco ME 3400E Series Ethernet Access Switches

The Cisco ME 3400E Series Ethernet Access Switches are a series of next-generation Layer 2 and Layer 3 customer-located devices for service providers. The Cisco ME 3400E Series helps service providers deliver four important attributes that are essential to next-generation Carrier Ethernet service: availability, flexibility, manageability, and security.



Ideal for Companies that Need These Features

Cisco ME 3400E-24TS-M	• 24 10/100 ports with two dual-purpose (10/100/1000 and Small Form-Factor Pluggable [SFP]) uplinks • Two modular power-supply slots; AC and DC power supplies available • Business and residential access
Cisco ME 3400EG-2CS	• Two dual-purpose (10/100/1000 and SFP) ports with two SFP uplinks • AC version only • Single-tenant unit access
Cisco ME 3400EG-12CS	• 12 dual-purpose (10/100/1000 and SFP) ports with four SFP uplinks • Two modular power-supply slots; AC and DC power supplies available • Gigabit access • Small Layer 2 aggregation and mobile pre-aggregation

Key Features and Benefits

Service provider-friendly hardware

- Small form factor—The Cisco ME 3400E Series is designed with a compact form factor to accommodate deployment in small spaces. Combined with various mounting options, these switches can be deployed in space-constrained places.
- Industry-standard certifications—The Cisco ME 3400E Series is certified for both Network Equipment Buildings Standards Level 3 (NEBS3) and European Telecommunications Standards Institute (ETSI) standards.
- Flexible power options—The Cisco ME 3400E Series supports modular power options. Both the 24- and 12-port models (ME-3400E-24TS-M and ME-3400EG-12CS-M, respectively) support dual AC, dual DC, and a mix of AC and DC power-supply configurations. In addition, the Cisco ME 3400E Series DC power supply supports 24-VDC options needed for cell-tower deployments.
- Remote management—To help service providers reduce operating expenses (OpEx), the Cisco ME 3400E Series supports features such as dying gasp for loss of power, external alarm inputs, and port or VLANB-based traffic loopback. These features help reduce the necessity for expensive truck rolls to the equipment site by enabling remote troubleshooting and diagnostic.
- Extended temperature range—The Cisco ME 3400E Series can operate at up to 65 degrees Celsius, depending on model type and configuration.

Metro-specific software

- User-Network Interface (UNI), Enhanced Network Interface (ENI), and Network-Node Interface (NNI) port types—The Cisco ME 3400E Series software introduces the concepts of UNI, ENI, and NNI for Ethernet access switches. Because the software can identify the application of each port, it can provide many powerful default behaviors, thereby simplifying deployment, troubleshooting, and provisioning of the Cisco ME 3400E Series.
- VLAN flexibility—The Cisco ME 3400E Series offers 1:1 VLAN translation and selective QinQ. These features allow service providers to expand their Layer 2 service offerings, and they provide robust control of VLAN tags for both customers and service providers.
- Quality of service (QoS)—The Cisco ME 3400E Series supports the Cisco Modular QoS CLI (MQC) to provide a modular and highly extensible framework for deploying QoS. By using an application-specific integrated circuit (ASIC)-based QoS solution, the Cisco ME 3400E Series provides policing, marking, shaping, and scheduling without affecting performance. In addition, the Cisco ME 3400E Series also supports advanced QoS features such as two-rate three-color ingress policing and class-of-service (CoS) mapping. These features enable service providers to offer more granular services.
- Comprehensive security solution—As Metro Ethernet networks expand, it is a challenge to provide the same level of security as other access technologies. Cisco ME 3400E Series Switches provide a comprehensive security solution for Ethernet access networks by addressing their security features with respect to each of three areas: subscriber, switch, and network security.
- Ethernet operations, administration, and maintenance (Ethernet OAM)—The Cisco ME 3400 Series supports industry-standard OAM&P tools including IEEE 802.1ag Connectivity Fault Management (CFM) and the Ethernet Local Management Interface (E-LMI) protocols. IEEE 802.1ag allows operators to monitor and troubleshoot end-to-end Ethernet networks and allows service providers to check connectivity, isolate network issues, and identify customers affected by network problems. The E-LMI protocol, developed by the Metro Ethernet Forum (MEF), enables service providers to automatically configure the customer-edge device to match the subscribed service. This automatic provisioning not only reduces the effort to set up the service, but also reduces the amount of coordination required between the service provider and enterprise

customer. In addition, the Cisco ME 3400 Series supports the IEEE 802.3ah Ethernet in the First Mile standard for service providers to perform link monitoring, fault isolation/detection, and loopback on the link between the customer equipment and the service provider network.

Specifications

Feature	Cisco ME 3400E-24TS	Cisco ME 3400EG-2CS	Cisco ME 3400EG-12CS
Forwarding bandwidth (Gbps)	8.8	8.8	32
Packets per second (Mpps)	6.5	6.5	26
MAC addresses supported	8,000	8,000	8,000
Routes supported	5,000	5,000	5,000
GE density	2	4	16
FE density	24	0	0
AC/DC support	Redundant AC and DC	AC	Redundant AC and DC
Dimensions (H x W x D)	1.75 x 17.5 x 9.3 in. (4.45 x 44.5 x 23.6 cm)	1.73 x 10.6 x 7.2 in. (4.4 x 26.9 x 18.3 cm)	1.75 x 17.5 x 12.0 in. (4.45 x 44.5 x 30.5 cm)
Unit weight	6.4 lb (2.9 kg)	3.4 lb (1.5 kg)	8.5 lb (3.9 kg)
Online model comparison chart: http://www.cisco.com/en/US/products/ps9637/prod_models_comparison.html			

Selected Part Numbers and Ordering Information

Cisco ME 3400E Series Ethernet Access Switches	
ME-3400E-24TS-M	Cisco ME-3400E 24 10/100 +2 dual-purpose, 2 PS slots
ME-3400EG-2CS-A	Cisco ME-3400E 2 dual-purpose +2 SFP, AC PS
ME-3400EG-12CS-M	Cisco ME-3400E 12 dual-purpose +4 SFP, 2 PS slots
ME34X-PWR-AC	AC power supply
ME34X-PWR-DC	DC power supply
Cisco ME-3400E Series Software Options	
METROACCESS	• Enhanced Layer 2 feature images targeted for premium triple player services and Layer 2 VPN services • Advanced L2 tunneling—802.1q Tunneling, Layer 2 Protocol Tunneling • Enhanced scalability—Configurable Per VLAN MAC Learning • Fast convergence—Flex Link
METROIPACCESS	• Layer 3 feature images targeted for Layer 3 VPN services • IP routing (RIPv1/v2, EIGRP, OSFP, BGPv4) • Secured Layer 3—Multi-VRF CE • Enhanced routing—Policy based routing (PBR)

For More Information

http://www.cisco.com/en/US/products/ps9637/index.html

Cisco Catalyst 4500E Series Ethernet Access Switches



The Cisco Catalyst 4500E Series Ethernet Access Switches with integrated resiliency and superior service intelligence are designed to deliver residential and business services for fiber-to-the-x (FTTx) deployments. These switches offer high-density Fast Ethernet and Gigabit Ethernet for both fiber and copper combined with mechanisms for per-subscriber traffic management, security, performance, QoS, and flexible management. The Cisco Catalyst 4500E Series also offers nonblocking switching in Layers 2 through 4 with integrated resiliency, further enhancing control of "triple-play" (voice, video, and data metro services) and business services.

With the superior service intelligence of the Cisco Catalyst 4500E Series, network operators can adopt a flexible, service-oriented approach for delivering profitable and differentiated residential broadband and business services. Network operators can extend control and intelligence to large and small sites in the FTTx access network. The Cisco FTTx portfolio encompasses a variety of routing, switching, and optical products and a range of technologies, including In Service Software Upgrade (ISSU), Connectivity Fault Management (CFM), and support for short and longer distance optics.

The Cisco Catalyst 4500E Series Supervisor Engines Supervisor 7-E and Supervisor 6L-E are high performance intelligent modular access switches for unified communications networks.

Ideal for Companies that Need These Features

Supervisors

Cisco Catalyst 4500E Series Supervisor Engine 7-E	· Centralized 848 Gbps per system (up to 48 Gbps per slot) · Cisco IOS XE software services with future support for WireShark · High-performance IPv6 in hardware · Optimized for simultaneous IPv4 and IPv6 deployments or migration · Supports classic and E-Series chassis · Simultaneously supports classic and E-Series line cards in same chassis · Supports dynamic QoS, security, and IPv6 resource optimization
Cisco Catalyst 4500E Series Supervisor Engine 6L-E	· High performance Layer 2, 3, and 4 switching · Centralized 280-Gbps switching capacity (225 millions of packets per second throughput) · Advanced QoS support with up to eight queues per port, dynamic queue sizing, and hierarchical policing to provide flexibility and control · Flexibility to operate at 6 or 24 Gbps per line-card slot · Dual 10 Gigabit Ethernet uplinks (X2 optics) · Support for line-rate forwarding for IPv6 packets · Dynamic hardware forwarding table allocations for ease of IPv4-to-IPv6 migration

Chassis

Cisco Catalyst 4510R+E	· High performance, port density, high availability (ISSU) through redundant supervisor engines (when these features are crucial to customer success) · Port density up to 384 1000Base-BX-D, 100Base-BX-D · Support for both classic and E-Series line cards · Up to 848-Gbps nonblocking switching fabric with Sup7E, 225-Mpps forwarding rate using the Supervisor Engine 6L-E, or up to 48-Gbps per-slot bandwidth
Cisco Catalyst 4507R+E	· Network resiliency and high availability (ISSU) through redundant supervisor engines (when these features are crucial to customer success) · Port density up to 400 1000Base-2BX-D, or 240 1000Base-BX-D, 100Base-BX-D · Support for both classic and E-Series line cards · Up to 560-Gbps, 210-Mpps, or 48-Gbps per-slot bandwidth when used with the Supervisor Engine 7-E
Cisco Catalyst 4506-E	· Port density up to 4001000Base-2BX-D, or 240 1000Base-BX-D, 100Base-BX-D · Support for both classic and E-Series line cards · Support for up to 280-Gbps, 210-Mpps, or 24-Gbps per-slot bandwidth when used with the Supervisor Engine 6-E, and Supervisor Engine 6L-E
Cisco Catalyst 4503-E	· Port density up to 160 1000Base-2BX-D, or 96 1000Base-BX-D, 100Base-BX-D · Support for both classic and E-Series line cards · Up to 136-Gbps, 102-Mpps, or 24-Gbps per-slot bandwidth when used with the Supervisor Engine 6-E, and Supervisor Engine 6L-E

Key Features and Benefits

The Cisco Catalyst 4500E Series provides advanced, high-performance solutions for service-led FTTx access networks.

- Performance—The low-latency, centralized, shared-memory switching-fabric architecture of the Cisco Catalyst 4500E Series delivers leading-edge, high-performance Layer 2 and Layer 3 capabilities. Delivering advanced switching solutions that scale bandwidth as ports are added, the Cisco Catalyst 4500E Series is powered by leading-edge, application-specific integrated circuit (ASIC) technology that offers wire-speed Layer 2 and Layer 3 10/100 or gigabit switching. Offering modular supervisor-engine flexibility with complete line-card compatibility, Layer 2 switching can scale up to 320 Gbps or 250 Mpps.
- Scalability—The Cisco Catalyst 4500E Series meets network-subscriber connectivity requirements of up to 384 fiber Fast Ethernet or 400 Gigabit Ethernet ports in a chassis. The Cisco Catalyst 4500E Series supports density requirements for both business and residential service environments. These switches offer network operators who are building next-generation access networks flexibility in fiber options by supporting all types of fiber deployments (single and dual strands). With the support of the single strand of fiber, network operators can reduce the fiber requirement by 50 percent, providing significant savings in fiber, cable management, and other installation costs as well as long-term operating expenses.
- Redundancy—The Cisco Catalyst 4500E 7-slot and 10-slot chassis support 1 + 1 supervisor-engine redundancy for integrated resiliency. Redundant supervisor engines help ensure that network downtime is minimized. Minimal network downtime facilitates reduced operating expenses and increased customer satisfaction. The Cisco Catalyst 4500E Series supports redundant power supplies in all chassis types. The Cisco Catalyst 4500E IOS Software supports ISSU, enabling software, line-card upgrades without affecting service for subscribers.
- Service-oriented software services—The Cisco Catalyst 4500E Series provides a wide range of software services that allow service providers to deliver residential and business services based on subscriber requirements. Key features include:
  - Advanced security—Enabling security features such as DHCP Snooping, access control lists (ACLs), Secure Shell (SSH) Protocol, Port Security, Control Plane Policing, DAI, IP Source Guard, and Private VLANs (PVLANs) on the Cisco Catalyst 4500E Series enhances control and flexibility in the network. By enabling these features selectively or collectively, a network administrator can prevent unauthorized access to the network, prevent hackers from disrupting services, and prevent a deliberate or accidental broadcast storm.

- Video services—Protocol Independent Multicast (PIM), dense and sparse mode, Internet Group Management Protocol (IGMP), IGMP Snooping, proxy reporting, Multicast Listener Discovery (MLD) v1 and v2, and Cisco Group Management Protocol provide for efficient standards-based and Cisco product-enhanced broadcast video service deployment without compromising performance. Source Specific Multicast (SSM) and SSM Mapping (mapping IGMPv2 joins to Source Specific PIM joins) provide additional scale and control of multicast.
- Cisco IOS Software network services—The Cisco Catalyst 4500E Series takes advantage of more than 10 years of development with large-scale deployments across the entire world, to provide mature Layer 2 and Layer 3 features that allow service providers to differentiate their services and meet SLAs.

- Intelligent management capability—The Cisco Catalyst 4500E Series supports a variety of management options suited for managing service provider networks, such as Cisco IOS Embedded Event Manager (EEM), Cisco Generic Online Diagnostics (GOLD), Flexible NetFlow, and Smart Call Home. With EEM and GOLD, network operators can design scripts based on their specific requirements to troubleshoot the network. With Smart Call Home, the Cisco IOS Software on the Cisco Catalyst switch automatically detects problems in the network and automatically collects the required debug information and logs a trouble ticket. With Flexible NetFlow, statistics about the network can be captured in hardware for flow- and VLAN-based statistics monitoring. This data can be exported, collected, and analyzed for network traffic accounting, usage-based network billing, network planning, network monitoring, and data-mining capabilities.
- Investment protection—Evolutionary centralized modular architecture provides maximum backward compatibility across several generations of Cisco Catalyst 4500E Series Switches. Upgrading all system ports to higher-level functions and features are easy with a simple supervisor-engine upgrade

For more information, see the following URL: http://www.cisco.com/en/US/products/ps10195/index.html.

Cisco Catalyst 4500E Series and Cisco Catalyst 4500 switches extend the warranty from the previously offered 90-day warranty to a limited lifetime warranty (LLW). For more information, see the following URL: http://www.cisco.com/en/US/prod/collateral/switches/ps5718/ps4324/product_bulletin_c25-533284.html.

Specifications

4500 E-Series Chassis	Cisco 4503-E	Cisco 4506-E	Cisco 4507R+-E	Cisco 4510R+-E
Slots	3	6	7	10
Redundant Supervisor Option	No	No	Yes	Yes
Gigabit Ethernet SFP density	160 (using 2BX-D)	400 (using 2BX-D)	400 (using 2BX-D)	384(using BX-D)
100BASE-FX, LX-10, BX-D density	96	240	240	384
Rack Unit (RU)	7	10	11	14
Backplane Capacity using Supervisor 7-E	136 Gbps	560	560 Gbps	848 Gbps
Stackable	No	No	No	No
1+1 Power Supply Protection	Yes	Yes	Yes	Yes
Hot-Swappable Power Supplies	Yes	Yes	Yes	Yes
Max. watt power consumption				
AC Internal	6000W	6000W	6000W	6000W
AC External with power shelf	1,400 + power shelf = 7,500	1,400 + power shelf = 7,500	1,400 + power shelf = 7,500	1,400 + power shelf = 7,500
DC Internal	1,400 + UPS = 7,500	1,400 + UPS = 7,500	1,400 + UPS = 7,500	1,400 + UPS = 7,500
Unit weight (with Fan Tray)	32.25 lbs. (14.63 kgs.)	40.50 lbs. (18.37 kgs)	44.50 lbs. (20.19 kgs)	54.50 lbs. (24.73 kgs)
Dimensions (H x W x D)	12.25 x 17.31 x 12.50 in (31.12 x 43.97 x 31.70 cm)	17.38 x 17.31 x 12.50 in (44.13 x 43.97 x 31.70 cm)	19.19 x 17.31 x 12.50 in (48.74 x 43.97 x 31.70 cm)	24.35 x 17.31 x 12.50 in. (61.84 x 43.97 x 31.70 cm)

Supervisor Engines	Supervisor 7-E (WS-X45-Sup7-E)	Supervisor 6L-E (WS-X45-Sup6L-E)
Chassis supported	All	All
Enhanced Layer 3 option	yes	yes
Total bandwidth (Gbps)	848	280
Packets per second (Mpps)	250 (IPv4) 125 (IPv6)	225 (IPv4) 110 (IPv6)
CPU MHz	Dual Core 1500	800
NetFlow	Flex NetFlow	no
Onboard memory (DRAM)	1 GB upgradable to 2 GB	512 MB upgradable to 1 GB

On-Board Flash	128 MB	64 MB 128 MB
Compact Flash Support	Yes	Yes
Switching Capacity & Throughput	848 Gbps, 250 Mpps	280 Gbps, 225 Mpps
Multilayer Switching	Enhanced L2/3/4 Services & Routing	Enhanced L2/3/4 Services & Routing
(E)IGRP, OSPF, IS:IS, BGP	Yes	Yes
Supervisor Redundancy	4507R+E, 4510R+E, 4507R-E, 4510R-E, WS-C4507R, WS-C4507R+E, and WS-C4510R-E	4507R, 4507R-E, WS-C4507R-E, and WS-C4507R+E
QoS	8Q/Port, MQC, Dynamic Tx Queue sizing, policing, shaping, congestion avoidance with DBL marking	8Q/Port, MQC, Dynamic Tx Queue sizing, policing, shaping, congestion avoidance with DBL marking
NetFlow Support	No	No
ISL	No	No
ACLs	Yes	No
IP FIB entries	256K	57K
MAC Addresses	32K Multicast	55K Unicast, 16K Multicast

Online model comparison chart:
http://www.cisco.com/en/US/products/hw/switches/ps4324/prod_models_comparison.html#4500e

Selected Part Numbers and Ordering Information

Catalyst 4500 E-Series—Chassis, Supervisors	
WS-C4503-E	Cisco Catalyst 4500 E-Series 3-Slot Chassis, fan, no ps
WS-C4506-E	Cisco Catalyst 4500 E-Series 6-Slot Chassis, fan, no ps
WS-C4507R-E	Cisco Catalyst 4500 E-Series 7-Slot Chassis, fan, no ps, redundant supervisor capable
WS-C4510R-E	Cisco Catalyst 4500 E-Series 10-Slot Chassis, fan, no ps, redundant supervisor capable
WS-C4510R+E	Cisco Catalyst 4500 E-Series 10-Slot Chassis, fan, no ps, redundant supervisor capable
WS-C4507R+E	Cisco Catalyst 4500 E Series 7-Slot 48G/slot capable chassis, fan, no ps, redundant supervisor capable
WS-X45-SUP7-E	Catalyst 4500 E-Series Supervisor, 848Gbps
WS-X45-SUP6-E (=)	Cisco Catalyst 4500 E-Series Sup6-E, 2x10GE(X2) w/ Twin Gig
WS-X45-SUP6L-E (=)	Cisco Catalyst 4500 E-Series Sup6-E Lite, 2x10GE(X2) w/ Twin Gig
Catalyst 4500 and 4500-E Series Line Cards	
ME-X4248-FE-BX=	ME-X4248-FE-SFP and GLC-FE-100BX-D48
ME-X4248-FE-SFP	48-port FE SFP FTTH module, GLC-FE-100BX-D48 is required
WS-X4248-FE-SFP	Cisco Catalyst 4500 48-Port 100BASE-X (SFPs Optional)
WS-X4248-FE-SFP=	Cisco Catalyst 4500 48-Port 100BASE-X (SFPs Optional)
WS-X4448-GB-SFP	Cisco Catalyst 4500 48-Port 1000Base-X (SFPs Optional)
WS-X4448-GB-SFP=	Cisco Catalyst 4500 48-Port 1000Base-X (SFPs Optional)

For More Information

http://www.cisco.com/go/catalyst4500

Connected Grid Switches

Cisco 2500 Series Connected Grid Switches



The Cisco 2520 Connected Grid Switches (CGS 2520) are rugged switches designed for the harsh environments often found in the energy and utility industries. The Cisco CGS 2520 is designed to support the communications infrastructure needs for the energy delivery infrastructure across the generation, transmission, and distribution sectors. This infrastructure includes utility- and customer-owned energy infrastructure, such as substation applications supporting electrical transmission and distribution, renewable generation, oil and gas, water, distributed generation, co-generation, and trackside operations. The infrastructure also includes communications infrastructure for delivery applications such as transmission pipelines, distribution mains, and service lines for oil and gas and water.

The CGS 2520 uses Cisco IOS Software, which is the operating system powering millions of Cisco switches and routers worldwide. Cisco IOS Software delivers the benefits of integrated security for NERC/CIP (North American Electric Reliability Corporation/Critical Infrastructure Protection) compliance, quality of service, ease of use, and network management to help ensure integrity and priority of operational data and nonoperational data communications.

Key Features and Benefits

- Rugged industrial design and substation compliance: IEC-61850-3 and IEEE 1613 for utility substation environments
- Tools for easy deployment, management, and replacement
- Extensive instrumentation and remote diagnostic capabilities
- Advanced quality of service (QoS) capabilities to support mission-critical substation applications such as SCADA (Supervisory Control and Data Acquisition) and IEC 61850 GOOSE (Generic Object Oriented Substation Events) messaging
- Comprehensive network security features based on open standards
- High availability and redundancy—Advanced features such as REP and Flexlink provide fast reconvergence in ring and hub-and-spoke topologies, minimizing network downtime and associated costs. In addition, field replaceable components such as power supplies and SFPs reduce redeployment time. Finally, optional redundant, hot-swappable power supply provides additional redundancy.
- Ease of use—Intuitive graphical user interface (GUI) in Cisco Configuration Professional simplifies configuration of switches and reduces training time and costs. Utility-focused enhancements have been added to further increase ease of use. Smartport templates provide one-touch global and port-level macros to simplify switch deployments

Specifications

Feature	Cisco 2520-24TC	Cisco 2520-16S-8PC
Forwarding bandwidth (Gbps)	8	8
Forwarding rate (mpps)	6.5	6.5
MAC addresses supported	8,000	8,000
Onboard memory (DDR2 SDRAM)	256 MB	256 MB
Gigabit Ethernet density	2 (dual-purpose ports: 100/1000 fiber SFP and/or 10/100/1000 Gigabit copper)	2 (dual-purpose ports: 100/1000 fiber SFP and/or 10/100/1000 Gigabit copper)
10/100 density	24	8
100BASE-FX density	-	16-port fiber SFP
PoE: Max. 802.3af Class 3 devices (15.4W)	-	8 max
Power Consumption	28.6W	40.3W
Power Supply	External high AC/DC and low DC power supply options available for redundant power supply support	External high AC/DC and low DC power supply options available for redundant power supply support
Dimensions (H x W x D)	1.75 x 1.75 x 14 in. (4.45 x 44.5 x 35.6 cm)	1.75 x 1.75 x 14 in. (4.45 x 44.5 x 35.6 cm)
Unit weight	9.1 lbs. (4.1 kg)	10 lbs. (4.5 kg)

Selected Part Numbers and Ordering Information

Cisco 2500 Series Connected Grid Switches	
CGS-2520-24TC	Cisco 2520 Connected Grid Switch-24 10/100 + 2 dual purpose Gigabit Ethernet ports LAN Base Image
CGS-2520-16S-8PC	Cisco 2520 Connected Grid Switch-16 100FX SFP ports + 2 dual purpose Gigabit Ethernet ports LAN Base Image

For More Information

http://www.cisco.com/go/cgs2500

Cisco Switching Services

Cisco Routing and Switching Services use leading practices and time-tested methodologies to help you to:

- Successfully integrate new technologies and applications onto the routing and switching platform
- Reduce risk, delays, and the total cost of network deployments
- Keep network devices and applications secure, available, and operating reliably
- Optimize your secure wired and wireless networks to meet future needs
- Achieve operational excellence

Services from Cisco and our partners help you plan, build, and run a more intelligent, responsive, integrated routing and switching network. Services for routing and switching include:

- Routing and Switching Planning Services
  Support successful integration through accurate assessment of the network and overall readiness to support proposed solutions.
- Routing and Switching Design Services
  Reduce risk, delays, and the total cost of network deployments with an implementation-ready design that you can use to engineer your network.
- Cisco Network Optimization Service
  Optimize your network for borderless business evolution and innovation using Cisco expertise and leading practices.
- Cisco Network Availability and Operations Optimization Service
  Effectively adopt, manage, and scale technologies and applications in your converged network environment by optimizing your operational processes and network management tools.
- Cisco SMARTnet Service
  Direct, anytime access to Cisco engineers and an extensive range of technical resources.
- Cisco Application Support Service
  Strengthen application availability, functionality, and reliability.
- Cisco Focused Technical Support Service
  Priority, high-touch technical support for faster issue resolution.
- Cisco Foundation Technology Remote Management Service
  Comprehensive monitoring, issue resolution, and day-to-day management of network devices.

For more information about Cisco Routing and Switching Services, visit http://www.cisco.com/go/services/routing-switching.

Chapter 3: Wireless

This chapter provides only a subset of Cisco products and part numbers.

Wireless At-a-Glance

Product	Features	Page
Access Points		
Cisco Aironet 3500 Series Access Points	· Cisco CleanAir technology · First access points to actively avoid wireless interference using ASIC-based intelligence · Provides standard 802.3af Power over Ethernet · 3500i model has internal antennas for typical office deployments · 3500e model has external antenna connectors and extended operating temperatures for challenging environments · Offers easy retrofits to existing Cisco Aironet 1130 and Aironet 1240 Series mounting brackets to simplify 802.11n migration · Cisco M-Drive technology provides the following benefits: - Cisco ClientLink technology improves reliability and coverage for established clients. - BandSelect improves 5-GHz client connections in mixed client environments. - VideoStream uses multicast to improve multimedia applications. · Available in a lightweight version only	3–5
Cisco Aironet 3500p Series Access Points ***NEW PRODUCT***	· Cisco CleanAir technology · Ideal for high-density stadium and arena deployments · Offers greater wireless capacity to deliver a better fan experience and facilitate 3G/4G cellular offload · Built with directional, narrow beamwidth external antennas for targeted coverage and minimal interference · Provides power with standard 802.3af Power over Ethernet (PoE) · Designed with a rugged metal housing that provides extended operating temperature · The series also supports: - Cisco ClientLink technology that improves reliability and coverage for established clients. - BandSelect that improves 5-GHz client connections in mixed client environments. - VideoStream that uses multicast to improve multimedia applications. · Available in lightweight version only	3–8
Cisco Aironet 1260 Series Access Points	· 802.11n rugged indoor access points are designed for challenging RF environments that require connectorized antennas, a rugged metal enclosure, and a broad operating-temperature range · Provides power with standard 802.3af Power over Ethernet (PoE) · Combined data rates of up to 600 Mbps provide mobile access to high-bandwidth data, voice, and video applications. · Cisco M-Drive technology provides the following benefits: - Cisco ClientLink technology improves reliability and coverage for established clients. - BandSelect improves 5-GHz client connections in mixed client environments. - VideoStream uses multicast to improve multimedia applications. · Available in a lightweight version and standalone versions	3–11
Cisco Aironet 1040 Series Access Points ***NEW PRODUCT***	· Enterprise-class, entry level 802.11n AP designed to address the wireless connectivity needs of small and medium-sized enterprises. · Provides at least six times the throughput of existing 802.11a/g networks and the reliability and consistency of 802.11n performance at an attractive price point. · Ideal for deployments of fewer than 20 APs, the Cisco Aironet 1040 standalone provides scalability and allows you to upgrade to a controller-based architecture as the needs of your customers grow.	3–14
Cisco Aironet 600 Series Office Extend ***NEW PRODUCT***	· Designed for the teleworking environment. · Delivers full 802.11n speed with simultaneous 2.4- and 5-GHz RF band support. · Increase productivity, lower cost, and gain business continuity with smooth, reliable, and highly secure access to networked services from the home or remote office.	3–18
Cisco Aironet 1240AG Series Access Points	· Rugged 802.11a/b/g AP designed for indoor industrial deployments and installations that require antenna versatility. · Ideal for factories, warehouses, and retailers. · Operating temperature range and UL 2043 certification for plenum rating requirements set by local fire codes support installation in environmental air spaces. · Available in standalone or lightweight.	3–20

Cisco Aironet 1140 Series Access Points	• 802.11n AP designed for simple deployment and energy efficiency. • Sleek design blends into enterprise environments. • Easy to deploy and offers efficient power with standard 802.3af PoE. • Cisco M-Drive Technology provides the following benefits: - ClientLink improves reliability and coverage for legacy clients - BandSelect improves 5 GHz client connections in mixed client environments - VideoStream uses multicast to improve multimedia applications - Optional WirelessPLUS software allows the access point to be configured to support the OfficeExtend solution for wireless teleworking. • Available in standalone or lightweight.	3–23
Cisco Aironet 1130AG Series Access Points	• Dual-band 802.11a/b/g indoor AP. • High capacity, high security, and enterprise-class features delivering WLAN access for a low total cost of ownership. • Cost-compelling solution for easy deployment in offices and similar facilities. • Optional WirelessPLUS software allows the access point to be configured to support the OfficeExtend solution. • Available in standalone or lightweight.	3–26
Outdoor Wireless and Client Devices		
Cisco Aironet 1550 Series Lightweight Outdoor Wireless Mesh Access Points ***NEW PRODUCT***	• Cisco CleanAir technology • Industry's first enterprise and carrier-grade 802.11n access point to mitigate the effect of wireless interference using ASIC-based intelligence. • Supports multiple-device and multiple-network application delivery such as real-time transparent mobility, video surveillance, third-generation (3G) and 4G data offload, and public and private Wi-Fi access. • Offers high-performance device access through improved radio sensitivity and range with 802.11a/b/g/n multiple-input multiple-output (MIMO) technology, with two spatial streams.	3–28
Cisco Aironet 1520 Series Access Points	• Flexible, secure mesh platform for demanding environments • Enables cost-effective and scalable deployment of secure outdoor wireless LANs. • Multiple-radio support (802.11 b/g, licensed for 4.9-GHz public safety applications. • Improved 802.11 b/g radio sensitivity and range performance with maximal ration combining (MPC) • NEMA Type 4X certified enclosure, FIPS 140-2 certifiable	3–31
Cisco Aironet 1400 Series Wireless Bridge	• Support both point-to-point and point-to-multipoint configurations. • Range and throughput support data rates up to 54 Mbps. • Enhanced security mechanisms based on 802.11 standards. • Ruggedized enclosure optimized for harsh outdoor environments with an extended operating temperature range.	3–33
Cisco Aironet 1300 Series Access Points	• Configurable for AP, bridge, or workgroup bridge roles. • Support for both point-to-point or point-to-multipoint configurations. • Industry-leading range and throughput, supporting 802.11 b/g 2.4 GHz with data rates up to 54 Mbps. • Ruggedized enclosure optimized for harsh outdoor environments with extended operating temperature range. • Integrated or optional external antennas for flexibility in deployment.	3–35
Cisco Secure Services Client	• Software application allows businesses of all sizes to deploy single 802.1x authentication framework across endpoint devices to enable access to both wired and wireless networks. • Supports Federal Information Processing Standards (FIPS). • Simple end-user experience (two-click connect, integrated and automated VPN, and automated access to the network). • Central provisioning of users' access profiles.	3–36
Cisco Aironet Antennas and Accessories	• Cisco many options for antennas and accessories. • FCC-approved directional and omnidirectional antennas are available. • Low-loss cable, mounting hardware, and other accessories are also available. • Hi-density deployments	3–38
Wireless LAN Controllers		
Cisco Flex 7500 Series Cloud Controller ***NEW PRODUCT***	• Ideal for data center consolidation, the Cisco Flex 7500 Series Cloud Controller is a highly scalable branch-office controller for enterprises that require multi-site wireless deployments with system level security and integrated RF management • Offers remote configuration of wireless policy, management, and security; it also offers a self-healing self-optimizing wireless network for branch offices through integration with Cisco CleanAir and local RADIUS server authentication for survivability in the rare event of WAN failure. • The Control and Provisioning of Wireless Access Points (CAPWAP) protocol centrally controls Cisco Aironet lightweight access points for wireless LAN (WLAN) performance optimization and automated network resiliency. • Supports 500 branch-office locations and allows IT managers to configure, manage, and troubleshoot up to 2,000 access points and 20,000 clients from a single location. • Operates in Flexconnect mode only	3–48

Cisco Wireless Services Module 2 (WiSM2) for Cisco Catalyst 6500 Switches ***NEW PRODUCT***	· This module is a cost-effective controller option for converged networks that integrate wireless connectivity. Ideal for medium-sized to large enterprises and campus environments that require enhanced scalability, system level security and RF management to support mission-critical wireless business communications. · Supports more efficient roaming and a variety of business mobility needs, including the Cisco OfficeExtend solution for secure, mobile teleworking and Enterprise Wireless Mesh. · The Control and Provisioning of Wireless Access Points (CAPWAP) protocol centrally controls Cisco Aironet lightweight access points for wireless LAN (WLAN) performance optimization and automated network resiliency. · Offers flexible licensing to support up to 500 access points, up to 10,000 clients and 10Gbps of throughput per WiSM blade and up to 3500 access points and 70,000 clients per chassis.	3–50
Cisco 5500 Series Wireless LAN Controller	· Ideal for enterprise wireless LAN (WLAN) deployments that require enhanced scalability, system-level security, integrated RF monitoring and management, and teleworking features. · Supports OfficeExtend to provide corporate wireless service for mobile and remote workers with secure wired tunnels to the Cisco Aironet 1130 and 1140 Series Access Points. · The Control and Provisioning of Wireless Access Points (CAPWAP) protocol centrally controls Cisco Aironet lightweight access points for WLAN performance optimization and automated network resiliency. · Available with eight Gigabit Ethernet Small Form-Factor Pluggables (SFPs) and flexible licensing to support up to 500 access points and up to 7000 clients.	3–51
Cisco 2500 Series Wireless LAN Controller ***NEW PRODUCT***	· Ideal for enterprise branch office and small business wireless LAN (WLAN) deployments that require system-level security, scalability, and RF management. · Offers enhanced uptime with Cisco CleanAir technology, and quality of service for voice and video. The Lightweight Access Point Protocol (LWAPP) or Control and Provisioning of Wireless Access Points (CAPWAP) protocols centrally control Cisco Aironet lightweight APs for WLAN performance optimization and automated network resiliency. · Supports 5, 15, 25, or 50 lightweight APs and up to 500 clients, making it a cost-effective solution for enterprise branch offices and small businesses.	3–53
Cisco Wireless Controller Module for the ISR G2 ***NEW PRODUCT***	· Ideal for enterprise branch office and small business wireless LAN (WLAN) deployments that require system-level security, scalability, and RF management and remote provisioning to consolidate branch-office infrastructure and deploy wireless on demand. · Support for Cisco CleanAir technology, Cisco VideoStream, and wireless mesh and the Lightweight Access Point Protocol (LWAPP) or Control and Provisioning of Wireless Access Points (CAPWAP) protocols centrally control Cisco Aironet lightweight APs for WLAN performance optimization and automated network resiliency. · Supports up to 10 lightweight APs for the Cisco Services-Ready Engine 300 Integrated Services Module (Cisco SRE 300 ISM) and up to 50 lightweight APs for the Cisco SRE 700 and SRE 900 Services Modules (Cisco SM 700) and SM 900) and up to 500 clients, making it a cost-effective solution for enterprise branch offices and small businesses.	3–54
Wireless Network Management		
Cisco Prime Network Control System (NCS) ***NEW PRODUCT***	· Comprehensive management platform delivers converged user, access, and identity management, with complete visibility into endpoint connectivity—regardless of device, network, or location. It delivers wired monitoring and troubleshooting with wireless lifecycle management. · Visibility and diagnosis of access infrastructure devices, including Cisco Catalyst switches, Cisco wireless controllers, and Cisco access points. · Integration with Cisco Identity Services Engine (ISE) enables visibility of user attributes, posture, and profile. · Wide range of easy-to-use tools, guides, and templates for simplified planning, deployment, monitoring, troubleshooting, and reporting on indoor and outdoor wireless networks, including the next-generation 802.11n wireless LAN (WLAN) infrastructure and client devices. · Centrally manage Cisco Mobility Services Engine (MSE), Adaptive Wireless Intrusion Prevention, Context-Aware Software, and CleanAir technology · Complete lifecycle management of hundreds of Cisco wireless LAN controllers and 15,000 Cisco Aironet lightweight access points, and they can be managed from a centralized location. Additionally, manage up to 5000 autonomous Cisco Aironet access points. · Manage up to 5000 switches for monitoring and troubleshooting functions.	3–56

Cisco Wireless Control System	• Comprehensive enterprise-class wireless LAN lifecycle management of the Cisco Unified Wireless Network. • Wide range of easy-to-use tools, guides, and templates for simplified planning, deployment, monitoring, troubleshooting, and reporting on indoor and outdoor wireless networks including the next -generation 802.11n WLAN infrastructure and client devices. • Centralized platform for managing complete network of Cisco Wireless LAN Controllers, Cisco Aironet APs, Cisco Mobility Services Engine (MSE), mobility services, and Cisco CleanAir technology. • Includes monitoring of standalone (autonomous) APs and supports their migration to operate as lightweight APs. • Supports a wide range of mobility services including context-aware mobility, adaptive wireless intrusion prevention system (wIPS), and secure guest access.	3–58
Cisco Wireless Control System Navigator	• Aggregated platform for enhanced scalability, manageability, and visibility of large-scale implementations of the Cisco Unified Wireless Network. • Centralizes operational control and management of up to 20 geographically dispersed Cisco WCS management platforms.	3–61
Cisco Spectrum Expert Wi-Fi	• Spectrum analyzer tool offers visibility into the RF layer of wireless networks so that organizations can determine the causes of interference problems and optimize network performance. • Active Devices offers comprehensive lists of all access points, temporary networks, and interferer devices (for example, microwave ovens, cordless phones, wireless security cameras, Bluetooth devices, and RF jammers). • Channel Summary, Devices View, and Device Finder details visibility of RF activity, effect on the wireless network, and the location of devices causing wireless interference.	3–61
Mobility Services		
Cisco 3300 Series Mobility Services Engine	• Transforms existing WLANs into comprehensive mobility networks through uniform mobility services delivery. • Integrates with the Cisco Unified Wireless Network and Cisco Unified Communications Solutions to build on existing business mobility investments. • Extensible platform supports suite of software with ability to scale services through clustering. The software suite includes context-aware services and adaptive wireless intrusion prevention systems (IPS) with a unified, open API for developing business-relevant applications.	3–63
Cisco Context-Aware Software	• Context-Aware mobility service to simultaneously track thousands of Wi-Fi clients, Wi-Fi tags, or wired endpoints in indoor, indoor high ceiling, and outdoor (parking lot/yards) environments • Provides location and history information of interferers detected by CleanAir APs • Integration with existing networks to enable applications. MSE's open API makes it easier for application and technology partners to integrate their applications and deliver location-based services to their customers.	3–65
Cisco Adaptive Wireless Intrusion Prevention System (IPS) (Monitor Mode and Enhanced Local Mode)	• Employs network analysis and signature-based techniques, combined with tight integration to Cisco Unified Wireless Network, to deliver protection against rogue APs and clients, network reconnaissance, eavesdropping, authentication and encryption cracking, man-in-the-middle attacks, wireless DoS attacks, and zero-day unknown attacks. • Proactive threat prevention through automated wireless vulnerability and performance monitoring that proactively and persistently scans the wireless network to mitigate problems before they arise.	3–67
Cisco Physical Security	For product information on Cisco Video Surveillance products, refer to Chapter 5. "Security.	See 5–1
SERVICES		
Cost-effectively deploy secure mobile access to business-critical applications and rich media collaboration while improving operational efficiency with smart, personalized services from Cisco and our partners. Based on leading practices, these services help accelerate your transition to an advanced mobility architecture that optimizes performance, reliability, and security, helping you maintain business innovation while controlling costs.		3–68

FOR MORE INFORMATION

Product Ordering
To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml.

End-of-Life and End-of-Sale
Please visit the end-of-life and end-of-sale website for a complete and up-to-date listing of products that are no longer being sold or supported, what replacement products are available, and information about product support.
http://www.cisco.com/en/US/products/prod_end_of_life.html

NOTE: This chapter provides only a subset of Cisco products and part numbers. For the most up-to-date and comprehensive information, refer to the Cisco website at http://www.cisco.com, the Cisco ordering website at http://www.cisco.com/en/US/ordering/index.shtml, or reference the URL listed in the "For More Information" section of each product.

Access Points and Client Devices

View the online model comparison chart for Cisco Aironet Access Points:
http://www.cisco.com/en/US/products/hw/wireless/products_category_buyers_guide.html#~high-end

Cisco Aironet 3500 Series Access Points

Cisco Aironet 3500 Series Access Points with CleanAir technology are the first 802.11n access points to create a self-healing, self-optimizing wireless network by intelligently avoiding interference.



Ideal for Companies That Need These Features

Cisco Aironet 3500 Series
- The highest-performance connectivity for mission-critical mobility
- Reliable application delivery
- 802.11n performance with standard 802.3af Power over Ethernet (PoE)

Key Features and Benefits

CleanAir technology that supports:
- Automatic interference mitigation for reliable and predictable wireless LAN (WLAN) coverage
- Remote troubleshooting for fast problem resolution and less downtime
- Robust security with non-Wi-Fi detection for off-channel rogue devices
- Policy enforcement with customizable alerts to prohibit devices that interfere with the network

Specifications

Feature	Cisco Aironet 3500 Series Access Points			
Software	Cisco Unified Wireless Network Software Release 7.0 or later			
802.11n Version 2.0 (and Related) Capabilities	• 2x3 multiple-input multiple-output (MIMO) with two spatial streams • Maximal ratio combining (MRC) • Legacy beamforming • 20- and 40-MHz channels • PHY data rates up to 300 Mbps • Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx) • 802.11 dynamic frequency selection (DFS) • Cyclic shift diversity (CSD) support			
Data Rates Supported	802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps			
	802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps			
	802.11n data rates (2.4 GHz and 5 GHz)			
	MCS Index[1]	GI[2]=800ns		GI=400ns	
		20-MHz rate (Mbps)	40-MHz rate (Mbps)	20-MHz rate (Mbps)	40-MHz rate (Mbps)
	0	6.5	13.5	7.2	15
	1	13	27	14.4	30
	2	19.5	40.5	21.7	45
	3	26	54	28.9	60
	4	39	81	43.3	90
	5	52	108	57.8	120
	6	58.5	121.5	65	135
	7	65	135	72.2	150
	8	13	27	14.4	30
	9	26	54	28.9	60
	10	39	81	43.3	90
	11	52	108	57.8	120
	12	78	162	86.7	180
	13	104	216	115.6	240
	14	117	243	130	270
	15	130	270	144.4	300

Maximum Number of Nonoverlapping Channels	2.4 GHz · 802.11b/g:: 20 MHz: 3 · 802.11n:: 20 MHz: 3, 40 MHz: 1	5 GHz · 802.11a:: 20 MHz: 21 · 802.11n:: 20 MHz: 21, 40 MHz: 9
Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.		
Maximum Transmit Power	2.4 GHz · 802.11b: 23 dBm with 2 antennas · 802.11g: 20 dBm with 2 antennas · 802.11n (non-HT duplicate mode): 20 dBm with 2 antennas · 802.11n (HT20): 20 dBm with 2 antennas · 802.11n (HT40): 20 dBm with 2 antennas	5 GHz · 802.11a: 20 dBm with 2 antennas · 802.11n non-HT duplicate mode: 20 dBm with 2 antennas · 802.11n (HT20): 20 dBm with 2 antennas · 802.11n (HT40): 20 dBm with 2 antennas
Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.		
Frequency Band and 20MHz Operating Channels	A (A regulatory domain): · 2.412 to 2.462 GHz; 11 channels · 5.180 to 5.320 GHz; 8 channels · 5.500 to 5.700 GHz, 8 channels (excludes 5.600 to 5.640 GHz) · 5.745 to 5.825 GHz; 5 channels C (C regulatory domain): · 2.412 to 2.472 GHz; 13 channels · 5.745 to 5.825 GHz; 5 channels E (E regulatory domain): · 2.412 to 2.472 GHz; 13 channels · 5.180 to 5.320 GHz; 8 channels · 5.500 to 5.700 GHz, 8 channels (excludes 5.600 to 5.640 GHz) · (I regulatory domain): · 2.412 to 2.472 GHz, 13 channels · 5.180 to 5.320 GHz; 8 channels K (K regulatory domain): · 2.412 to 2.472 GHz; 13 channels · 5.180 to 5.320 GHz; 8 channels · 5.500 to 5.620 GHz, 7 channels · 5.745 to 5.805 GHz, 4 channels	N (N regulatory domain): · 2.412 to 2.462 GHz; 11 channels · 5.180 to 5.320 GHz; 8 channels · 5.745 to 5.825 GHz; 5 channels Q (Q regulatory domain): · 2.412 to 2.472 GHz; 13 channels · 5.180 to 5.320 GHz; 8 channels · 5.500 to 5.700 GHz; 11 channels S (S regulatory domain): · 2.412 to 2.472 GHz; 13 channels · 5.180 to 5.320 GHz; 8 channels · 5.745 to 5.825 GHz; 5 channels T (T regulatory domain): · 2.412 to 2.462 GHz; 11 channels · 5.280 to 5.320 GHz; 3 channels · 5.500 to 5.700 GHz, 11 channels · 5.745 to 5.825 GHz; 5 channels
Note: Customers are responsible for verifying approval for use in their individual countries. To verify approval and to identify the regulatory domain that corresponds to a particular country, visit http://www.cisco.com/go/aironet/compliance.		
Available Transmit Power Settings	2.4 GHz · 23 dBm (200 mW) CCK Only · 20 dBm (100 mW) · 17 dBm (50 mW) · 14 dBm (25 mW) · 11 dBm (12.5 mW) · 8 dBm (6.25 mW) · 5 dBm (3.13 mW) · 2 dBm (1.56 mW) · -1 dBm (0.78 mW)	5 GHz · 20 dBm (100 mW) · 17 dBm (50 mW) · 14 dBm (25 mW) · 11 dBm (12.5 mW) · 8 dBm (6.25 mW) · 5 dBm (3.13 mW) · 2 dBm (1.56 mW) · -1 dBm (0.78 mW)
Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.		
Integrated Antenna	· 2.4 GHz, Gain 4 dBi, internal Omni, horizontal beamwidth 360° · 5 GHz, Gain 3 dBi, internal Omni, horizontal beamwidth 360°	
External Antenna (sold separately)	Cisco offers the industry's broadest selection of 802.11n antennas delivering optimal coverage for a variety of deployment scenarios.	
Interfaces	· 10/100/1000BASE-T autosensing (RJ-45) · Management console port (RJ-45)	
Indicators	· Status LED indicates boot loader status, association status, operating status, boot loader warnings, boot loader errors.	
Dimensions (W x L x H)	· Access point (without mounting bracket): 8.7 x 8.7 x 1.84 in. (22.1 x 22.1 x 4.7 cm)	
Weight	· 2.3 lbs (1.04 kg)	
System Memory	· 128 MB DRAM · 32 MB Flash	
Input Power Requirements	· AP3500: 44 to 57 VDC · Power Supply and Power Injector: 100 to 240 VAC; 50 to 60 Hz	
Powering Options	· 802.3af Ethernet Switch · Cisco AP3500 Power Injectors (AIR-PWRINJ4=) · Cisco AP3500 Local Power Supply (AIR-PWR-B=)	

Environmental	Cisco Aironet 3500i · Nonoperating (storage) temperature: -22 to 185°F (-30 to 85°C) · Operating temperature: 32 to 104°F (0 to 40°C) · Operating humidity: 10 to 90% percent (noncondensing) Cisco Aironet 3500e · Nonoperating (storage) temperature: -40 to 185°F (-40 to 85°C) · Operating temperature: -4 to +131°F (-20 to +55°C) · Operating humidity: 10 to 90 percent (noncondensing)
Power Draw	· AP3500: 12.95 W Note: When deployed using Power over Ethernet (PoE), the power drawn from the power sourcing equipment will be higher by some amount dependent on the length of the interconnecting cable. This additional power may be as high as 2.45W, bringing the total system power draw (access point + cabling) to 15.4W.
Warranty	Limited Lifetime Hardware Warranty
Receive Sensitivity	· 802.11a (non HT20): -93 dBm @ 6 Mb/s; -93 dBm @ 9 Mb/s; -92 dBm @ 12 Mb/s; -90 dBm @ 18 Mb/s; -87 dBm @ 24 Mb/s; -84 dBm @ 36 Mb/s; -79 dBm @ 48 Mb/s; -79 dBm @ 54 Mb/s · 802.11b (CCK): -101 dBm @ 1 Mb/s; -98 dBm @ 2 Mb/s; -92 dBm @ 5.5 Mb/s; -89 dBm @ 11 Mb/s · 802.11g (non HT20): -92 dBm @ 6 Mb/s; -92 dBm @ 9 Mb/s; -92 dBm @ 12 Mb/s; -90 dBm @ 18 Mb/s; -86 dBm @ 24 Mb/s; -84 dBm @ 36 Mb/s; -79 dBm @ 48 Mb/s; -78 dBm @ 54 Mb/s · 2.4-GHz: 802.11n (HT20): -92 dBm @ MCS0; -90 dBm @ MCS1; -88 dBm @ MCS2; -85 dBm @ MCS3; -82 dBm @ MCS4; -77 dBm @ MCS5; -76 dBm @ MCS6; -74 dBm @ MCS7; -92 dBm @ MCS8; -90 dBm @ MCS9; -87 dBm @ MCS10; -85 dBm @ MCS11; -82 dBm @ MCS12; -77 dBm @ MCS13; -75 dBm @ MCS14; -74 dBm @ MCS15 · 2.4-GHz: 802.11n (HT40): -89 dBm @ MCS0; -87 dBm @ MCS1; -85 dBm @ MCS2; -82 dBm @ MCS3; -79 dBm @ MCS4; -73 dBm @ MCS5; -72 dBm @ MCS6; -70 dBm @ MCS7; -90 dBm @ MCS8; -87 dBm @ MCS9; -85 dBm @ MCS10; -81 dBm @ MCS11; -78 dBm @ MCS12; -74 dBm @ MCS13; -72 dBm @ MCS14; -71 dBm @ MCS15 · 5-GHz: 802.11n (HT20): -93 dBm @ MCS0; -91 dBm @ MCS1; -89 dBm @ MCS2; -86 dBm @ MCS3; -83 dBm @ MCS4; -78 dBm @ MCS5; -77 dBm @ MCS6; -75 dBm @ MCS7; -87 dBm @ MCS8; -87 dBm @ MCS9; -85 dBm @ MCS10; -83 dBm @ MCS11; -79 dBm @ MCS12; -75 dBm @ MCS13; -73 dBm @ MCS14; -72 dBm @ MCS15 · 5-GHz: 802.11n (HT40): -91 dBm @ MCS0; -89 dBm @ MCS1; -87 dBm @ MCS2; -83 dBm @ MCS3; -80 dBm @ MCS4; -75 dBm @ MCS5; -74 dBm @ MCS6; -72 dBm @ MCS7; -86 dBm @ MCS8; -85 dBm @ MCS9; -84 dBm @ MCS10; -80 dBm @ MCS11; -77 dBm @ MCS12; -72 dBm @ MCS13; -71 dBm @ MCS14; -70 dBm @ MCS15
Compliance Standards	· Safety: UL 60950-1; CAN/CSA-C22.2 No. 60950-1; UL 2043; IEC 60950-1; EN 60950-1 · Radio approvals: FCC Part 15.247, 15.407; RSS-210 (Canada); EN 300.328, EN 301.893 (Europe); ARIB-STD 33 (Japan); ARIB-STD 66 (Japan); ARIB-STD T71 (Japan); EMI and susceptibility (Class B); FCC Part 15.107 and 15.109; ICES-003 (Canada); VCCI (Japan); EN 301.489-1 and -17 (Europe); EN 60601-1-2 EMC requirements for the Medical Directive 93/42/EEC; IEEE Standard:; IEEE 802.11a/b/g, IEEE 802.11n 2.0, IEEE 802.11h, IEEE 802.11d · Security: 802.11i, Wi-Fi Protected Access 2 (WPA2), WPA; 802.1X; Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP); EAP Type(s):; Extensible Authentication Protocol-Transport Layer Security (EAP-TLS); EAP-Tunneled TLS (TTLS) or Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2); Protected EAP (PEAP) v0 or EAP-MSCHAPv2; Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST); PEAPv1 or EAP-Generic Token Card (GTC); EAP-Subscriber Identity Module (SIM) · Multimedia: Wi-Fi Multimedia (WMM™) · Other: FCC Bulletin OET-65C; RSS-102

1. MCS Index: The Modulation and Coding Scheme (MCS) index determines the number of spatial streams, the modulation, the coding rate, and data rate values.
2. GI: A guard interval (GI) between symbols helps receivers overcome the effects of multipath delays.

Selected Part Number and Ordering Information

Cisco Aironet 3500 Series Controller-Based Access Point	
AIR-CAP3502I-x-K9	Cisco Aironet 3500i mode-Indoor environments, with internal antennas, dual-band controller-based 802.11a/g/n
AIR-CAP3501I-x-K9	Cisco Aironet 3500i mode-Indoor environments, with internal antennas, single-band controller-based 802.11g/n
AIR-CAP3502I-xK910	Cisco Aironet 3500i mode-Indoor environments, with internal antennas, eco-pack (dual-band 802.11a/g/n) 10 quantity access points
AIR-CAP3502E-x-K9	Cisco Aironet 3500e mode-Indoor, challenging environments, with external antennas, dual-band controller-based 802.11a/g/n
AIR-CAP3501E-x-K9	Cisco Aironet 3500e mode-Indoor, challenging environments, with external antennas, single-band controller-based 802.11g/n
AIR-CAP3502E-xK910	Cisco Aironet 3500e mode-Indoor, challenging environments, with external antennas, eco-pack (dual-band 802.11a/g/n) 10 quantity access points

CON-SNT-CAP352Ix	Cisco SMARTnet Services for the Cisco Aironet 3500i model with internal antennas, SMARTnet 8x5xNBD 3500i access point (dual-band 802.11 a/g/n)
CON-SNT-CAP351Ix	Cisco SMARTnet Services for the Cisco Aironet 3500i model with internal antennas, SMARTnet 8x5xNBD 3500i access point (single-band 802.11 g/n)
CON-SNT-CAP352Ix	Cisco SMARTnet Services for the Cisco Aironet 3500i model with internal antennas, SMARTnet 8x5xNBD 10 quantity eco-pack 3500i access point (dual-band 802.11a/g/n)
CON-SNT-CAP3502x	SMARTnet Services for the Cisco Aironet 3500e model with external antennas, SMARTnet 8x5xNBD 3500e access point (dual-band 802.11 a/g/n)
CON-SNT-CAP3501x	SMARTnet Services for the Cisco Aironet 3500e model with external antennas, SMARTnet 8x5xNBD 3500e access point (single-band 802.11 g/n)
CON-SNT-CAP3502x	SMARTnet Services for the Cisco Aironet 3500e model with external antennas, SMARTnet 8x5xNBD 10 quantity eco-pack 3500e access point (dual-band 802.11a/g/n)
Cisco Wireless LAN Services	
AS-WLAN-CNSLT	Cisco Wireless LAN Network Planning and Design Service
AS-WLAN-CNSLT	Cisco Wireless LAN 802.11n Migration Service
AS-WLAN-CNSLT	Cisco Wireless LAN Performance and Security Assessment Service

Regulatory domains: (x = regulatory domain)
Customers are responsible for verifying approval for use in their individual countries. To verify approval and to identify the regulatory domain that corresponds to a particular country, visit http://www.cisco.com/go/aironet/compliance.
Not all regulatory domains have been approved. As they are approved, the part numbers will be available on the Global Price List.

For More Information

http://www.cisco.com/en/US/products/ps10981/index.html

Cisco Aironet 3500p Series Access Points



Enhance the fan experience in high-density stadium and arena deployments with Cisco Aironet 3500p Access Points. The Cisco 3500p model provides targeted coverage with directional antennas, complete with flexible configuration and professional installation in challenging environments.

The Cisco 3500p is designed with custom configuration settings and narrow-bandwidth, high-gain antennas to provide targeted coverage for high-density deployments. This special system of directional antennas and power settings allow an organization to deploy more access points closer together, enabling more capacity, lower co-channel interference, and a better user experience.

Because of the unique antenna and power settings, FCC regulations require the Cisco Aironet 3500p Access Point to be installed by a certified professional

Ideal for Companies That Need These Features

Cisco Aironet 3500p Series Access Point

- Targeted coverage for high-density deployments in environments such as high-density stadium and arena deployments
- Greater wireless capacity to deliver a better fan experience and facilitate 3G/4G cellular offload
- Purpose built directional, narrow beamwidth external antennas for targeted coverage and minimal interference
- 802.11n performance powered with standard 802.3af Power over Ethernet (PoE)
- Rugged metal housing for extended operating temperature

Key Features and Benefits

CleanAir technology that supports:

- Automatic interference mitigation for reliable and predictable wireless LAN (WLAN) coverage
- Remote troubleshooting for fast problem resolution and less downtime
- Robust security with non-Wi-Fi detection for off-channel rogue devices
- Policy enforcement with customizable alerts to prohibit devices that interfere with the network

Specifications

Feature	Cisco Aironet 3500p Series Access Points	
Software	Cisco Unified Wireless Network Software Release 7.0 or later	
Maximum Number of Nonoverlapping Channels	2.4 GHz · 802.11b/g: · 20 MHz: 3 · 802.11n: · 20 MHz: 3	5 GHz · 802.11a: · 20 MHz: 19 · 802.11n: · 20 MHz: 19 · 40 MHz: 9

Frequency Band and 20-MHz Operating Channels	A (A regulatory domain): · 2.412 to 2.462 GHz; 11 channels · 5.745 to 5.825 GHz; 5 channels C (C regulatory domain): · 2.412 to 2.472 GHz; 13 channels · 5.745 to 5.825 GHz; 5 channels E (E regulatory domain): · 2.412 to 2.472 GHz; 13 channels · 5.180 to 5.320 GHz; 8 channels · 5.500 to 5.700 GHz, 8 channels (excludes 5.600 to 5.640 GHz)	N (N regulatory domain): · 2.412 to 2.462 GHz; 11 channels · 5.745 to 5.825 GHz; 5 channels Q (Q regulatory domain): · 2.412 to 2.472 GHz; 13 channels · 5.180 to 5.320 GHz; 8 channels · 5.500 to 5.700 GHz; 11 channels

Note: Customers are responsible for verifying approval for use in their individual countries. To verify approval and to identify the regulatory domain that corresponds to a particular country, please visit http://www.cisco.com/go/aironet/compliance.

Maximum Transmit Power	2.4 GHz · 802.11b: 23 dBm with 2 antennas · 802.11g: 20 dBm with 2 antennas · 802.11n (non-HT duplicate mode): 20 dBm with 2 antennas · 802.11n (HT20): 20 dBm with 2 antennas	5 GHz · 802.11a: 20 dBm with 2 antennas · 802.11n non-HT duplicate mode: 20 dBm with 2 antennas · 802.11n (HT20): 20 dBm with 2 antennas · 802.11n (HT40): 20 dBm with 2 antennas

Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.

Data Rates Supported

802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps

802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps

802.11n data rates (2.4 GHz and 5 GHz)

MCS Index[1]	GI[2]=800ns		GI=400ns	
	20-MHz rate (Mbps)	40-MHz rate (Mbps)	20-MHz rate (Mbps)	40-MHz rate (Mbps)
0	6.5	13.5	7.2	15
1	13	27	14.4	30
2	19.5	40.5	21.7	45
3	26	54	28.9	60
4	39	81	43.3	90
5	52	108	57.8	120
6	58.5	121.5	65	135
7	65	135	72.2	150
8	13	27	14.4	30
9	26	54	28.9	60
10	39	81	43.3	90
11	52	108	57.8	120
12	78	162	86.7	180
13	104	216	115.6	240
14	117	243	130	270
15	130	270	144.4	300

Available Transmit Power Settings	2.4 GHz · 20 dBm (100 mW) · 17 dBm (50 mW) · 14 dBm (25 mW) · 11 dBm (12.5 mW) · 8 dBm (6.25 mW) · 5 dBm (3.13 mW) · 2 dBm (1.56 mW) · -1 dBm (0.78 mW)	5 GHz · 17 dBm (50 mW) · 14 dBm (25 mW) · 11 dBm (12.5 mW) · 8 dBm (6.25 mW) · 5 dBm (3.13 mW) · 2 dBm (1.56 mW) · -1 dBm (0.78 mW) ·
External Antenna (sold separately)	· Certified for use with antenna gains up to 13 dBi (2.4 GHz) and 7 dBi (5 GHz). · Cisco offers the industry's broadest selection of 802.11n antennas delivering optimal coverage for a variety of deployment scenarios.	

Interfaces	· 10/100/1000BASE-T autosensing (RJ-45) · Management console port (RJ-45)
Receive Sensitivity	· 802.11a (non HT20): -93 dBm @ 6 Mb/s; -93 dBm @ 9 Mb/s; -92 dBm @ 12 Mb/s; -90 dBm @ 18 Mb/s; -87 dBm @ 24 Mb/s; -84 dBm @ 36 Mb/s; -79 dBm @ 48 Mb/s; -79 dBm @ 54 Mb/s · 802.11b (CCK): -101 dBm @ 1 Mb/s; -98 dBm @ 2 Mb/s; -92 dBm @ 5.5 Mb/s; -89 dBm @ 11 Mb/s · 802.11g (non HT20): -92 dBm @ 6 Mb/s; -92 dBm @ 9 Mb/s; -92 dBm @ 12 Mb/s; -90 dBm @ 18 Mb/s; -86 dBm @ 24 Mb/s; -84 dBm @ 36 Mb/s; -79 dBm @ 48 Mb/s; -78 dBm @ 54 Mb/s · 2.4-GHz: 802.11n (HT20): -92 dBm @ MCS0; -90 dBm @ MCS1; -88 dBm @ MCS2; -85 dBm @ MCS3; -82 dBm @ MCS4; -77 dBm @ MCS5; -76 dBm @ MCS6; -74 dBm @ MCS7; -92 dBm @ MCS8; -90 dBm @ MCS9; -87 dBm @ MCS10; -85 dBm @ MCS11; -82 dBm @ MCS12; -77 dBm @ MCS13; -75 dBm @ MCS14; -74 dBm @ MCS15 · 2.4-GHz: 802.11n (HT40): -89 dBm @ MCS0; -87 dBm @ MCS1; -85 dBm @ MCS2; -82 dBm @ MCS3; -79 dBm @ MCS4; -73 dBm @ MCS5; -72 dBm @ MCS6; -70 dBm @ MCS7; -90 dBm @ MCS8; -87 dBm @ MCS9; -85 dBm @ MCS10; -81 dBm @ MCS11; -78 dBm @ MCS12; -74 dBm @ MCS13; -72 dBm @ MCS14; -71 dBm @ MCS15 · 5-GHz: 802.11n (HT20): -93 dBm @ MCS0; -91 dBm @ MCS1; -89 dBm @ MCS2; -86 dBm @ MCS3; -83 dBm @ MCS4; -78 dBm @ MCS5; -77 dBm @ MCS6; -75 dBm @ MCS7; -87 dBm @ MCS8; -87 dBm @ MCS9; -85 dBm @ MCS10; -83 dBm @ MCS11; -79 dBm @ MCS12; -75 dBm @ MCS13; -73 dBm @ MCS14; -72 dBm @ MCS15 · 5-GHz: 802.11n (HT40): -91 dBm @ MCS0; -89 dBm @ MCS1; -87 dBm @ MCS2; -83 dBm @ MCS3; -80 dBm @ MCS4; -75 dBm @ MCS5; -74 dBm @ MCS6; -72 dBm @ MCS7; -86 dBm @ MCS8; -85 dBm @ MCS9; -84 dBm @ MCS10; -80 dBm @ MCS11; -77 dBm @ MCS12; -72 dBm @ MCS13; -71 dBm @ MCS14; -70 dBm @ MCS15
Indicators	· Status LED indicates boot loader status, association status, operating status, boot loader warnings, boot loader errors.
Dimensions (W x L x H)	· Access point (without mounting bracket): 8.7 x 8.7 x 1.84 in. (22.1 x 22.1 x 4.7 cm)
Weight	· 2.3 lbs (1.04 kg)
Environmental	· Nonoperating (storage) temperature: -40 to 185°F (-40 to 85°C) · Operating temperature: -4 to +131°F (-20 to +55°C) · Operating humidity: 10 to 90 percent (noncondensing)
System Memory	· 128-MB DRAM · 32-MB flash
Input Power Requirements	· AP3500: 44 to 57 VDC · Power Supply and Power Injector: 100 to 240 VAC; 50 to 60 Hz
Powering Options	· 802.3af Ethernet Switch · Cisco AP3500 Power Injectors (AIR-PWRINJ4=) · Cisco AP3500 Local Power Supply (AIR-PWR-B=)
Power Draw	· AP3500: 12.95 W Note: When deployed using Power over Ethernet (PoE), the power drawn from the power sourcing equipment will be higher by some amount dependent on the length of the interconnecting cable. This additional power may be as high as 2.45W, bringing the total system power draw (access point + cabling) to 15.4W.
Warranty	Limited Lifetime Hardware Warranty
Compliance Standards	· Safety: UL 60950-1; CAN/CSA-C22.2 No. 60950-1; UL 2043; IEC 60950-1; EN 60950-1 · Radio approvals: FCC Part 15.247, 15.407; RSS-210 (Canada); EN 300.328, EN 301.893 (Europe); ARIB-STD 33 (Japan); ARIB-STD 66 (Japan); ARIB-STD T71 (Japan); EMI and susceptibility (Class B); FCC Part 15.107 and 15.109; ICES-003 (Canada); VCCI (Japan); EN 301.489-1 and -17 (Europe); EN 60601-1-2 EMC requirements for the Medical Directive 93/42/EEC · IEEE Standard: IEEE 802.11a/b/g,; IEEE 802.11n 2.0, IEEE 802.11h, IEEE 802.11d · Security: 802.11i, Wi-Fi Protected Access 2 (WPA2), WPA 802.1X; Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP) · EAP Type(s): Extensible Authentication Protocol-Transport Layer Security (EAP-TLS) · EAP-Tunneled TLS (TTLS) or Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2); Protected EAP (PEAP) v0 or EAP-MSCHAPv2; Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST); PEAPv1 or EAP-Generic Token Card (GTC); EAP-Subscriber Identity Module (SIM) · Multimedia: Wi-Fi Multimedia (WMM™) · Other: FCC Bulletin OET-65C; RSS-102

1. MCS Index: The Modulation and Coding Scheme (MCS) index determines the number of spatial streams, the modulation, the coding rate, and data rate values.
2. GI: A guard interval (GI) between symbols helps receivers overcome the effects of multipath delays.

Selected Part Number and Ordering Information

Cisco Aironet 3500p Series Controller-Based Access Point	
AIR-CAP3502P-x-K9	Dual-band controller-based 802.11a/g/n
AIR-CAP3502P-xK910	Eco-pack (dual-band 802.11a/g/n) 10 quantity access points
Cisco SMARTnet® Service for the Cisco Aironet 3500p model with external antennas	
CON-SNT-CAP352Px	SMARTnet 8x5xNBD 3500p access point (dual-band 802.11 a/g/n)
CON-SNT-CAP352Px10	SMARTnet 8x5xNBD 10 quantity eco-pack 3500p access point (dual-band 802.11a/g/n)

Cisco Wireless LAN Services	
AS-WLAN-CNSLT	Cisco Wireless LAN Network Planning and Design Service
AS-WLAN-CNSLT	Cisco Wireless LAN 802.11n Migration Service
AS-WLAN-CNSLT	Cisco Wireless LAN Performance and Security Assessment Service

Regulatory domains: (x = regulatory domain)
Customers are responsible for verifying approval for use in their individual countries. To verify approval and to identify the regulatory domain that corresponds to a particular country, visit: http://www.cisco.com/go/aironet/compliance.
Not all regulatory domains have been approved. As they are approved, the part numbers will be available on the Global Price list

For More Information

http://www.cisco.com/en/US/products/ps11585/index.html

Cisco Aironet 1260 Series Access Points

Cisco Aironet 1260 Series Access Points provide reliable and predictable 802.11n wireless coverage for indoor environments. These enterprise-class access points deliver up to nine times the throughput of 802.11a/g networks for rich-media applications. Designed specifically for challenging environments, the Cisco Aironet 1260 Series supports external antennas and a broad operating-temperature range.



Ideal for Companies That Need These Features

Cisco Aironet 1260 Series

- High-capacity and high-security wireless LAN (WLAN) that provides network reliability for mission-critical applications
- Rugged enterprise-class access point designed for indoor industrial deployments and installations that require antenna versatility
- Cisco M-Drive technology for optimized client performance
- Standard 802.11n performance with standard 802.3af Power over Ethernet (PoE)

Key Features and Benefits

- Cisco Aironet 1260 Series Access Points are 802.11n-certified.
- They provide reliable and predictable wireless LAN (WLAN) coverage to improve the end user's experience with both existing 802.11a/b/g clients and new 802.11n clients. The access points offer a rugged design.
  - Cisco ClientLink technology improves reliability and coverage for established clients.
  - BandSelect improves 5-GHz client connections in mixed client environments.
  - VideoStream uses multicast to improve multimedia applications.

Specifications

Feature	Cisco Aironet 1260 Series Access Point	
Software	• Cisco Unified Wireless Network Software Release 7.0 or later.	
802.11n Version 2.0 (and Related) Capabilities	• 2x3 MIMO with two spatial streams • Maximal Ratio Combining (MRC) • Legacy beam forming • 20-and 40-MHz channels • PHY data rates up to 300 Mbps • Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx) • 802.11 DFS (Bin 5) • Cyclic Shift Diversity (CSD) support	
External Antenna (sold separately)	Cisco offers the industry's broadest selection of 802.11n antennas delivering optimal coverage for a variety of deployment scenarios.	
Interfaces	10/100/1000 autosensing (RJ-45); Management console port (RJ45)	
Indicators	Status LED indicates boot loader status, association status, operating status, boot loader warnings, and boot loader errors.	
Maximum Transmit Power	2.4 GHz • 802.11b: 23 dBm with 2 antennas • 802.11g: 20 dBm with 2 antennas • 802.11n (non-HT duplicate mode): 20 dBm with 2 antennas • 802.11n (HT20): 20 dBm with 2 antennas • 802.11n (HT40): 20 dBm with 2 antennas	5 GHz • 802.11a: 20 dBm with 2 antennas • 802.11n non-HT duplicate mode: 20 dBm with 2 antennas • 802.11n (HT20): 20 dBm with 2 antennas • 802.11n (HT40): 20 dBm with 2 antennas

NOTE: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.

Frequency Band and 20-MHz Operating Channels	• A (A Regulatory Domain)—2.412 to 2.462 GHz; 11 channels; 5.180 to 5.320 GHz; 8 channels; 5.500 to 5.700 GHz, 8 channels (excludes 5.600 to 5.640 GHz); 5.745 to 5.825 GHz; 5 channels • C (C Regulatory Domain)—2.412 to 2.472 GHz; 13 channels; 5.745 to 5.825 GHz; 5 channels • E (E Regulatory Domain)—2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels; 5.500 to 5.700 GHz, 11 channels • I (I Regulatory Domain)—2.412 to 2.472 GHz, 13 channels; 5.180 to 5.320 GHz; 8 channels • K (K Regulatory Domain)—2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels; 5.500 to 5.620 GHz, 7 channels; 5.745 to 5.805 GHz, 4 channels	• N (N Regulatory Domain)—2.412 to 2.462 GHz; 11 channels; 5.180 to 5.320 GHz; 8 channels; 5.745 to 5.825 GHz; 5 channels • Q (Q Regulatory Domain)—2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels; 5.500 to 5.700 GHz: 11 channels • S (S Regulatory Domain)—2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels; 5.745 to 5.825 GHz; 5 channels • T (T Regulatory Domain)—2.412 to 2.462 GHz; 11 channels; 5.280 to 5.320 GHz; 3 channels; 5.500 to 5.700 GHz, 11 channels; 5.745 to 5.825 GHz; 5 channels

Note: Customers are responsible for verifying approval for use in their individual countries. To verify approval and to identify the regulatory domain that corresponds to a particular country, visit: http://www.cisco.com/go/aironet/compliance.

Maximum Number of Non-Overlapping Channels	2.4 GHz • 802.11b: 23 dBm with 2 antennas • 802.11g: 20 dBm with 2 antennas • 802.11n (non-HT duplicate mode): 20 dBm with 2 antennas • 802.11n (HT20): 20 dBm with 2 antennas • 802.11n (HT40): 20 dBm with 2 antennas	5 GHz • 802.11a: 20 dBm with 2 antennas • 802.11n non-HT duplicate mode: 20 dBm with 2 antennas • 802.11n (HT20): 20 dBm with 2 antennas • 802.11n (HT40): 20 dBm with 2 antennas

NOTE: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.

Available Transmit Power Settings	2.4 GHz • 23 dBm (200 mW) CCK Only • 20 dBm (100 mW) • 17 dBm (50 mW) • 14 dBm (25 mW) • 11 dBm (12.5 mW) • 8 dBm (6.25 mW) • 5 dBm (3.13 mW) • 2 dBm (1.56 mW) • -1 dBm (0.78 mW)	5 GHz • 20 dBm (100 mW) • 17 dBm (50 mW) • 14 dBm (25 mW) • 11 dBm (12.5 mW) • 8 dBm (6.25 mW) • 5 dBm (3.13 mW) • 2 dBm (1.56 mW) • -1 dBm (0.78 mW)

NOTE: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.

Dimensions (W x L x H)	Access point (without mounting bracket): 8.7 x 8.7 x 1.84 in. (22.1 x 22.1 x 4.7 cm)
Weight	2.3 lbs (1.04 kg)
Environmental	Non-operating (storage) temperature: -40 to 185ûF (-40 to 85ûC; Operating temperature: -4 to +131ûF (-20 to +55ûC; Operating humidity: 10 to 90 percent (non-condensing)
System Memory	128 MB DRAM; 32 MB flash
Input Power Requirements	AP1260: 44 to 57 VDC; Power Supply and Power Injector: 100 to 240 VAC; 50 to 60 Hz
Powering Options	• 802.3af Ethernet Switch • Cisco AP1260 Power Injectors (AIR-PWRINJ4=) • Cisco AP1260 Local Power Supply (AIR-PWR-B=)
Warranty	Limited Lifetime Hardware Warranty
Power Draw	• AP1260: 12.95 W Note: When deployed using Power over Ethernet (PoE), the power drawn from the power sourcing equipment will be higher by some amount dependent on the length of the interconnecting cable. This additional power may be as high as 2.45W, bringing the total system power draw (access point + cabling) to 15.4W

Data Rates Supported

802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps

802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps

802.11n data rates (2.4 GHz and 5 GHz):

MCS Index[1]	GI[2] = 800ns		GI = 400ns	
	20-MHz Rate (Mbps)	40-MHz Rate (Mbps)	20-MHz Rate (Mbps)	40-MHz Rate (Mbps)
0	6.5	13.5	7.2	15
1	13	27	14.4	30
2	19.5	40.5	21.7	45
3	26	54	28.9	60
4	39	81	43.3	90
5	52	108	57.8	120
6	58.5	121.5	65	135
7	65	135	72.2	150
8	13	27	14.4	30
9	26	54	28.9	60
10	39	81	43.3	90
11	52	108	57.8	120
12	78	162	86.7	180
13	104	216	115.6	240
14	117	243	130	270
15	130	270	144.4	300

NOTE: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.

Receive Sensitivity

- 802.11b (Complementary Code Keying [CCK]): -101 dBm @ 1 Mb/s; -98 dBm @ 2 Mb/s; -92 dBm @ 5.5 Mb/s; -89 dBm @ 11 Mb/s
- 802.11g (non HT20): -92 dBm @ 6 Mb/s; -92 dBm @ 9 Mb/s; -92 dBm @ 12 Mb/s; -90 dBm @ 18 Mb/s; -86 dBm @ 24 Mb/s; -84 dBm @ 36 Mb/s; -79 dBm @ 48 Mb/s; -78 dBm @ 54 Mb/s
- 802.11a (non HT20): -93 dBm @ 6 Mb/s; -93 dBm @ 9 Mb/s; -92 dBm @ 12 Mb/s; -90 dBm @ 18 Mb/s; -87 dBm @ 24 Mb/s; -84 dBm @ 36 Mb/s; -79 dBm @ 48 Mb/s; -79 dBm @ 54 Mb/s
- 2.4-GHz: 802.11n (HT20): -92 dBm @ MCS0; -90 dBm @ MCS1; -88 dBm @ MCS2; -85 dBm @ MCS3; -82 dBm @ MCS4; -77 dBm @ MCS5; -76 dBm @ MCS6; -74 dBm @ MCS7; -92 dBm @ MCS8; -90 dBm @ MCS9; -87 dBm @ MCS10;-85 dBm @ MCS11; -82 dBm @ MCS12;-77 dBm @ MCS13;-75 dBm @ MCS14;-74 dBm @ MCS15
- 2.4-GHz: 802.11n (HT40);-89 dBm @ MCS0; -87 dBm @ MCS1;-85 dBm @ MCS2;-82 dBm @ MCS3;-79 dBm @ MCS4;-73 dBm @ MCS5;-72 dBm @ MCS6;-70 dBm @ MCS7-90 dBm @ MCS8;-87 dBm @ MCS9;-85 dBm @ MCS10; -81 dBm @ MCS11;-78 dBm @ MCS12;-74 dBm @ MCS13;-72 dBm @ MCS14;-71 dBm @ MCS15
- 5-GHz: 802.11n (HT20);-93 dBm @ MCS0;-91 dBm @ MCS1;-89 dBm @ MCS2;-86 dBm @ MCS3;-83 dBm @ MCS4;-78 dBm @ MCS5; -77 dBm @ MCS6;-75 dBm @ MCS7;-87 dBm @ MCS8;-87 dBm @ MCS9;-85 dBm @ MCS10;-83 dBm @ MCS11;-79 dBm @ MCS12;-75 dBm @ MCS13-73 dBm @ MCS14;-72 dBm @ MCS15
- 5-GHz: 802.11n (HT40); -91 dBm @ MCS0;-89 dBm @ MCS1;-87 dBm @ MCS2;-83 dBm @ MCS3;-80 dBm @ MCS4;-75 dBm @ MCS5;-74 dBm @ MCS6;-72 dBm @ MCS7;-86 dBm @ MCS8;-85 dBm @ MCS9;-84 dBm @ MCS10;-80 dBm @ MCS11;-77 dBm @ MCS12;-72 dBm @ MCS13;-71 dBm @ MCS14;-70 dBm @ MCS15

Compliance	· Safety: UL 60950-1;CAN/CSA-C22.2 No. 60950-1; UL 2043; IEC 60950-1; EN 60950-1 · Radio approvals: FCC Part 15.247, 15.407; RSS-210 (Canada); EN 300.328, EN 301.893 (Europe); ARIB-STD 33 (Japan); ARIB-STD 66 (Japan); ARIB-STD T71 (Japan); AS/NZS 4268.2003 (Australia and New Zealand); EMI and susceptibility (Class B);FCC Part 15.107 and 15.109;ICES-003 (Canada); VCCI (Japan); EN 301.489-1 and -17 (Europe); EN 60601-1-2 EMC requirements for the Medical Directive 93/42/EEC · IEEE Standard: IEEE 802.11a/b/g, IEEE 802.11n 2.0, IEEE 802.11h, IEEE 802.11d · Security: 802.11i, Wi-Fi Protected Access 2 (WPA2), WPA 802.1X Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP) · EAP Type(s): Extensible Authentication Protocol-Transport Layer Security (EAP-TLS); EAP-Tunneled TLS (TTLS) or Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2); Protected EAP (PEAP) v0 or EAP-MSCHAPv2 · Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST); PEAPv1 or EAP-Generic Token Card (GTC); EAP-Subscriber Identity Module (SIM) · Multimedia: Wi-Fi Multimedia (WMM™) · Other: FCC Bulletin OET-65CRSS-102

1. MCS Index: The Modulation and Coding Scheme (MCS) index determines the number of spatial streams, the modulation, the coding rate, and data rate value
2. GI: A Guard Interval (GI) between symbols helps receivers overcome the effects of multipath delay

Selected Part Number and Ordering Information

Indoor, challenging environments, with external antennas	
AIR-LAP1262N-x-K9	Dual-band controller-based 802.11 a/g/n
AIR-LAP1261N-x-K9	Single-band controller-based 802.11 g/n
AIR-LAP1262N-xK910	Eco-pack (dual-band 802.11a/g/n) 10 quantity access points
SMARTnet Services	
CON-SNT-LAP1262x	SMARTnet 8x5xNBD 1260 Series access point (dual-band 802.11 a/g/n)
CON-SNT-LAP1261x	SMARTnet 8x5xNBD 1260 Series access point (single-band 802.11 g/n)
CON-SNT-LAP1262x	SMARTnet 8x5xNBD 10 quantity eco-pack 1260 Series access point (dual-band 802.11a/g/n)
Cisco Wireless LAN Services	
AS-WLAN-CNSLT	Cisco Wireless LAN Network Planning and Design Service
AS-WLAN-CNSLT	Cisco Wireless LAN 802.11n Migration Service

Regulatory domains: (x = regulatory domain)
Customers are responsible for verifying approval for use in their individual countries. To verify approval and to identify the regulatory domain that corresponds to a particular country, visit: http://www.cisco.com/go/aironet/compliance.
Not all regulatory domains have been approved. As they are approved, the part numbers will be available on the Global Price List.

For More Information

http://www.cisco.com/en/US/products/ps10980/index.html

Cisco Aironet 1040 Series Access Points



The Cisco Aironet 1040 Series Access Point is an enterprise-class, entry-level 802.11n access point designed to address the wireless connectivity needs of small and medium-sized enterprises. With 2x2 multiple-input multiple-output (MIMO) technology, the Cisco Aironet 1040 Series provides at least six times the throughput of existing 802.11a/g networks and the reliability and consistency of 802.11n performance at an attractive price point. The Cisco Aironet 1040 is also available in standalone mode for 802.11n performance and coverage, without the need of a controller. Ideal for deployments of fewer than 20 APs, the Cisco Aironet 1040 standalone access point provides scalability and allows you to upgrade to a controller-based architecture as the needs of your customers grow.

The Cisco Aironet 1040 Series has a sleek design that blends into enterprise environments and it can be powered with standard 802.3af Power over Ethernet (PoE). Optimized antennas and radios deliver a robust mobility experience. Cisco Aironet 1040 Series Access Points come with a Limited Lifetime Warranty that includes 10-day advance hardware replacement.

Ideal for Companies That Need These Features

Cisco Aironet 1040 Series	6x performance of 802.11a/g; 2x2 MIMO; 802.3af PoE; Cisco IOS Distributed Fast Switching (DFS) support; Single and dual band; Branch offices; Small retail locations; Classrooms or dorms; Health clinics; Hospitality; Law, insurance, or accounting firms

Key Features and Benefits

- Reliable connections for business-class wireless with the opportunity to scale as business needs grow.
- A sleek design that blends into enterprise environments.
- Capability of being powered with standard 802.3af Power over Ethernet.
- Optimized antennas and radios that deliver a powerful mobility experience.
- Automated self-healing that reduces dead spots and maintains client connections.
- A Limited Lifetime Warranty that includes 10-day advance hardware replacement.

Specifications

Feature	Cisco Aironet 1040 Series Access Points	
Software	• Cisco Unified Wireless Network Software Release 7.0 or later • Cisco IOS® Software Release to follow (available in Q4CY10)	
802.11n	• 2x2 multiple-input multiple-output (MIMO) with two spatial streams • Maximal ratio combining (MRC) • 20- and 40-MHz channels • PHY data rates up to 300 Mbps • Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx) • 802.11 dynamic frequency selection (DFS) (Bin 5) • Cyclic shift diversity (CSD) support	
Maximum Transmit Power	2.4GHz • 802.11b: 20 dBm with one antenna • 802.11g: 20 dBm with two antenna • 802.11n (HT20): 20 dBm with two antennas	5GHz • 802.11a: 20 dBm with two antennas • 802.11n non-HT duplicate mode: 20 dBm with two antennas • 802.11n (HT20): 20 dBm with two antennas • 802.11n (HT40): 20 dBm with two antennas
Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.		
Available Transmit Power Settings	2.4GHz • 20 dBm (100 mW) • 17 dBm (50 mW) • 14 dBm (25 mW) • 11 dBm (12.5 mW) • 8 dBm (6.25 mW) • 5 dBm (3.13 mW) • 2 dBm (1.56 mW) • -1 dBm (0.78 mW)	5GHz • 20 dBm (100 mW) • 17 dBm (50 mW) • 14 dBm (25 mW) • 11 dBm (12.5 mW) • 8 dBm (6.25 mW) • 5 dBm (3.13 mW) • 2 dBm (1.56 mW) • -1 dBm (0.78 mW)
Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.		
Frequency Band and 20-MHz Operating Channels	A Regulator Domain: • 2.412 to 2.462 GHz; 11 channels • 5.180 to 5.320 GHz; 8 channels • 5.500 to 5.700 GHz, 8 channels (excludes 5.600 to 5.640 GHz) • 5.745 to 5.825 GHz; 5 channels C Regulatory Domain: • 2.412 to 2.472 GHz; 13 channels • 5.745 to 5.825 GHz; 5 channels E Regulatory Domain: • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels • 5.500 to 5.700 GHz; 11 channels I Regulatory Domain: • 2.412 to 2.472 GHz, 13 channels • 5.180 to 5.320 GHz; 8 channels K Regulatory Domain: • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels • 5.500 to 5.620 GHz; 7 channels • 5.745 to 5.805 GHz; 4 channels	N Regulatory Domain: • 2.412 to 2.462 GHz; 11 channels • 5.180 to 5.320 GHz; 8 channels • 5.745 to 5.825 GHz; 5 channels P Regulatory Domain: • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels S Regulatory Domain: • 2.412 to 2.472 GHz; 13 channels • 5.180 to 5.320 GHz; 8 channels • 5.745 to 5.825 GHz; 5 channels T Regulatory Domain: • 2.412 to 2.462 GHz; 11 channels • 5.280 to 5.320 GHz; 3 channels • 5.500 to 5.700 GHz, 11 channels • 5.745 to 5.825 GHz; 5 channels
Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.		

<table>
<tr><td>Data Rates Supported</td><td colspan="5">802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps</td></tr>
<tr><td></td><td colspan="5">802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps</td></tr>
<tr><td></td><td colspan="5">802.11n data rates (2.4 GHz and 5 GHz):</td></tr>
<tr><td></td><td>MCS Index[1]</td><td colspan="2">GI[2] = 800ns</td><td colspan="2">GI = 400ns</td></tr>
<tr><td></td><td></td><td>20-MHz Rate (Mbps)</td><td>40-MHz Rate (Mbps)</td><td>20-MHz Rate (Mbps)</td><td>40-MHz Rate (Mbps)</td></tr>
<tr><td></td><td>0</td><td>6.5</td><td>13.5</td><td>7.2</td><td>15</td></tr>
<tr><td></td><td>1</td><td>13</td><td>27</td><td>14.4</td><td>30</td></tr>
<tr><td></td><td>2</td><td>19.5</td><td>40.5</td><td>21.7</td><td>45</td></tr>
<tr><td></td><td>3</td><td>26</td><td>54</td><td>28.9</td><td>60</td></tr>
<tr><td></td><td>4</td><td>39</td><td>81</td><td>43.3</td><td>90</td></tr>
<tr><td></td><td>5</td><td>52</td><td>108</td><td>57.8</td><td>120</td></tr>
<tr><td></td><td>6</td><td>58.5</td><td>121.5</td><td>65</td><td>135</td></tr>
<tr><td></td><td>7</td><td>65</td><td>135</td><td>72.2</td><td>150</td></tr>
<tr><td></td><td>8</td><td>13</td><td>27</td><td>14.4</td><td>30</td></tr>
<tr><td></td><td>9</td><td>26</td><td>54</td><td>28.9</td><td>60</td></tr>
<tr><td></td><td>10</td><td>39</td><td>81</td><td>43.3</td><td>90</td></tr>
<tr><td></td><td>11</td><td>52</td><td>108</td><td>57.8</td><td>120</td></tr>
<tr><td></td><td>12</td><td>78</td><td>162</td><td>86.7</td><td>180</td></tr>
<tr><td></td><td>13</td><td>104</td><td>216</td><td>115.6</td><td>240</td></tr>
<tr><td></td><td>14</td><td>117</td><td>243</td><td>130</td><td>270</td></tr>
<tr><td></td><td>15</td><td>130</td><td>270</td><td>144.4</td><td>300</td></tr>
<tr><td>Maximum Number of Nonoverlapping Channels</td><td colspan="3">2.4 GHz
· 802.11b/g: 20 MHz: 3
· 802.11n: 20 MHz: 3</td><td colspan="2">5 GHz
· 802.11a: 20 MHz: 21
· 802.11n: 20 MHz: 21, 40 MHz: 9</td></tr>
<tr><td colspan="6">Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.</td></tr>
<tr><td>Integrated Antenna</td><td colspan="5">· 2.4 GHz, gain 4.0 dBi, horizontal beamwidth 360°
· 5 GHz, gain 3.0 dBi, horizontal beamwidth 360°</td></tr>
<tr><td>Interfaces</td><td colspan="5">· 10/100/1000BASE-T autosensing (RJ-45)
· Management console port (RJ-45)</td></tr>
<tr><td>Indicators</td><td colspan="5">· Status LED indicates boot loader status, association status, operating status, boot loader warnings, boot loader errors</td></tr>
<tr><td>Dimensions (W x L x H)</td><td colspan="5">· Access point (without mounting bracket): 8.7 x 8.7 x 1.84 in. (22.1 x 22.1 x 4.7 cm)</td></tr>
<tr><td>Weight</td><td colspan="5">· 2.3 lbs (1.04 kg)</td></tr>
<tr><td>Environmental</td><td colspan="5">· Nonoperating (storage) temperature: -22 to 185°F (-30 to 85°C)
· Operating temperature: 32 to104°F (0 to 40°C)
· Operating humidity: 10 to 90% percent (noncondensing)</td></tr>
<tr><td>System Memory</td><td colspan="5">· 128 MB DRAM
· 32 MB flash</td></tr>
<tr><td>Input Power Requirements</td><td colspan="5">· AP1040: 44 to 57 VDC
· Power Supply and Power Injector: 100 to 240 VAC; 50 to 60 Hz</td></tr>
<tr><td>Powering Options</td><td colspan="5">· 802.3af Ethernet Switch
· Cisco AP1040 Power Injectors (AIR-PWRINJ4=)
· Cisco AP1040 Local Power Supply (AIR-PWR-B=)</td></tr>
<tr><td>Power Draw</td><td colspan="5">· AP1040: 12.95 W
Note: When deployed using PoE, the power drawn from the power sourcing equipment will be higher by some amount dependent on the length of the interconnecting cable. This additional power may be as high as 2.45W, bringing the total system power draw (access point + cabling) to 15.4W.</td></tr>
</table>

Receive Sensitivity	• 802.11b: -89 dBm @ 1 Mb/s; -89 dBm @ 2 Mb/s;-89 dBm @ 5.5 Mb/s;; -86 dBm @ 11 Mb/s: • 2.4-GHz; 802.11n (HT20): -86 dBm @ MCS0; -85 dBm @ MCS1; -84 dBm @ MCS2; -82 dBm @ MCS3; -78 dBm @ MCS4; -74 dBm @ MCS5; -72 dBm @ MCS6; -71 dBm @ MCS7; -85 dBm @ MCS8; -83 dBm @ MCS9; -81 dBm @ MCS10; -78 dBm @ MCS11; -75 dBm @ MCS12; -71 dBm @ MCS13; -69 dBm @ MCS14; -68 dBm @ MCS15 • 802.11g: -84 dBm @ 6 Mb/s; -84 dBm @ 9 Mb/s; -84 dBm @ 12 Mb/s; -84 dBm @ 18 Mb/s; -83 dBm @ 24 Mb/s; -81 dBm @ 36 Mb/s; -76 dBm @ 48 Mb/s; -75 dBm @ 54 Mb/s; 802.11n (HT40): -83 dBm @ MCS0; -83 dBm @ MCS1; -81 dBm @ MCS2; -78 dBm @ MCS3; -75 dBm @ MCS4; -70 dBm @ MCS5; -69 dBm @ MCS6; -68 dBm @ MCS7; -83 dBm @ MCS8; -80 dBm @ MCS9; -78 dBm @ MCS10; -74 dBm @ MCS11; -71 dBm @ MCS12; -67 dBm @ MCS13; -65 dBm @ MCS14; -64 dBm @ MCS15 • 802.11a: -88 dBm @ 6 Mb/s; -88 dBm @ 9 Mb/s; -88 dBm @ 12 Mb/s; -88 dBm @ 18 Mb/s; -86 dBm @ 24 Mb/s; -83 dBm @ 36 Mb/s; -78 dBm @ 48 Mb/s; -77 dBm @ 54 Mb/s • 5-GHz: 802.11n (HT20): -89 dBm @ MCS0; -89 dBm @ MCS1; -88 dBm @ MCS2; -85 dBm @ MCS3; -82 dBm @ MCS4; -77 dBm @ MCS5; -75 dBm @ MCS6; -74 dBm @ MCS7; -88 dBm @ MCS8; -87 dBm @ MCS9; -84 dBm @ MCS10; -81 dBm @ MCS11; -78 dBm @ MCS12; -73 dBm @ MCS13; -72 dBm @ MCS14; -70 dBm @ MCS15 • 5-GHz: 802.11n (HT40): -76 dBm @ MCS0; -76 dBm @ MCS1; -76 dBm @ MCS2; -76 dBm @ MCS3; -76 dBm @ MCS4; -73 dBm @ MCS5; -71 dBm @ MCS6; -70 dBm @ MCS7; -74 dBm @ MCS8; -74 dBm @ MCS9; -74 dBm @ MCS10; -74 dBm @ MCS11; -74 dBm @ MCS12; -69 dBm @ MCS13; -67 dBm @ MCS14; -66 dBm @ MCS15
Warranty	Limited Lifetime Hardware Warranty
Compliance	• Safety: UL 60950-1; CAN/CSA-C22.2 No. 60950-1; UL 2043; IEC 60950-1; EN 60950-1 • Radio approvals: FCC Part 15.247, 15.407; RSS-210 (Canada); EN 300.328, EN 301.893 (Europe); ARIB-STD 33 (Japan); ARIB-STD 66 (Japan); ARIB-STD T71 (Japan); AS/NZS 4268.2003 (Australia and New Zealand); EMI and susceptibility (Class B); FCC Part 15.107 and 15.109; ICES-003 (Canada); VCCI (Japan); EN 301.489-1 and -17 (Europe); EN 60601-1-2 EMC requirements for the Medical Directive 93/42/EEC • IEEE Standard: IEEE 802.11a/b/g, IEEE 802.11n, IEEE 802.11h, IEEE 802.11d • Security: 802.11i, Wi-Fi Protected Access 2 (WPA2), WPA; 802.1X; Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP) • EAP Type(s): Extensible Authentication Protocol-Transport Layer Security (EAP-TLS); EAP-Tunneled TLS (TTLS) or Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2); Protected EAP (PEAP) v0 or EAP-MSCHAPv2; Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST); PEAPv1 or EAP-Generic Token Card (GTC); EAP-Subscriber Identity Module (SIM) • Multimedia: Wi-Fi Multimedia (WMM™) • Other: FCC Bulletin OET-65C; RSS-102

1. MCS Index: The Modulation and Coding Scheme (MCS) index determines the number of spatial streams, the modulation, the coding rate, and data rate values.
2. GI: A Guard Interval (GI) between symbols helps receivers overcome the effects of multipath delays.

Selected Part Number and Ordering Information

Cisco Aironet 1040 Series Access Point	
AIR-LAP1042N-x-K9	Dual-band Controller-based 802.11a/g/n
AIR-LAP1041N-x-K9	Single-band Controller-based 802.11g/n
AIR-AP1042N-x-K9	Dual-band Standalone 802.11a/g/n
AIR-AP1041N-x-K9	Single-band Standalone 802.11g/n
AIR-LAP1042-xK9-10	Eco-pack (dual-band 802.11a/g/n) 10 quantity controller-based access points
AIR-AP1042-xK9-5	Eco-pack (dual-band 802.11a/g/n) 5 quantity standalone access points
AIR-LAP1042N-x-K9	Dual-band (2.4GHz and 5GHz) controller-based 802.11 a/g/n
AIR-LAP1041N-x-K9	Single-band (2.4GHz) controller-based 802.11 g/n
AIR-LAP1042-xK9-10	Eco-pack (dual-band 802.11 a/g/n) controller-based, 10 APs
Standalone-Based	
AIR-AP1042N-x-K9	Dual-band (2.4GHz and 5GHz) standalone 802.11a/g/n
AIR-AP1041N-x-K9	Single-band (2.4GHz) standalone 802.11g/n
AIR-AP1042-xK9-5	Eco-pack (dual-band 802.11a/g/n) standalone, 5 APs

Regulatory domains: (x = regulatory domain)
Customers are responsible for verifying approval for use in their individual countries. To verify approval and to identify the regulatory domain that corresponds to a particular country, visit: http://www.cisco.com/go/aironet/compliance.
Not all regulatory domains have been approved. As they are approved, the part numbers will be available on the Global Price List.

For dual band, x = regulatory domain, A, C, E, I, K, N, P, S, T
For single band, x = regulatory domain, A, E, P

Cisco recommends the following services for the Cisco Aironet 1040 Series Access Points implementation:

- Cisco Wireless LAN 802.11n Readiness Assessment Service:
  Prevent common challenges and reduce deployment costs by determining the readiness of your wired and wireless infrastructure.
- Cisco Wireless LAN 802.11n Migration Service:
  Simplify the migration to high-performance, next-generation 802.11n.
- Cisco Wireless LAN Optimization Service:
  Evolve your 802.11n network to meet ever-changing network demands through planning and assessments, design, performance tuning, and ongoing support for system changes.

For more information about Cisco 802.11n planning and deployment services, visit: http://www.cisco.com/go/wirelesslanservices.

For More Information

http://www.cisco.com/en/US/products/ps11203/index.html

Cisco Aironet 600 Series OfficeExtend



The Cisco Aironet 600 Series OfficeExtend Access Point provides secure enterprise wireless coverage to the home. This dual-band, 802.11n access point extends the corporate network to the home teleworker and mobile contractors. The access point connects to the home broadband Internet access and establishes a secure tunnel to the corporate network so that remote employees can access data, voice, video, and cloud services for a mobility experience consistent with that at the corporate office. The dual-band, simultaneous support for 2.4- and 5-GHz radio frequencies helps assure that corporate devices are not affected by congestion caused by common household devices that use the 2.4-GHz band. The Cisco Aironet 600 Series OfficeExtend Access Point is designed for the teleworker—it supports both secure corporate data access and maintenance of connectivity for personal home devices with segmented home-traffic support.

Key Features and Benefits

Business Benefits

- Extends Borderless Network services and policies to the home-office teleworker
- Protects the corporate environment with industry-standard control and wireless access point (Control and Provisioning of Wireless Access Points [CAPWAP]) support
- Simultaneously supports corporate and personal network activity with traffic segmentation
- Increases productivity and reduces cellular cost by extending voice to the home wirelessly or through a wired Ethernet port.
- Comes with a limited lifetime warranty that includes 10-day advance hardware replacement

Benefits for the Teleworker

- Zero-touch deployment at the home office speeds setup time and gets you working right away.
- Simultaneous dual-band support helps avoid congestion caused by home devices.
- Backward capability supports 802.11a/b/g devices as well as newly deployed 802.11n devices.
- The design is sleek for convenient desktop placement.

Specifications

Feature	Cisco Aironet 600 Series OfficeExtend	
Software	Cisco Unified Wireless Network Software Release 7.0 MR1 or later	
Controllers Supported	Cisco 2500, 5500 Series Wireless Controllers and Cisco Wireless Services Module 2 (WiSM2)	
802.11n	· Multiple-input multiple-output (MIMO) with two spatial streams · Maximal ratio combining (MRC) · 20- and 40-MHz channels · PHY data rates up to 300 Mbps · Packet aggregation: A-MPDU (Tx/Rx) · Cyclic shift diversity (CSD) support	
Maximum Number of Nonoverlapping Channels	2.4 GHz · 802.11b/g: 20 MHz: 3 · 802.11n: 20 MHz: 3	5 GHz · 802.11a: 20 MHz: 9 · 802.11n: 20 MHz: 9, 40 MHz: 4
Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.		
Receive Sensitivity	2.4 GHz: 802.11b: -87dBm Typical @ 11Mbps; 802.11g: -77dBm Typical @ 54Mbps; 802.11n 20MHz: -71dBm Typical @ MCS15; 802.11n 40MHz: -68dBm Typical @ MCS15 5 GHz: 802.11a: -74dBm Typical @ 54Mbps; 802.11n 20MHz: -68dBm Typical @ MCS15; 802.11n 40MHz: -65dBm Typical @ MCS15	

Maximum Transmit Power	2.4 GHz · 802.11b (CCK): 20 dBm with one antenna · 802.11g : 20 dBm with 2 antennas · 802.11n (HT20): 20 dBm with 2 antennas · 802.11n (HT40): 20 dBm with 2 antennas	5 GHz · 802.11a: 20 dBm with 2 antennas · 802.11n (HT20): 20 dBm with 2 antennas · 802.11n (HT40): 20 dBm with 2 antennas

Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.

Frequency Band and 20-MHz Operating Channels	A Regulator Domain: · 2.412 to 2.462 GHz; 11 channels · 5.180 to 5.320 GHz; 4 channels · 5.745 to 5.825 GHz; 5 channels C Regulatory Domain: · 2.412 to 2.472 GHz; 13 channels · 5.745 to 5.825 GHz; 5 channels E Regulatory Domain: · 2.412 to 2.472 GHz; 13 channels · 5.180 to 5.320 GHz; 8 channels I Regulatory Domain: · 2.412 to 2.472 GHz, 13 channels · 5.180 to 5.320 GHz; 4 channels K Regulatory Domain: · 2.412 to 2.472 GHz; 13 channels · 5.180 to 5.320 GHz; 4 channels · 5.745 to 5.805 GHz; 4 channels	N Regulatory Domain: · 2.412 to 2.462 GHz; 11 channels · 5.180 to 5.320 GHz; 4 channels · 5.745 to 5.825 GHz; 5 channels P Regulatory Domain: · 2.412 to 2.472 GHz; 13 channels · 5.180 to 5.320 GHz; 4 channels R Regulatory Domain: · 2.412 to 2.472 GHz; 13 channels · 5.180 to 5.320 GHz; 4 channels · 5.745 to 5.825 GHz; 4 channels S Regulatory Domain: · 2.412 to 2.472 GHz; 13 channels · 5.180 to 5.320 GHz; 4 channels · 5.745 to 5.825 GHz; 5 channels T Regulatory Domain: · 2.412 to 2.462 GHz; 11 channels · 5.745 to 5.825 GHz; 5 channels

Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.

Data Rates Supported

802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps

802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps

802.11n data rates (2.4 GHz and 5 GHz):

MCS Index[1]	**GI[2] = 800ns**		**GI = 400ns**	
	20-MHz Rate (Mbps)	**40-MHz Rate (Mbps)**	**20-MHz Rate (Mbps)**	**40-MHz Rate (Mbps)**
0	6.5	13.5	7.2	15
1	13	27	14.4	30
2	19.5	40.5	21.7	45
3	26	54	28.9	60
4	39	81	43.3	90
5	52	108	57.8	120
6	58.5	121.5	65	135
7	65	135	72.2	150
8	13	27	14.4	30
9	26	54	28.9	60
10	39	81	43.3	90
11	52	108	57.8	120
12	78	162	86.7	180
13	104	216	115.6	240
14	117	243	130	270
15	130	270	144.4	300

Integrated Antenna	· 2.4 GHz, gain 3.5 dBi, horizontal beamwidth 360° · 5 GHz, gain 4.0 dBi, horizontal beamwidth 360°
Interfaces	· 4x 10/100/1000BASE-T autosensing (RJ-45) · 1x 10/100/1000BASE-T WAN port (RJ-45) · USB: Not available (future release)
Indicators	· Status LED indicates boot loader status, association status, operating status, boot loader warnings, boot loader errors [USB (future use)]
Dimensions (W x L x H)	· Access point (without cradle): 7.75 x 7 x 1.6 in. (195.3 x 176.3 x 39.65 mm) · Access point (with cradle): 8.1 x 7.0 x 2.7 in. (206.15 x 176.3 x 67 mm)
Weight	· 0.99 lbs (0.452 kg)—without cradle · 1.44 lbs (0.653 kg)—with cradle

Environmental	· Nonoperating (storage) temperature: -13 to 140°F (-25 to 60°C) · Operating temperature: 32° to104°F (0 to 40°C) · Operating humidity: 10 to 80% percent (noncondensing)
System Memory	· 64 MB DRAM · 16 MB flash
Powering Options	Cisco AP600 Local Power Supply: 100 to 240 VAC; 50 to 60 Hz (AIR-PWR-ADTR-cc, where cc is country code as follows: AP=Asia Pacific; AR=Argentina/Uruguay; AU=Australia; BR=Brazil; CE=Central Europe; CH=China; DM=Denmark; IS=Israel; IT=Italy; JP=Japan; NA=North America; SA=South Africa; SW=Switzerland; UK=United Kingdom)
Power Draw	Consumption: 12W normal, 15W maximum
Warranty	Limited Lifetime Hardware Warranty
Compliance and Safety Standards	· Safety: UL 60950-1, 2nd Edition; CAN/CSA-C22.2 No. 60950-1, 2nd Edition; IEC 60950-1, 2nd Edition; EN 60950-1, 2nd Edition · Radio Approvals: FCC Part 15.247, 15.407; RSS-210 (Canada); EN 300 328, EN 301 893 (Europe); ARIB-STD 33 (Japan); ARIB-STD 66 (Japan); ARIB-STD T71 (Japan); AS/NZS 4268.2003 (Australia and New Zealand); EMI and susceptibility (Class B); FCC Part 15.107 and 15.109; ICES-003 (Canada); VCCI (Japan); EN 301 489-1 and -17 (Europe) · IEEE Standard: IEEE 802.11a/b/g, IEEE 802.11n, IEEE 802.11h, IEEE 802.11d; Security:; 802.11i, Wi-Fi Protected Access 2 (WPA2), WPA; 802.1X; Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP) · EAP Type(s): Extensible Authentication Protocol-Transport Layer Security (EAP-TLS); EAP-Tunneled TLS (TTLS) or Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2); Protected EAP (PEAP) v0 or EAP-MSCHAPv2; Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST); PEAPv1 or EAP-Generic Token Card (GTC); EAP-Subscriber Identity Module (SIM) · Multimedia: Wi-Fi Multimedia (WMM™) · Other: FCC Bulletin OET-65C; RSS-102

1. MCS Index: The Modulation and Coding Scheme (MCS) index determines the number of spatial streams, the modulation, the coding rate, and data rate values.
2. GI: A Guard Interval (GI) between symbols helps receivers overcome the effects of multipath delays.

Selected Part Number and Ordering Information

AIR-OEAP602I-x-K9	Dual-band Controller-based 802.11a/g/n
AIR-OEAP602I-xK910	Eco-pack (dual-band 802.11a/g/n) 10 quantity controller-based access points

Regulatory domains: (x = regulatory domain)
Customers are responsible for verifying approval for use in their individual countries. To verify approval and to identify the regulatory domain that corresponds to a particular country, visit: http://www.cisco.com/go/aironet/compliance.
Not all regulatory domains have been approved. As they are approved, the part numbers will be available on the Global Price List.

For More Information

http://www.cisco.com/en/US/products/ps11579/index.html

Cisco Aironet 1240AG Series Access Points

Cisco Aironet 1240AG Series IEEE 802.11a/b/g Access Points deliver the versatility, high capacity, security, and enterprise-class features demanded by wireless LAN (WLAN) customers. They are designed specifically for challenging RF environments such as factories, warehouses, and large retail establishments that require the antenna versatility associated with connectorized antennas, a rugged metal enclosure, and a broad operating temperature range. The Cisco Aironet 1240 Series provides local as well as inline power, including support for IEEE 802.3af Power over Ethernet (PoE). These access points are ideal for factories, warehouses and retailers.



Ideal for Companies That Need These Features

Cisco Aironet 1240AG Series Access Point	· Rugged enterprise-class access point designed for indoor industrial deployments and installations that require antenna versatility · Optional software allows the access point to be configured to support enterprise wireless mesh

Key Features and Benefits

- Integrated 802.11a/b/g radios.
- Available in an 802.11g-only version for countries that do not allow 5 GHz.
- Connectors offer a variety of both 2.4- and 5-GHz antennas.
- Orderable as autonomous or lightweight access points.
- Can be configured to function as an access point or bridge, enabling a broad array of applications.
- Four power options offer deployment flexibility and cost savings: 802.3af, Cisco Power over Ethernet (PoE), Cisco Power Injector, or a local power supply.

Specifications

Feature	Cisco Aironet 1240AG Series Access Points
Part Number	· AIR-AP1242G-x-K9 · AIR-LAP1242G-x-K9 · Regulatory domains: (x = regulatory domain) · A = FCC · E = ETSI · P = Japan2 · Customers are responsible for verifying approval for use in their individual countries. To verify approval and to identify the regulatory domain that corresponds to a particular country, please visit: http://www.cisco.com/go/aironet/compliance · Not all regulatory domains have been approved. As they are approved, the part numbers will be available on the Global Price List.
Data rates supported	802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Network standard	IEEE 802.11b and 802.11g
Uplink	Autosensing 802.3 10 and 100BASE-T Ethernet
Frequency band and operating channels	Americas (FCC) · 2.412 to 2.462 GHz; 11 channels ETSI · 2.412 to 2.472 GHz; 13 channels Japan2 · 2.412 to 2.472 GHz; 13 channels Orthogonal Frequency Division Multiplexing (OFDM) · 2.412 to 2.484 GHz; 14 channels CCK
Nonoverlapping channels	802.11b/g: 3 channels
Receive sensitivity (typical) Range (typical)	802.11g · 1 Mbps: -96 dBm · 2 Mbps: -93 dBm · 5.5 Mbps: -91 dBm · 6 Mbps: -91 dBm · 9 Mbps: -85 dBm · 11 Mbps: -88 dBm · 12 Mbps: -83 dBm · 18 Mbps: -81 dBm · 24 Mbps: -78 dBm · 36 Mbps: -74 dBm · 48 Mbps: -73 dBm · 54 Mbps: -73 dBm
Available transmit power settings (Maximum power setting varies by channel and according to individual country regulations.	802.11g CCK: · 20 dBm (100 mW) · 17 dBm (50 mW) · 14 dBm (25 mW) · 11 dBm (12 mW) · 8 dBm (6 mW) · 5 dBm (3 mW) · 2 dBm (2 mW) OFDM · 17 dBm (50 mW) · 14 dBm (25 mW) · 11 dBm (12 mW) · 8 dBm (6 mW) · 5 dBm (3 mW) · 2 dBm (2 mW) · -1 dBm (1 mW)
Range (typical)	**Indoor (distance across open office environment):** 802.11g: · -105 ft (32m) at 54 Mbps · 180 ft (55m) at 48 Mbps · 260 ft (79m) at 36 Mbps · 285 ft (87m) at 24 Mbps · 330 ft (100m) at 18 Mbps · 355 ft (108m) at 12 Mbps · 365 ft (111m) at 11 Mbps · 380 ft (116m) at 9 Mbps · 410 ft (125m) at 6 Mbps · 425 ft (130m) at 5.5 Mbps · 445 ft (136m) at 2 Mbps · 460 ft (140m) at 1 Mbps **Outdoor:** 802.11g: · 120 ft (37m) at 54 Mbps · 350 ft (107m) at 48 Mbps · 550 ft (168m) at 36 Mbps · 650 ft (198m) at 24 Mbps · 750 ft (229m) at 18 Mbps · 800 ft (244m) at 12 Mbps · 820 ft (250m) at 11 Mbps · 875 ft (267m) at 9 Mbps · 900 ft (274m) at 6 Mbps · 910 ft (277m) at 5.5 Mbps · 940 ft (287m) at 2 Mbps · 950 ft (290m) at 1 Mbps Measured with 2.2-dBi dipole antenna for 2.4 GHz

Compliance	· Safety: UL 60950-1; CAN/CSA-C22.2 No. 60950-1; UL 2043; IEC 60950-1; EN 60950-1; NIST FIPS 140-2 level 2 validation · Radio Approvals: FCC Part 15.247; RSS-210 (Canada); EN 300.328 (Europe); ARIB-STD 33 (Japan); ARIB-STD 66 (Japan); AS/NZS 4268.2003 (Australia and New Zealand); EMI and susceptibility (Class B); FCC Part 15.107 and 15.109; ICES-003 (Canada); VCCI (Japan); EN 301.489-1 and -17 (Europe); EN 60601-1-2 EMC requirements for the Medical Directive 93/42/EEC · Security: 802.11i, WPA2, WPA; 802.1X; AES, TKIP · Other: IEEE 802.11g and IEEE 802.11a; FCC Bulletin OET-65C; RSS-102
Antenna connectors	· 2.4 GHz · Dual RP-TNC connectors
Status LEDs	· Status LED indicates operating state, association status, error or warning condition, boot sequence, and maintenance status. · Ethernet LED indicates status of activity over the Ethernet. · Radio LED indicates status of activity over the radio.
Dimensions (HxWxD)	1.1 x 6.6 x 8.5 in. (2.79 x 16.76 x 21.59 cm)
Weight	2.0 lb (0.9 kg)
Environmental	· Nonoperating (storage) temperature: -40 to 185°F (-40 to 85°C) · Operating temperature: -4 to 131°F (-20 to 55°C) · Operating humidity: 10 to 90 percent (noncondensing)
System memory	· 32 MB RAM · 16 MB flash memory
Input power requirements	· 100 to 240 VAC; 50 to 60 Hz (power supply) · 36 to 57 VDC (device)
Powering options	· Local power · 802.3 AF switches · Cisco higher-power switches capable of supporting 13W or greater · Cisco Aironet power injectors (PWRINJ3 and PWRINJ-FIB) · Third-party PoE devices (must meet input power and power draw requirements)
Power draw	· 12.95W maximum Note: 12.95W is the maximum power required at the powered device. If the access point is being used in a PoE configuration, the power drawn from the power sourcing equipment will be higher by some amount dependent on the length of the interconnecting cable. This additional power can be as high as 2.45W, bringing the total system power draw (access point and cabling) to 15.4W.
Warranty	1 Year
Wi-Fi certification	
System Requirements	
Browser	Using the Web browser management GUI requires a computer running Internet Explorer Version 6.0 or later, or Netscape Navigator Version 7.0 or later.
PoE	Power sourcing equipment is compliant with Cisco Inline Power or IEEE 802.3af, and provides at least 12.94W at 48 VDC.

Selected Part Number and Ordering Information

Part Number	Description
AIR-AP1242G-A-K9	802.11g non-modular Cisco IOS access point; RP-TNC; FCC configuration
AIR-AP1242G-E-K9	802.11g non-modular Cisco IOS access point; RP-TNC; ETSI configuration
AIR-AP1242G-P-K9	802.11g non-modular Cisco IOS access point; RP-TNC; Japan2 configuration
AIR-LAP1242G-A-K9	802.11g non-modular LWAPP access point; RP-TNC; FCC configuration
AIR-LAP1242G-E-K9	802.11g non-modular LWAPP access point; RP-TNC; ETSI configuration
AIR-LAP1242G-P-K9	802.11g non-modular LWAPP access point; RP-TNC; Japan2 configuration

For More Information

http://www.cisco.com/en/US/products/ps6521/index.html

Cisco Aironet 1140 Series Access Points



The Cisco Aironet 1140 Series Access Point is a business-ready, 802.11n access point designed for simple deployment and energy efficiency. The high-performance platform, which offers at least six times the throughput of existing 802.11a/g networks, prepares the business for the next wave of mobile devices and applications. Building on the Cisco Aironet heritage of RF excellence, this access point combines the industry's most widely deployed 802.11n technology with a sleek industrial design that blends transparently into any enterprise environment.

Designed for sustainability, the Cisco Aironet 1140 Series delivers high performance from standard 802.3af PoE while decreasing waste with multiunit eco-packs and Energy Star-certified power supplies. As part of the Cisco Unified Wireless Network, these access points provide the industry's lowest total cost of ownership and investment protection by integrating transparently with the existing network.

Ideal for Companies That Need These Features

Cisco Aironet 1140 Series
- Simple deployment and energy efficiency
- 802.11n performance with standard 802.3af PoE
- Reliable and predictable WLAN coverage

Key Features and Benefits

- Six times the throughput of existing 802.11a/g networks
- A sleek industrial design that blends into any enterprise environment
- Cisco M-Drive technology for optimized client performance
- Environmentally friendly multiunit eco packs and Energy Star-certified power supplies
- Optional WirelessPLUS software allows the access point to be configured to support the OfficeExtend solution for wireless teleworking.
- Optional software allows the access point to be configured to support enterprise wireless mesh.

Specifications

Feature	Cisco Aironet 1140 Series Access Point	
Software	Cisco Unified Wireless Network Software Release 7.0 or later.	
Draft 802.11n Version 2.0 (and Related) Capabilities	2x3 multiple-input multiple-output (MIMO) with two spatial streams; Maximal ratio combining (MRC); PHY data rates up to 300 Mbps; Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx); Cyclic shift diversity (CSD) support	
Maximum Number of Non-Overlapping Channels	2.4 GHz 802.11b/g: 20 MHz: 3 802.11n: 20 MHz: 3 40 MHz: 1	5 GHz 802.11a: 20 MHz: 21 802.11n: 20 MHz: 21 40 MHz: 9
Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.		
Integrated Antenna	2.4 GHz, Gain 4.0 dBi, horizontal beamwidth 360°; 5 GHz, Gain 3 dBi, horizontal beamwidth 360°	
Interfaces	10/100/1000BASE-T autosensing (RJ-45); Management console port (RJ45)	
Indicators	Status LED indicates boot loader status, association status, operating status, boot loader warnings, boot loader errors.	
Frequency Band and 20-MHz Operating Channels	• A (Americas (FCC)):2.412 to 2.462 GHz; 11 channels; 5.180 to 5.320 GHz; 8 channels; 5.500 to 5.700 GHz, 8 channels (excludes 5.600 to 5.640 GHz); 5.745 to 5.825 GHz; 5 channels • C (China): 2.412 to 2.472 GHz; 13 channels; 5.745 to 5.825 GHz; 5 channels • E (ETSI): 2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels; 5.500 to 5.700 GHz, 11 channels • I (Israel): 2.412 to 2.472 GHz, 13 channels; 5.180 to 5.320 GHz; 8 channels • K (Korea): 2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels; 5.500 to 5.620 GHz, 7 channels; 5.745 to 5.805 GHz, 4 channels	• N (Non-FCC): 2.412 to 2.462 GHz; 11 channels; 5.180 to 5.320 GHz; 8 channels; 5.745 to 5.825 GHz; 5 channels • P (Japan2): 2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels • S (Singapore): 2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels; 5.745 to 5.825 GHz; 5 channels • T (Taiwan): 2.412 to 2.462 GHz; 11 channels; 5.280 to 5.320 GHz; 3 channels; 5.500 to 5.700 GHz, 11 channels; 5.745 to 5.825 GHz; 5 channels

Maximum Transmit Power	2.4GHz · 802.11b:20 dBm with 1 antenna · 802.11g: 17 dBm with 1 antenna · 802.11n (HT20): 20 dBm with 2 antennas · 802.11n (HT40): 20 dBm with 2 antennas	5GHz · 802.11a: 17 dBm with 1 antenna · 802.11n non-HT duplicate (802.11a duplicate) mode: 17 dBm with 1 antenna · 802.11n (HT20): 20 dBm with 2 antennas · 802.11n (HT40): 20 dBm with 2 antennas
Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.		
Available Transmit Power Settings	2.4GHz: 20 dBm (100 mW); 17 dBm (50 mW); 14 dBm (25 mW); 11 dBm (12.5 mW); 8 dBm (6.25 mW); 5 dBm (3.13 mW); 2 dBm (1.56 mW); –1 dBm (0.78 mW)	5GHz: 20 dBm (100 mW); 17 dBm (50 mW); 14 dBm (25 mW); 11 dBm (12.5 mW); 8 dBm (6.25 mW); 5 dBm (3.13 mW); 2 dBm (1.56 mW); –1 dBm (0.78 mW)
Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.		
Dimensions (W x L x H)	Access point (without mounting bracket): 8.7 x 8.7 x 1.84 in. (22.1 x 22.1 x 4.7 cm)	
Weight	2.3 lbs (1.04 kg)	
Environmental	Nonoperating (storage) temperature: –22 to 185°F (–30 to 85°C); Operating temperature: 32 to104°F (0 to 40°C); Operating humidity: 10 to 90% percent (non-condensing)	
System Memory	128 MB DRAM; 32 MB flash	
Input Power Requirements	AP1140: 36 to 57 VDC; Power Supply and Power Injector: 100 to 240 VAC; 50 to 60 Hz	
Powering Options	802.3af Ethernet Switch; Cisco AP1140 Power Injectors (AIR-PWRINJ4=); Cisco AP1140 Local Power Supply (AIR-PWR-A=)	
Power Draw	AP1140: 12.95 W Note: When deployed using PoE, the power drawn from the power sourcing equipment will be higher by some amount dependent on the length of the interconnecting cable. This additional power may be as high as 2.45W, bringing the total system power draw (access point + cabling) to 15.4W.	
Warranty	Limited lifetime hardware warranty	
Compliance	· Safety: UL 60950-1; CAN/CSA-C22.2 No. 60950-1; UL 2043; IEC 60950-1; EN 60950-1 · Radio approvals: FCC Part 15.247, 15.407; RSS-210 (Canada); EN 300.328, EN 301.893 (Europe); ARIB-STD 33 (Japan); ARIB-STD 66 (Japan); ARIB-STD T71 (Japan); AS/NZS 4268.2003 (Australia and New Zealand); EMI and susceptibility (Class B); FCC Part 15.107 and 15.109; ICES-003 (Canada); VCCI (Japan); EN 301.489-1 and -17 (Europe); EN 60601-1-2 EMC requirements for the Medical Directive 93/42/EEC · IEEE Standard: IEEE 802.11a/b/g, IEEE 802.11n draft 2.0, IEEE 802.11h, IEEE 802.11d · Security: 802.11i, Wi-Fi Protected Access 2 (WPA2), WPA; 802.1X; Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TKIP) · EAP Type(s): Extensible Authentication Protocol-Transport Layer Security (EAP-TLS); EAP-Tunneled TLS (TTLS) or Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2); Protected EAP (PEAP) v0 or EAP-MSCHAPv2; PEAPv1 or EAP-Generic Token Card (GTC); EAP-Subscriber Identity Module (SIM) · Multimedia: Wi-Fi Multimedia (WMM™) · Other: FCC Bulletin OET-65C; RSS-102	
Receive Sensitivity	· 802.11b: -91 dBm @ 1 Mb/s, 2 Mb/s, 5.5 Mb/s; -88 dBm @ 11 Mb/s 802.11g -86 dBm @ 6 Mb/s, 9 Mb/s, 12 Mb/s, 18 Mb/s; -85 dBm @ 24 Mb/s; -83 dBm @ 36 Mb/s; -78 dBm @ 48 Mb/s; -77 dBm @ 54 Mb/s · 802.11a: -90 dBm @ 6 Mb/s, 9 Mb/s, 12 Mb/s, 18 Mb/s; -88 dBm @ 24 Mb/s; -85 dBm @ 36 Mb/s; -80 dBm @ 48 Mb/s; -79 dBm @ 54 Mb/s · 2.4-GHz: 802.11n (HT20):-88 dBm @ MCS0; -87 dBm @ MCS1; -86 dBm @ MCS2; -83 dBm @ MCS3; -80 dBm @ MCS4; -76 dBm @ MCS5; -74 dBm @ MCS6; -73 dBm @ MCS7; -87 dBm @ MCS8; -85 dBm @ MCS9; -83 dBm @ MCS10; -80 dBm @ MCS11; -77 dBm @ MCS12; -73 dBm @ MCS13; -71 dBm @ MCS14; -70 dBm @ MCS15 · 2.4-GHz: 802.11n (HT40): -85 dBm @ MCS0; -85 dBm @ MCS1; -83 dBm @ MCS2; -80 dBm @ MCS3; -77 dBm @ MCS4; -72 dBm @ MCS5; -71 dBm @ MCS6; -70 dBm @ MCS7; -85 dBm @ MCS8; -82 dBm @ MCS9; -80 dBm @ MCS10; -76 dBm @ MCS11; -73 dBm @ MCS12; -69 dBm @ MCS13; -67 dBm @ MCS14; -66 dBm @ MCS15 · 5-GHz: 802.11n (HT20): -91 dBm @ MCS0; -91 dBm @ MCS1; -90 dBm @ MCS2; -87 dBm @ MCS3; -84 dBm @ MCS4; -79 dBm @ MCS5; -77 dBm @ MCS6; -76 dBm @ MCS7; -90 dBm @ MCS8; -89 dBm @ MCS9; -86 dBm @ MCS10; -83 dBm @ MCS11; -80 dBm @ MCS12; -75 dBm @ MCS13; -74 dBm @ MCS14; -72 dBm @ MCS15 · 5-GHz: 802.11n (HT40; -78 dBm @ MCS0; -78 dBm @ MCS1; -78 dBm @ MCS2; -78 dBm @ MCS3; -78 dBm @ MCS4; -75 dBm @ MCS5; -73 dBm @ MCS6; -72 dBm @ MCS7; -76 dBm @ MCS8; -76 dBm @ MCS9; -76 dBm @ MCS10; -76 dBm @ MCS11; -76 dBm @ MCS12; -71 dBm @ MCS13; -69 dBm @ MCS14; -68 dBm @ MCS15	

<table>
<tr><td>Data Rates Supported</td><td colspan="5">802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps</td></tr>
<tr><td></td><td colspan="5">802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps</td></tr>
<tr><td></td><td colspan="5">802.11n data rates (2.4 GHz and 5 GHz):</td></tr>
<tr><td></td><td>MCS Index[1]</td><td colspan="2">GI[2] = 800ns</td><td colspan="2">GI = 400ns</td></tr>
<tr><td></td><td></td><td>20-MHz Rate (Mbps)</td><td>40-MHz Rate (Mbps)</td><td>20-MHz Rate (Mbps)</td><td>40-MHz Rate (Mbps)</td></tr>
<tr><td></td><td>0</td><td>6.5</td><td>13.5</td><td>7.2</td><td>15</td></tr>
<tr><td></td><td>1</td><td>13</td><td>27</td><td>14.4</td><td>30</td></tr>
<tr><td></td><td>2</td><td>19.5</td><td>40.5</td><td>21.7</td><td>45</td></tr>
<tr><td></td><td>3</td><td>26</td><td>54</td><td>28.9</td><td>60</td></tr>
<tr><td></td><td>4</td><td>39</td><td>81</td><td>43.3</td><td>90</td></tr>
<tr><td></td><td>5</td><td>52</td><td>108</td><td>57.8</td><td>120</td></tr>
<tr><td></td><td>6</td><td>58.5</td><td>121.5</td><td>65</td><td>135</td></tr>
<tr><td></td><td>7</td><td>65</td><td>135</td><td>72.2</td><td>150</td></tr>
<tr><td></td><td>8</td><td>13</td><td>27</td><td>14.4</td><td>30</td></tr>
<tr><td></td><td>9</td><td>26</td><td>54</td><td>28.9</td><td>60</td></tr>
<tr><td></td><td>10</td><td>39</td><td>81</td><td>43.3</td><td>90</td></tr>
<tr><td></td><td>11</td><td>52</td><td>108</td><td>57.8</td><td>120</td></tr>
<tr><td></td><td>12</td><td>78</td><td>162</td><td>86.7</td><td>180</td></tr>
<tr><td></td><td>13</td><td>104</td><td>216</td><td>115.6</td><td>240</td></tr>
<tr><td></td><td>14</td><td>117</td><td>243</td><td>130</td><td>270</td></tr>
<tr><td></td><td>15</td><td>130</td><td>270</td><td>144.4</td><td>300</td></tr>
<tr><td colspan="6">Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.</td></tr>
</table>

1. MCS Index: The Modulation and Coding Scheme (MCS) index determines the number of spatial streams, the modulation, the coding rate, and data rate values.
2. GI: A Guard Interval (GI) between symbols helps receivers overcome the effects of multipath delays.

Selected Part Number and Ordering Information

Cisco Aironet 1140 Series Access Point	
AIR-LAP1142N-A-K9	Cisco Aironet 1140 Series Access Points, 802.11a/g/n Fixed Unified AP; Int Ant; FCC Cfg (Dual Band)
AIR-LAP1141N-A-K9	Cisco Aironet 1140 Series Access Points, 802.11g/n Fixed Unified AP; Int Ant; FCC Cfg (Single Band)
Cisco Aironet 1140 Series Eco-Pack SKUs and Regulatory Domains	
AIR-LAP1142-AK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas FCC Cnfg, 10 APs
AIR-LAP1142-EK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas ETSI Cnfg, 10 APs
AIR-LAP1142-PK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas JPN2 Cnfg, 10 APs
AIR-LAP1142-SK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas SG Cnfg, 10 APs
AIR-LAP1142-NK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas AU Cnfg, 10 APs
AIR-LAP1142-IK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas EU2 Cnfg, 10 APs
AIR-LAP1142-TK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas Taiwan Cnfg, 10 Aps

AIR-LAP1142-CK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas China Cnfg, 10 APs
AIR-LAP1142-KK9-PR	Cisco Aironet 1140 Series Access Points, 802.11a/g/n LWAPP AP Integrated Antennas Korea Cnfg, 10 APs

For More Information

http://www.cisco.com/en/US/products/ps10092/index.html

Cisco Aironet 1130AG Series Access Points



The Cisco Aironet 1130AG Access Points package high capacity, high security, and enterprise-class features to deliver wireless LAN (WLAN) access for a low total cost of ownership. Designed for WLAN coverage in offices and similar RF environments, these unobtrusive access points feature integrated antennas and dual IEEE 802.11a/g radios for robust and predictable coverage, delivering a combined capacity of 108 Mbps. These competitively priced access points are ready to install and easy to manage, reducing the cost of deployment and ongoing maintenance. Cisco Aironet 1130 Access Points are available in a lightweight version, an autonomous version that can be field-upgraded to lightweight operation, and a single-band 802.11g version for use in regulatory domains that do not allow 802.11a 5-GHz operation.

Ideal for Companies That Need These Features

Cisco Aironet 1130AG Series

- High-capacity and high-security WLAN in the enterprise office
- Low-profile access point that blends into the environment and is easy to deploy
- Optional WirelessPLUS software allows the access point to be configured to support the OfficeExtend solution for wireless teleworking.
- Optional software allows the access point to be configured to support enterprise wireless mesh

Key Features and Benefits

- 802.11a/g radios with simultaneous dual-band support provide 108-Mbps capacity.
- Available in an 802.11g-only version for countries that do not allow 5 GHz.
- Optional WirelessPLUS software allows the access point to be configured to support the OfficeExtend solution for wireless teleworking.
- Optional software allows the access point to be configured to support enterprise wireless mesh.

Specifications

Feature	Cisco Aironet 1130AG Series Access Point
Data rates supported	802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps; 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Software	• Cisco IOS Software Release 12.4(10b)JA or later (Autonomous Mode) • Cisco IOS Software Release 12.4(10b)JX or later (Unified Mode) • Cisco Unified Wireless Network Software Release 7.0 or later
Network standard	IEEE 802.11a, 802.11b and 802.11g
Uplink	Autosensing 802.3 10/100BaseT Ethernet
Non-overlapping channels	802.11a—Up to 19; 802.11b/g—3
SNMP compliance	MIB I and MIB II
Antennas	2.4 GHz: Gain 3.0 dBi, Horizontal Beamwidth 360°; 5 GHz: Gain 4.5 dBi, Horizontal Beamwidth 360°
Frequency band and Operating Channels	• Americas (FCC): 2.412 to 2.462 GHz; 11 channels, 5.15 to 5.35, 5.725 to 5.825 GHz; 12 channels • China: 2.412 to 2.472 GHz; 13 channels, 5.725 to 5.825 GHz; 4 channels • ETSI: 2.412 to 2.472 GHz; 13 channels, 5.15 to 5.725 GHz; 19 channels • Israel: 2.432 to 2.472 GHz; 9 channels, 5.15 to 5.35 GHz, 8 channels • Japan (TELEC): 2.412 to 2.472 GHz; 13 channels Orthogonal Frequency Division Multiplexing (OFDM), 2.412 to 2.484 GHz; 14 channels Complementary Code Keying (CCK), 5.15 to 5.25 GHz; 4 channels • Japan-P (TELEC 2 (Japan2) Config): 2.412 to 2.472 GHz; 13 channels Orthogonal Frequency Division Multiplexing (OFDM), 5.15 to 5.35 GHz, 8 channels • Korea: 2.412 to 2.472 GHz; 13 channels, 5.15 to 5.35, 5.46 to 5.72, 5.725 to 5.825, 19 channels • North America: 2.412 to 2.462 GHz; 11 channels, 5.15 to 5.35, 5.725 to 5.825 GHz; 12 channels • Singapore: 2.412 to 2.472 GHz, 13 channels, 5.15 to 5.35 GHz, 8 channels and 5.725 to 5.825 GHz, 12 channels • Taiwan: 2.412 to 2.462 GHz, 11 channels, 5.25-5.35 GHz, 5.725 to 5.825, 7 channels

Receive sensitivity	802.11a— 6 Mbps: -87 dBm, 9 Mbps: -86 dBm, 12 Mbps: -85 dBm, 18 Mbps: -84 dBm, 24 Mbps: -80 dBm, 36 Mbps: -78 dBm, 48 Mbps: -73 dBm, 54 Mbps: -71 dBm; 802.11g—1 Mbps: -93 dBm, 2 Mbps: -91 dBm, 5.5 Mbps: -88 dBm, 6 Mbps: -86 dBm, 9 Mbps: -85 dBm, 11 Mbps: -85 dBm, 12 Mbps: -84 dBm, 18 Mbps: -83 dBm, 24 Mbps: -79 dBm, 36 Mbps: -77 dBm, 48 Mbps: -72 dBm, 54 Mbps: -70 dBm
Available transmit power settings	• 802.11a: OFDM: 50 mW (17 dBm), 32 mW (15 dBm), 25 mW (14 dBm), 10 mW (11 dBm), 5 mW (8 dBm), 3 mW (5 dBm), 2 mW (2 dBm), 1 mW (-1 dBm); 802.11g: CCK—100 mW (20 dBm), 50 mW (17 dBm), 25 mW (14 dBm), 12 mW (11 dBm), 6 mW (8 dBm), 3 mW (5 dBm), 2 mW (2 dBm), 1 mW (-1 dBm); OFDM—50 mW (17 dBm), 25 mW (14 dBm), 10 mW (11 dBm), 5 mW (8 dBm), 3 mW (5 dBm), 1 mW (2 dBm), 1 mW (-1 dBm • Maximum power setting will vary by channel and according to individual country regulations.
Status LEDs	• External: Status LED indicates operating state, association status, error/warning condition, boot sequence and maintenance status • Internal: Ethernet LED indicates activity over the Ethernet, status; Radio LED indicates activity over the radios, status
Dimensions (H x W x D)	7.5 x 7.5 x 1.3 in. (19.1 x 19.1 x 3.3 cm)
Weight	1.5 lbs. (0.67 kg)
Range	• Indoor (Distance across open office environment): 802.11a: 80 ft (24 m) @ 54 Mbps, 150 ft (45 m) @ 48 Mbps, 200 ft (60 m) @ 36 Mbps, 225 ft (69 m) @ 24 Mbps, 250 ft (76 m) @ 18 Mbps, 275 ft (84 m) @ 12 Mbps, 300 ft (91 m) @ 9 Mbps, 325 ft (100 m) @ 6 Mbps; 802.11g: 1000 ft (30 m) @ 54 Mbps, 175 ft (53 m) @ 48 Mbps, 250 ft (76 m) @ 36 Mbps, 275 ft (84 m) @ 24 Mbps, 325 ft (100 m) @ 18 Mbps, 350 ft (107 m) @ 12 Mbps, 360 ft (110 m) @ 11 Mbps, 375 ft (114 m) @ 9 Mbps, 400 ft (122 m) @ 6 Mbps • Outdoor: 802.11a: 100 ft (30 m) @ 54 Mbps, 300 ft (91 m) @ 48 Mbps, 425 ft (130 m) @ 36 Mbps, 500 ft (152 m) @ 24 Mbps, 550 ft (168 m) @ 18 Mbps, 600 ft (183 m) @ 12 Mbps, 625 ft (190 m) @ 9 Mbps, 650 ft (198 m) @ 6 Mbps; 802.11g: 120 ft (37 m) @ 54 Mbps; 350 ft (107 m) @ 48 Mbps; 550 ft (168 m) @ 36 Mbps; 650 ft (198 m) @ 24 Mbps; 750 ft (229 m) @ 18 Mbps; 800 ft (244 m) @ 12 Mbps; 820 ft (250 m) @ 11 Mbps; 875 ft (267 m) @ 9 Mbps; 900 ft (274 m) @ 6 Mbps; 910 ft (277 m) @ 5.5 Mbps; 940 ft (287 m) @ 2 Mbps; 950 ft (290 m) @ 1 Mbps • Ranges and actual throughput vary based upon numerous environmental factors so individual performance may differ.
Compliance	Customers are responsible for verifying approval for use in their country; see http://www.cisco.com/go/aironet/compliance.
Security architecture client authentication and encryption (Cisco Wireless Security Suite supporting WPA and WPA2)	• Security Standards: WPA, WPA2 (802.11i), Cisco TKIP, Cisco message integrity check (MIC), IEEE 802.11 WEP keys of 40 bits and 128 bits • 802.1X EAP types: EAP-FAST, PEAP-GTC, PEAP-MSCHAP, EAP-TLS, EAP-TTLS, EAP-SIM, Cisco LEAP • Encryption: AES-CCMP encryption (WPA2), TKIP (WPA), Cisco TKIP, WPA TKIP, IEEE 802.11 WEP keys of 40 bits and 128 bits
Environmental	32-104º F (0-40º C); 10-90% humidity (non-condensing)
System Memory	32 MB RAM; 16 MB FLASH
Input Power Req	100-240 VAC 50-60Hz (power supply); 36-57 VDC (device)
Power Draw	12.2 watts, max
Warranty	One year

Selected Part Numbers and Ordering Information

Cisco Aironet 1130AG Series Access Point	
AIR-AP1131AG-A-K9	802.11a/g Non-modular IOS AP; Integrated Antennas; Israel Cnfg
AIR-LAP1131AG-A-K9	802.11a/g Non-modular LWAPP AP; Integrated Antennas; FCC Cnfg
Cisco Aironet 1130G Series Access Point	
AIR-AP1131G-A-K9	802.11g Non-modular IOS AP; Integrated Antennas; Israel Cnfg
AIR-LAP1131G-A-K9	802.11g Non-modular LWAPP AP; Integrated Antennas; FCC Cnfg
Cisco Aironet 1130AG Series Access Point 10 Unit Eco Pack	
AIR-AP1130-A-K9-10	802.11g Non-modular IOS AP; Integrated Antennas; 10 APs FCC Cnfg
AIR-LAP1130-A-K9-10	802.11g Non-modular LWAPP AP; Integrated Antennas;10 APs FCC Cnfg

For More Information

http://www.cisco.com/en/US/products/ps6087/index.html

Cisco Aironet 1550 Series Lightweight Outdoor Wireless Mesh Access Point



The Cisco Aironet 1550 Series Lightweight Outdoor Wireless Mesh Access Point with Cisco CleanAir technology is the industry's first enterprise and carrier-grade 802.11n access point to create a self-healing, and self-optimizing wireless network that mitigates the effect of wireless interference. It offers a flexible, secure, and scalable mesh network for high-performance mobility across large metropolitan-size areas, enterprise campuses, manufacturing yards, and mining pits. The Cisco Aironet 1550 Series supports multiple-device and multiple-network application delivery such as real-time transparent mobility, video surveillance, third-generation (3G) and 4G data offload, and public and private Wi-Fi access.

Key Features and Benefits

- Flexible deployment options—Access or mesh network; extension of an Ethernet network; and Ethernet, fiber, wireless, or cable backhaul.
- Service provider support—Wi-Fi for next-generation mobile data offload and personalized mobile services.
- Cisco CleanAir technology—Integrated spectrum intelligence to detect, classify, and mitigate RF interference from unauthorized wireless bridges or malicious devices.
- High-bandwidth video surveillance over Wi-Fi without the high cost of installing cables over long distances.
- High-performance, multipurpose network with low CapEx and OpEx.
- Integrated wired and wireless—The Cisco Borderless Networks Architecture provides cost savings with end-to-end network access solutions that include wireless, switching, routing, and security.

The Cisco Aironet 1550 Series Outdoor Access Points include the following models:

- The Cisco Aironet 1552E Outdoor Access Point is the standard model, dual-radio system with dual-band radios that are compliant with IEEE 802.11a/n (5-GHz) and 802.11b/g/n standards (2.4 GHz). The Cisco Aironet 1552E has three external antenna connections for three dual-band antennas. It has Ethernet and fiber Small Form-Factor Pluggable (SFP) backhaul options, along with the option of a battery backup. This model also has a PoE-out port and can power a video surveillance camera. A highly flexible model, the Cisco Aironet 1552E is well equipped for municipal and campus deployments, video surveillance applications, mining environments, and data offload.
- Cisco Aironet 1552C Cable Modem Access Point—Where service providers have already invested in a broadband cable network, the Cisco next-generation outdoor wireless mesh can smoothly extend network connectivity with the Cisco Aironet 1552C Access Point by connecting to its integrated cable modem interface. The Cisco Aironet 1552C Outdoor Mesh Access Point is a dual-radio system with a DOCSIS® 3.0/EuroDOCSIS 3.0 (8x4 HFC) cable modem for power and backhaul. It has dual-band radios that are compliant with IEEE 802.11a/n (5 GHz) and 802.11b/g/n standards (2.4 GHz). The Cisco Aironet 1552C has an integrated, three- element, dual-band antenna and easily fits within the 30-cm height restriction for service providers. This model is perfect for 3G data offload applications and public Wi-Fi.
- Cisco Aironet 1552H Hazardous Location Access Point—Designed for hazardous environments such as oil and gas refineries, chemical plants, mining pits, and manufacturing factories. The Cisco Aironet 1552H Outdoor Access Point is Class 1, Div 2/Zone 2 hazardous location certified. It has similar options as the Cisco Aironet 1552E, with the exception of the battery backup.
- Cisco Aironet 1552I Integrated Antenna Access Point—A low-profile, lighter-weight model in the Cisco Aironet 1550 Series. The smaller size and sleeker look helps it blend in with the surrounding environment. The smaller power supply also makes it a more energy-efficient product. The Cisco Aironet 1552I does not have PoE out or a fiber SFP port.

Specifications

Feature	Cisco Aironet 1550 Series Lightweight Outdoor Wireless Mesh Access Points
802.11n Version 2.0 (and Related) Capabilities	• 2x3 multiple-input multiple-output (MIMO) with two spatial streams • Legacy beamforming • 20- and 40-MHz channels • PHY data rates up to 300 Mbps • Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx) • 802.11 dynamic frequency selection (DFS) • Cyclic shift diversity (CSD) support

DOCSIS 3.0 Capabilities

DOCSIS 3.0 8x4 cable modem provides:

- Eight (8) bonded channels with total throughput in excess of 300 Mbps
- Designed to meet DOCSIS 3.0 specifications as well as backward compatibility with existing DOCSIS 2.0, 1.1 and 1.0 networks
- Enhanced packet processing technology to maximize performance
- Downstream data rates in excess of 320 Mbps
- Upstream data rates up to 120 Mbps
- Channel-bonded cable modems must be used in conjunction with a cable modem termination system (CMTS) that supports channel bonding per the DOCSIS 3.0 specifications. When used with a non-channel-bonded CMTS, channel- bonded cable modems function as conventional DOCSIS 2.0 cable modems.

Data Rates Supported

802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps

802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps

802.11n data rates (2.4 GHz and 5 GHz):

MCS Index[1]	**GI[2] = 800ns**		**GI = 400ns**	
	20-MHz Rate (Mbps)	**40-MHz Rate (Mbps)**	**20-MHz Rate (Mbps)**	**40-MHz Rate (Mbps)**
0	6.5	13.5	7.2	15
1	13	27	14.4	30
2	19.5	40.5	21.7	45
3	26	54	28.9	60
4	39	81	43.3	90
5	52	108	57.8	120
6	58.5	121.5	65	135
7	65	135	72.2	150
8	13	27	14.4	30
9	26	54	28.9	60
10	39	81	43.3	90
11	52	108	57.8	120
12	78	162	86.7	180
13	104	216	115.6	240
14	117	243	130	270
15	130	270	144.4	300

Frequency Band and 20-MHz Operating Channels

- A Domain: 2.400 to 2.4835 GHz; 11 channels; 5.725 to 5.850 GHz; 5 channels
- C Domain: 2.400 to 2.4835 GHz; 13 channels; 5.725 to 5.850 GHz; 5 channels
- E Domain: 2.401 to 2.4835 GHz; 13 channels; 5.470 to 5.725 GHz; 8 channels
- K Domain: 2.400 to 2.4835 GHz; 11 channels; 5.250 to 5.825 GHz; 14 channels
- M Domain: 2.400 to 2.4835 GHz; 13 channels: 5.470 to 5.850 GHz; 12 channels
- N Domain: 2.400 to 2.4835 GHz; 11 channels: 5.725 to 5.850 GHz; 5 channels
- Q Domain: 2.400 to 2.4835 GHz; 13 channels: 5.470 to 5.725 GHz; 11 channels
- R Domain: 2.400 to 2.4835 GHz; 13 channels; 5.250 to 5.725 GHz; 11 channels
- S Domain: 2.400 to 2.4835 GHz; 13 channels: 5.725 to 5.850 GHz; 5 channels
- T Domain: 2.400 to 2.4835 GHz; 11 channels; 5.470 to 5.850 GHz; 16 channels

Note: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.

Maximum Transmit Power

2.4 GHz	5 GHz
• 802.11b (CCK) • 28 dBm with 2 antennas • 802.11g (non HT duplicate mode) • 28 dBm with 2 antennas • 802.11n (HT20) • 28 dBm with 2 antennas	• 802.11a • 28 dBm with 2 antennas • 802.11n non-HT duplicate (802.11a duplicate) mode • 28 dBm with 2 antennas • 802.11n (HT20) • 27 dBm with 2 antennas • 802.11n (HT40) • 27 dBm with 2 antennas

Note: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.

Receive Sensitivity	· 802.11b (Complementary Code Keying [CCK]): -101 dBm @ 1 Mb/s; -98 dBm @ 2 Mb/s; -92 dBm @ 5.5 Mb/s; -89 dBm @ 11 Mb/s · 802.11g (non HT20): -94 dBm @ 6 Mb/s; -93 dBm @ 9 Mb/s; -92 dBm @ 12 Mb/s; -90 dBm @ 18 Mb/s; -86 dBm @ 24 Mb/s; -84 dBm @ 36 Mb/s; -79 dBm @ 48 Mb/s; -78 dBm @ 54 Mb/s · 802.11a (non HT20): -92 dBm @ 6 Mb/s; -91 dBm @ 9 Mb/s; -89 dBm @ 12 Mb/s; -87 dBm @ 18 Mb/s; -85 dBm @ 24 Mb/s; -81 dBm @ 36 Mb/s; -77 dBm @ 48 Mb/s; -76 dBm @ 54 Mb/s · 2.4-GHz: 802.11n (HT20): -93 dBm @ MCS0; -91dBm @ MCS1; -89dBm @ MCS2; -86 dBm @ MCS3; -82 dBm @ MCS4; -78 dBm @ MCS5; -77 dBm @ MCS6; -75 dBm @ MCS7; -93 dBm @ MCS8; -91 dBm @ MCS9; -89 dBm @ MCS10; -86 dBm @ MCS11; -82 dBm @ MCS12; -78 dBm @ MCS13; -77 dBm @ MCS14;-75 dBm @ MCS15 · 5-GHz: 802.11n (HT20): -92 dBm @ MCS0; -89 dBm @ MCS1; -87 dBm @ MCS2; -85 dBm @ MCS3;-81 dBm @ MCS4; -77 dBm @ MCS5; -76 dBm @ MCS6; -75 dBm @ MCS7; -90 dBm @ MCS8; -87 dBm @ MCS9; -85 dBm @ MCS10; -82 dBm @ MCS11; -78 dBm @ MCS12; -74 dBm @ MCS13; -73 dBm @ MCS14; -72 dBm @ MCS15 · 5-GHz: 802.11n (HT40): -89 dBm @ MCS0; -86 dBm @ MCS1; -84 dBm @ MCS2; -82 dBm @ MCS3; -78 dBm @ MCS4; -74 dBm @ MCS5; -73 dBm @ MCS6; -72 dBm @ MCS7; -87 dBm @ MCS8; -84 dBm @ MCS9; -82 dBm @ MCS10; -79 dBm @ MCS11; -75 dBm @ MCS12; -71 dBm @ MCS13; -70 dBm @ MCS14; -69 dBm @ MCS15
Network Interface	· 10/100/1000BASE-T Ethernet, autosensing (RJ-45) · Fiber SFP · DOCSIS 3.0 (8x4) Cable modem interface (option available)
Dimensions (W x L x H)	12.0 in. x 7.8 in. x 6.4 in. (30.48 cm x 19.81 cm x 16.26 cm) (including antenna mount)
Weight	· 1552E: 17.3 lbs (7.8 kg) · 1552C: 14 lbs (6.4 kg) · 1552H: 17.6 lbs (8 kg) · 1552I: 14 lbs (6.4 kg) · Battery backup: 1.5 lbs (0.7kg) · Pole mounting bracket: 6.1 lbs (2.8 kg) · Cable strand mounting bracket: 1.3 lbs (0.6 kg)
Environmental	· Operating temperature: -40 to 55°C (-40 to 131°F) plus Solar Loading · Storage temperature: -50 to 85°C (-58 to 185°F) · Wind resistance: - Up to 100 MPH sustained winds - Up to 165 MPH wind gusts
Environmental Ratings	· IP67 · NEMA Type 4X
Antenna Gain	· Integrated Dual Band Omni-directional Antenna Radome · 2 dBi (2.4GHz), 4 dBi (5GHz) · External Dual Band Omni-directional Antennas (AIR-ANT2547V-N) · 4 dBi (2.4GHz), 7 dBi (5GHz)
Powering Options	· 90-480 VAC, 47-63 Hz · 40 - 90 VAC, 47-63 Hz, quasi-square wave, Power over Cable · Power over Ethernet: 56 VDC, +/-10 percent · 12 VDC
Warranty	90 days
Compliance	· Safety: UL 60950, 2nd Edition; CAN/CSA-C22.2 No. 60950, 2nd Edition; IEC 60950, 2nd Edition; EN 60950, 2nd Edition · Immunity: <= 5 mJ for 6kV/3kA @ 8/20 ms waveform; ANSI/IEEE C62.41; EN61000-4-5 Level 4 AC Surge Immunity; EN61000-4-4 Level 4 Electrical Fast Transient Burst Immunity; EN61000-4-3 Level 4 EMC Field Immunity; EN61000-4-2 Level 4 ESD Immunity; EN60950 Overvoltage Category IV · Radio approvals; FCC Part 15.247, 15.407; FCC Bulletin OET-65C; RSS-210; RSS-102; AS/NZS 4268.2003; EN 300 328; EN 301 893; · EMI and susceptibility: FCC part 15.107, 15.109; ICES-003; EN 301 489-1, -17 · Security: Wireless bridging/mesh; X.509 digital certificates; MAC address authentication; Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TLIP); Wireless access; 802.11i, Wi-Fi Protected Access (WPA2), WPA; 802.1X authentication, including Extensible Authentication Protocol and Protected EAP (EAP-PEAP), EAP Transport Lauer Security (EAP-TLS), EAP-Tunneled TLS (EAP-TTLS), and Cisco LEAP; Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TLIP); VPN pass-through; IP Security (IPsec), Layer 2 Tunneling Protocol (L2TP); MAC address filtering; · Other: ATEX (AIR-CAP1552H-X-K9 only)

1. MCS Index: The Modulation and Coding Scheme (MCS) index determines the number of spatial streams, the modulation, the coding rate, and data rate values.
2. GI: A Guard Interval (GI) between symbols helps receivers overcome the effects of multipath delays.

Selected Part Numbers and Ordering Information[1]

AIR-CAP1552E-A-K9	Cisco Aironet 1552E Access Point
AIR-CAP1552C-A-K9	Cisco Aironet 1552C Access Point with DOCSIS 3.0 Cable Modem
AIR-CAP1552H-A-K9	Cisco Aironet 1552H Hazardous Location Access Point
AIR-CAP1552I-A-K9	Cisco Aironet 1552I Integrated Antenna Access Point
Cisco SMARTnet® Services for the Cisco Aironet 1550 Series Access Points	

CON-SNT-CAP155Ex	SMARTnet 8x5xNBD 1552E Access Point
CON-SNT-CAP155Cx	SMARTnet 8x5xNBD 1552C Access Point with Cable Modem
CON-SNT-CAP155Hx	SMARTnet 8x5xNBD 1552H Hazardous Location Access Point
CON-SNT-CAP155Ix	SMARTnet 8x5xNBD 1552I Integrated Antenna Access Point

Not all regulatory domains have been approved. As they are approved, the part numbers will be available on the Global Price List.

1. For the specific regional part numbers, refer to the 1550 ordering guide:
http://www.cisco.com/en/US/docs/wireless/access_point/1550/quick/guide/AP1552_ORDERING_GUIDE.pdf

For More Information

http://www.cisco.com/en/US/products/ps11451/index.html

Cisco Aironet 1520 Series Lightweight Outdoor Wireless Mesh Access Point



The Cisco Aironet 1520 Series Lightweight Outdoor Access Points are a flexible, secure, and scalable mesh platform that is designed for deployments across large metropolitan-sized areas. As part of the Cisco Unified Network architecture, the wireless mesh can be seamlessly deployed as an extension of wired and wireless networks, with central management through controllers and the Cisco Wireless Control System. The unified architecture centralizes critical functions of the wireless LAN to provide scalable management, advanced security, seamless mobility, and proven reliability. With maximum ratio combining (MRC) technology, the access points provide greater access range for consumer-grade client devices throughout the wireless mesh network. Rugged enclosures allow deployment in extreme weather and hazardous environments, and can be painted to adapt to local aesthetics. The Cisco Aironet 1520 Series includes the Cisco Aironet 1522AG, 1522HZ, 1522CV, and the Cisco Aironet 1524SB, 1524PS, and 1523 CV Lightweight Outdoor Mesh Access Points.

Key Features and Benefits

- Self-configuring and self-healing in response to interference and outages
- Multiple-radio support (802.11a, 802.11b/g, licensed for 4.9-GHz public safety applications)
- Improved 802.11b/g radio sensitivity and range performance with maximal ratio combining (MRC)
- Multiple uplink options (Gigabit Ethernet-10/100/1000BaseT, Fiber SFP interface, cable modem backhaul in some models)
- Internal battery backup power
- 802.3af-compliant Power over Ethernet interface to connect IP devices
- NEMA Type 4X certified enclosure
- FIPS 140-2 certificate

Specifications

Feature	Cisco Aironet 1520 Series Lightweight Outdoor Wireless Access Point
Wireless standards	• 802.11a • 802.11b/g • Public safety 4.9 GHz (5, 10, 20 MHz channels)
Data rates and modulation	• 802.11a: 54, 48, 36, 24, 18, 12, 9, 6 Mbps, Orthogonal Frequency Division Multiplexing (OFDM) • 802.11b: 11, 5.5, 2, 1 Mbps, Direct Sequence Spread Spectrum (DSSS) • 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps, OFDM 4.9 GHz: • 5 MHz: 13.5, 12, 9, 6, 4. 5, 3, 2.25, 1.5 Mbps • 10 MHz: 27, 24, 18, 12, 9, 6, 4.5, 3 Mbps • 20 MHz: 54, 48, 36, 24, 18, 12, 9, 6 Mbps
Network Interface	• 10/100/1000BASE-T Ethernet, autosensing (RJ-45) • Fiber SFP • Cable modem backhaul/interface (only available on 1522CV and 1523CV models)
Dimensions (W x L x H)	12.0 in. x 7.8 in. x 6.4 in. (30.48 cm x 19.81 cm x 16.26 cm) (including antenna mount)
Weight	1522AG—17 lbs (7.9 kg) 1522CV—17 lbs (7.9 kg) 1522HZ—18 lbs (8.0 kg) 1524SB—18 lbs (8.4 kg) 15223CV—18 lbs (8.4 kg) Battery backup: 2 lbs (0.7kg) Mounting bracket: 6 lbs (2.8 Kg)
Powering Options	• 90-480 VAC, 47-63 Hz • Power over Ethernet: 48 VDC, +/-10 percent • 12 VDC
Warranty	90 days

<table>
<tr><td rowspan="8">Maximum Transmit Power (Varies by channel and data rate)</td><td>2.4 GHz</td><td>5 GHz</td><td>4.9 GHz</td></tr>
<tr><td colspan="3">Cisco 1522AG</td></tr>
<tr><td>-A 28 dBm
-C 14 dBm
-E 14 dBm
-K 14 dBm
-N 28 dBm
-P 16 dBm
-S 14 dBm
-T 28 dBm</td><td>-A 28 dBm
-C 22 dBm
-E 22 dBm
-K 19 dBm
-N 28 dBm
-P 20 dBm
-S 22 dBm
-T 28 dBm</td><td>-A 20 dBm</td></tr>
<tr><td colspan="3">Cisco 1524SB</td></tr>
<tr><td>-A 28 dBm
-C 14 dBm
-N 28 dBm
-E 14 dBm
-M 14 dBm
-K 14 dBm
-S 14 dBm
-T 28 dBm</td><td>-A 28 dBm
-C 22 dBm
-N 28 dBm
-E 22 dBm
-M 22 dBm
-K 19 dBm
-S 22 dBm
-T 28 dBm</td><td></td></tr>
<tr><td colspan="3">Cisco 1524PS</td></tr>
<tr><td>-A 28 dBm</td><td>-A 28 dBm</td><td>-A 26 dBm</td></tr>
<tr><td>Receive Sensitivity (typical)</td><td colspan="3">· 802.11a 5.0 GHz: 6 Mbps: -91 dBm; 9 Mbps: -90 dBm; 12 Mbps: -89 dBm; 18 Mbps: -86 dBm; 24 Mbps: -84 dBm; 36 Mbps: -80 dBm; 48 Mbps: -76 dBm; 54 Mbps: -73 dBm
· 802.11b: 1 Mbps: -96 dBm; 2 Mbps: -96 dBm; 5.5 Mbps: -95dBm; 11 Mbps: -92 dBm
· 802.11g with MRC: 1 Mbps: -96 dBm; 2 Mbps: -96 dBm; 5.5 Mbps: -95 dBm; 6 Mbps: -91 dBm; 9 Mbps: -91 dBm; 11 Mbps: -92 dBm; 12 Mbps: -91 dBm; 18 Mbps: -90 dBm; 24 Mbps: -89 dBm; 36 Mbps: -86 dBm; 48 Mbps: -80 dBm; 54 Mbps:-80 dBm
· 4.9 GHz, 5MHz: 1.5 Mbps: -93 dBm; 2.25 Mbps: -93 dBm; 3 Mbps: -93 dBm; 4.5 Mbps: -92 dBm; 6 Mbps: -88 dBm; 9 Mbps: -85 dBm; 12 Mbps: -80 dBm; 13.5 Mbps: -79 dBm
· 4.9 GHz, 10 MHz: 3 Mbps: -92 dBm; 4.5 Mbps: -92 dBm; 6 Mbps: -91 dBm; 9 Mbps: -89 dBm; 12 Mbps: -86 dBm; 18 Mbps: -82 dBm; 24 Mbps: -78 dBm; 27 Mbps: -77 dBm
· 4.9 GHz, 20 MHz: 6 Mbps: -89 dBm; 9 Mbps: -89 dBm; 12 Mbps: -88 dBm; 18 Mbps: -86 dBm; 24 Mbps: -83 dBm; 36 Mbps: -80 dBm; 48 Mbps: -75 dBm; 54 Mbps: -74 dBm</td></tr>
<tr><td>Frequency Band and Operating Channels</td><td>Cisco 1522

A (Americas (FCC)):
· 2.401 to 2.473 GHz; 11 channels
· 4.940 to 4.990 GHz;
· 5MHz-10 channels
· 10MHz-5 channels
· 20MHz-2 channels
· 5.250 to 5.850 GHz; 16 channels (excludes channel 120, 124, 128)
C (China):
· 2.401 to 2.483 GHz; 13 channels
· 5.725 to 5.850 GHz; 5 channels
E (ETSI):
· 2.401 to 2.483 GHz; 13 channels
· 5.470 to 5.725 GHz; 8 channels
K (Korea):
· 2.401 to 2.483 GHz; 13 channels
· 5.250 to 5.560 GHz; 10 channels
N (Non-FCC):
· 2.401 to 2.473 GHz; 11 channels
· 5.725 to 5.850 GHz; 5 channels
P (Japan2):
· 2.401 to 2.495 GHz; 14 channels
· 4.910 to 5.090 GHz; 6 channels
S (Singapore):
· 2.401 to 2.483 GHz; 13 channels
· 5.725 to 5.850 GHz; 5 channels
T (Taiwan):
· 2.401 to 2.473 GHz; 11 channels
· 5.470 to 5.850 GHz; 16 channels</td><td>Cisco 1524SB and 1524HZ

A (Americas (FCC)):
· 2.401 to 2.473 GHz; 11 channels
· 5.250 to 5.850 GHz; 16 channels (excludes channel 120, 124, 128)
C (China):
· 2.401 to 2.473 GHz; 13 channels
· 5.725 to 5.850 GHz; 5 channels
E (ETSI):
· 2.401 to 2.483 GHz; 13 channels
· 5.470 to 5.725 GHz; 8 channels
K (Korea):
· 2.401 to 2.483 GHz; 13 channels
· 5.250 to 5.560 GHz; 10 channels
N (Non-FCC):
· 2.401 to 2.473 GHz; 11 channels
· 5.725 to 5.850 GHz; 5 channels
S (Singapore):
· 2.401 to 2.483 GHz; 13 channels
· 5.725 to 5.850 GHz; 5 channels
T (Taiwan):
· 2.401 to 2.473 GHz; 11 channels
· 5.470 to 5.850 GHz; 16 channels</td><td>Cisco 1524PS

A (Americas (FCC)):
· 2.401 to 2.473 GHz; 11 channels
· 4.940 to 4.990 GHz;
· 5MHz-10 channels
· 10MHz-5 channels
· 20MHz-2 channels
· 5.725 to 5.850 GHz; 5 channels

Cisco 1523CV
A (Americas (FCC)):
· 2.401 to 2.473 GHz; 11 channels
· 5.250 to 5.850 GHz; 16 channels (excludes channel 120, 124, 128)</td></tr>
<tr><td>Environmental</td><td colspan="3">Operating temperature: -40 to 55°C (-40 to 131°F) plus Solar Loading
Storage temperature: -50 to 85°C (-58 to 185°F)
Wind resistance:
· Up to 100 MPH sustained winds
· Up to 165 MPH wind gusts</td></tr>
<tr><td>Environmental ratings</td><td colspan="3">· IP67
· NEMA Type 4X</td></tr>
</table>

Compliance	• Safety: UL 60950; CAN/CSA-C22.2 No. 60950; IEC 60950; EN 60950 • Immunity: <= 5 mJ for 6kV/3kA @ 8/20 ms waveform; ANSI/IEEE C62.41; EN61000-4-5 Level 4 AC Surge Immunity; EN61000-4-4 Level 4 Electrical Fast Transient Burst Immunity; EN61000-4-3 Level 4 EMC Field Immunity; EN61000-4-2 Level 4 ESD Immunity; EN60950 Overvoltage Category IV • Radio approvals: FCC Part 15.247, 90.210; FCC Bulletin OET-65C; RSS-210; RSS-102; AS/NZS 4268.2003 • EMI and susceptibility: FCC part 15.107, 15.109; ICES-003 • Security: Wireless bridging/mesh; X.509 digital certificates; MAC address authentication; Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TLIP); Wireless access; 802.11i, Wi-Fi Protected Access (WPA2), WPA; 802.1X authentication, including Extensible Authentication Protocol and Protected EAP (EAP-PEAP), EAP-Transport Lauer Security (EAP-TLS), EAP-Tunneled TLS (EAP-TTLS), and Cisco LEAP; Advanced Encryption Standards (AES), Temporal Key Integrity Protocol (TLIP); VPN pass-through; IP Security (IPsec), Layer 2 Tunneling Protocol (L2TP); MAC address filtering • Other: ATEX (AIR-LAP1522HZ-X-K9 only)

Selected Part Numbers and Ordering Information

Cisco Aironet 1520 Series Access Point	
AIR-LAP1522AG-x-K9	802.11a and 802.11b/g radios, AC Power
AIR-LAP1522HZ-x-K9	802.11a and 802.11b/g radios, AC Power, Class 1, Zone/Div 2 certified
AIR-LAP1522CV-A-K9	Designed for Service Providers, 802.11a and 802.11b/g mesh access point, cable modem backhaul (DOCSIS 2.0)
AIR-LAP1524SB-x-K9	Dual 802.11a backhaul and 802.11b/g mesh access point, AC Power
AIR-LAP1524PS-A-K9	802.11a, 802.11b and 4.9 Public Safety mesh access point, AC Power
AIR-LAP1523CV-A-K9	Designed for Service Providers, two 5GHz radios, cable modem backhaul (DOCSIS 2.0).

For More Information

http://www.cisco.com/go/1520

Cisco Aironet 1400 Series Wireless Bridge

The Cisco Aironet 1400 Series Wireless Bridge is a 5GHz 802.11a bridge, which has been ruggedized for harsh outdoor environments. It features high power radios for long range point-to-point and point-to-multipoint connectivity. The Aironet 1400 is an autonomous bridge, and provides a cost-effective way to connect multiple LANs over a long distance.



Key Features and Benefits

- Cisco Aironet 1400 Series Wireless Bridges support both point-to-point and point-to-multipoint configurations.
- High power radios for long range connectivity.
- Autonomous bridge that provides cost-effective way to connect multiple LANs.
- The ruggedized enclosure, with an extended operating temperature range, is optimized for harsh outdoor environments.
- Integrated or optional external antennas offer flexibility in deployment.
- The bridges are designed specifically for ease of installation and operation.

Specifications

Feature	AIR-BR1410A-A-K9	AIR-BR1410A-A-K9-N	Power Injector LR
Frequency band	5.725 to 5.825 GHz (FCC UNII 3)		
Wireless modulation	Coded Orthogonal Frequency Division Multiplexing (COFDM)		
Media access protocol	Carrier Sense Multiple Access with Collision Avoidance (CSMA/CA)		
Modulation	BPSK @ 6 and 9 Mbps, QPSK @ 12 and 18 Mbps, 16-QAM @ 24 and 36 Mbps, 64-QAM @ 48 and 54 Mbps		
Non-overlapping channels	4		
Receive sensitivity (10% PER with 3200byte packets)	6 Mbps: -83 dBm, 9 Mbps: -83 dBm,12 Mbps: -81 dBm, 18 Mbps: -80 dBm, 24 Mbps: -77 dBm, 36 Mbps: -74 dBm, 48 Mbps: -70 dBm, 54 Mbps: -68 dBm		
Maximum Operational Receive Level	-19 dBm		

Maximum Survivable Receive Level	0 dBm		
Available transmit power settings	250 mW (24 dBm), 200 mW (23 dBm), 155 mW (22 dBm), 125 mW (21 dBm), 60 mW (18 dBm), 30 mW (15 dBm), 15 mW (12 dBm) Maximum power setting will vary according to individual country regulations		
Point-to-point range1	7.5 miles (13 km) @ 54 Mbps, 16 miles (26 km) @ 9 Mbps	12 miles (19 km) @ 54 Mbps, 23 miles (37 km) @ 9 Mbps, (Antennas are 28 dBi dish)	
Point-to-multipoint range (sector antenna at root)2	2 miles (3 km) @ 54 Mbps, 8 miles (13 km) @ 9 Mbps	4 miles (7 km) @ 54 Mbps, 11 miles (18 km) @ 9 Mbps, (Non-root antenna is 28 dBi dish)	
Antenna	Captured Linear Polarization; 22.5dBi gain: 10 E-plane by 12 H-plane beamwidth	One N-Type connector for professional installations (antennas sold separately)	
Security	Cisco Wireless Security Suite—Authentication: 802.1x support including LEAP to yield mutual authentication and dynamic per-user, per-session encryption keys; Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits Pre-standard TKIP WEP enhancements: key hashing (per packet keying) and Message Integrity Check (MIC)		
SNMP compliance	v1 and v2		
Status LEDs	Four LEDs: Install, Radio, Status, Ethernet		Four LEDs: Power ON, Injector status, LAN Ethernet status, Bridge Ethernet status
RSSI port	BNC connector DC Voltage port (0VDC to 2.7 VDC)		NA
Uplink	100 Mbps over dual coaxial cables		10/100BaseT Ethernet
Configuration support	Telnet, HTTP, FTP, TFTP, SNMP	Telnet, HTTP, FTP, TFTP, SNMP	NA
Compliance	Customers are responsible for verifying approval for use in their country. Please see http://www.cisco.com/go/aironet/compliance to verify approval and to identify the regulatory domain that corresponds to a particular country. All regulatory domains may not have been approved. As they are approved, the part numbers will be available on the Global Price List. individual country regulations)		
Dimensions (H x W x D)	11.4 x 11.4 x 4.2 in. (29 x 29 x 11 cm)	11.6 x 11.6 x 3.6 in. (29 x 29 x 9 cm)	6.7 x 6.3 x 1.3 in (17 x 16 x 3 cm)
Weight	11 lbs. (5 kg)	10 lbs. (5 kg)	1.4lbs. (0.6kg)
Operational temperature	-30 to +55ºC (-22 to +131ºF)	-30 to +55ºC (-22 to +131ºF)	0 to +50C (32 to 122F)
Storage temperature	-40 to +85ºC (-40 to +185ºF)	-40 to +85ºC (-40 to +185ºF)	-40 to +70C (-40 to +158F)
Operational altitude	4206 m (13,800 ft.)	4206 m (13,800 ft.)	4206 m (13,800 ft.)
Storage altitude	4877 m (16,000 ft.)	4877 m (16,000 ft.)	4877 m (16,000 ft.)
Humidity	0 to 100% (condensing)	0 to 100% (condensing)	0 to 90% (non-condensing)
Vibration	0.001 G2/Hz from 5 - 100 Hz	0.001 G2/Hz from 5 - 100 Hz	0.001 G2/Hz from 5 - 100 Hz
Storage vibration	0.01 G2/Hz from 5 - 100 Hz	0.01 G2/Hz from 5 - 100 Hz	0.01 G2/Hz from 5 - 100 Hz
Enclosure	Aluminum with environmentally sealed plastic radome	NEMA-4, aluminum	Metal case
AC power	Not Required as uses DC voltage from Power Injector		100 to 240 VAC, +/- 10% (power supply)
DC power	48 VDC +/-2V	48 VDC +/-2V	48 VDC +/-2V
Warranty	One year	One year	One year

Selected Part Numbers and Ordering Information

AIR-BR1410A-A-K9	Aironet 1410 Wireless Bridge with 22.5 dBi Antenna, FCC Config
AIR-BR1410A-A-K9-N	Aironet 1410 Wireless Bridge w/ N-Type Connector, FCC Config

For More Information

http://www.cisco.com/en/US/products/hw/wireless/ps5279/index.html

Cisco Aironet 1300 Series Access Points



The Cisco Aironet 1300 Series Outdoor Access Point or Bridge is an ruggedized 802.11g access point and bridge that provides high-speed and cost-effective wireless connectivity between multiple fixed or mobile networks and clients. The Aironet 1300 Series can be deployed as an autonomous access point or bridge, providing intelligent network services as a standalone device. Alternatively, the Cisco Aironet 1300 Series can be deployed as part of the Cisco Unified Wireless Network, managed centrally by a Cisco wireless LAN controller. The Aironet 1300 supports both, point-to-point or point-to-multipoint configurations.

Key Features and Benefits

- Network connections within a campus area; outdoor infrastructure for mobile networks and users; public access for outdoor areas
- Supports temporary networks for portable or military operations
- Supports the 802.11g standard providing 54-Mbps data rates with secure technology while maintaining full backward compatibility with legacy 802.11b devices
- Easy maintenance and installation by integrating it with your wired network via SWAN solution
- The Cisco Unified Wireless Network simplifies wireless LAN deployment and management by providing clear visibility and dynamic control of the RF environment
- Operates as a wireless bridge, access point, or a workgroup bridge
- Provides ongoing savings of leased-line expenses, a method to connect networks despite physical barriers such as lakes or highways, and rapid deployment of network connections
- Wi-Fi Certified in Access Point mode

Specifications

Feature	Cisco Aironet 1300 Series Access Point
Compatibility	• Access Point—Compatible with any Wi-Fi Certified client device for basic capability; Compatible with Cisco Aironet clients and Cisco Compatible clients for extended capability • Workgroup Bridge—Supports operation with Cisco Aironet access points and Cisco bridges
Air interface standard[1]	IEEE 802.11b or IEEE 802.11g
Frequency band	2.412 to 2.462 GHz (FCC); 2.412 to 2.472 GHz (ETSI); 2.412 to 2.472 GHz (TELEC)
Wireless modulation	• 802.11b—Direct Sequence Spread Spectrum (DSSS): Differential Binary Phase Shift Keying (DBPSK) at 1 Mbps; Differential Quadrature Phase Shift Keying (DQPSK) at 2 Mbps; Complementary Code Keying (CCK) at 5.5 and 11 Mbps • 802.11g—Orthogonal Frequency Divisional Multiplexing (OFDM): BPSK at 6 and 9 Mbps; QPSK at 12 and 18 Mbps; 16-quadrature amplitude modulation (QAM) at 24 and 36 Mbps; 64-QAM at 48 and 54 Mbps
Media access protocol	Carrier Sense Multiple Access/Collision Avoidance (CSMA/CA)
Operating channels	802.11b/g—ETSI: 13; Americas: 11; TELEC (Japan): 13
Lightweight Access Point Protocol	A network protocol for lightweight access points that also provides for centralized management.
Non-overlapping channels	3
Security	• Bridge—Authentication: 802.1X support including LEAP to yield mutual authentication and dynamic per-user, per-session encryption keys; Encryption: Cisco TKIP, key hashing (per-packet keying) and message, Integrity Check (MIC), AES-ready • Access Point: Authentication: 802.1X support including LEAP, PEAP, EAP Message Digest 5 (EAP MD5), EAP TLS, and EAP FAST to yield mutual authentication and dynamic per-user, per-session encryption keys; • Encryption: Cisco TKIP and WPA TKIP; key hashing (per-packet keying) and MIC; AES-ready • Workgroup-Bridge—Authentication: 802.1X support including LEAP to yield mutual authentication and dynamic per-user, per-session encryption keys; Encryption: Cisco TKIP, key hashing (per-packet keying) and MIC, AES-ready
SNMP compliance	Versions 1 and 2

1. Bridge mode has enhancements to the standard to allow longer-range bridging communication

Feature	AIR-BR1310G-x-K9	AIR-BR1310G-x-K9-R
Available transmit power settings[1]	802.11b: 100 mW (20 dBm), 50 mW (17 dBm), 30 mW (15 dBm), 20 mW (13 dBm), 10 mW (10 dBm), 5 mW (7 dBm), 1 mW (0 dBm); 802.11g: 30 mW (15 dBm); 20 mW (13 dBm); 10 mW (10 dBm); 5 mW (7 dBm); 1 mW (0 dBm)	
Maximum operational receive level	-20 dBm	-20 dBm
Maximum survivable receive level	10 dBm	10 dBm

Receive sensitivity (10 percent with 3200-byte packets)	1 Mbps: -94 dBm, 2 Mbps: -91 dBm, 5.5 Mbps: -89 dBm, 11 Mbps: -85 dBm; 6 Mbps: -90 dBm, 9 Mbps: -89 dBm; 12 Mbps: -86 dBm, 18 Mbps: -84 dBm; 24 Mbps: -81 dBm, 36 Mbps: -77 dBm; 48 Mbps: -73 dBm, 54 Mbps: -72 dBm	
Access-point role (Outdoor range)	· Americas: 865 feet (260 meters) at 54 Mbps, 3465 feet (1055 meters) at 11 Mbps; ETSI: 150 feet (45 meters) at 54 Mbps, 775 feet (235 meters) at 11 Mbps; TELEC: 485 feet (145 meters) at 54 Mbps, 1095 feet (330 meters) at 11 Mbps · Note: Access Point with 13 dBi integrated antenna and Cisco clients	· Americas: 350 feet (105 meters) at 54 Mbps, 1410 feet (430 meters) at 11 Mbps; ETSI: 195 feet (60 meters) at 54 Mbps, 630 feet (190 meters) at 11 Mbps; TELEC: 195 feet (60 meters) at 54 Mbps, 445 feet (135 meters) at 11 Mbps · Note: Access Point with 5.2dBi patch antenna and Cisco clients
Bridge role (Point-to-point range)[2]	· Americas: 1.3 miles (2 km) at 54 Mbps, 9 miles (15 km) at 11 Mbps; EMEA: 0.2miles (0.36Km) at 54 Mbps, 2.3 miles (3.5 km) at 11 Mbps; TELEC: 0.7 miles (1.1Km) at 54 Mbps, 3.2 miles (5 km) at 11 Mbps · Note: 13 dBi integrated antenna at root and non-root bridge	· Americas: 4.5 miles (7 km) at 54 Mbps, 14 miles (23 km) at 11 Mbps; EMEA 5.5 miles (9 km) at 11 Mbps; TELEC: 4.5 miles (7 km) at 54 Mbps, 12 miles (20 km) at 11 Mbps · Note: 21-dBi dish antenna at root and non-root bridge
Bridge role (Point-to-multipoint range)	· Americas: 1.1 miles (1.8 km) at 54 Mbps, 8 miles (13 km) at 11 Mbps; EMEA: 0.25 miles (0.4Km) at 54 Mbps, 1.1 miles (1.8 km) at 11 Mbps; TELEC: 0.8 miles (1.3Km) at 54 Mbps, 3.6 miles (5.8 km) at 11 Mbps · Note: 14-dBi sector antenna at root and 13dBi integrated antenna at non-root	· Americas: 2.0 miles (3.3 km) at 54 Mbps, 10 miles (16 km) at 11 Mbps; EMEA: 2.5 miles (4 km) at 11 Mbps; TELEC: 2.0 miles (3.3 km) at 54 Mbps; 9.0 miles (14 km) at 11 Mbps · Note: 14-dBi sector at root and 21-dBi dish at non-root
Feature	**AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R**	**AIR-PWRINJ-BLR2 and AIR-PWRINJ-BLR2T**
Dimensions (H x W x D)	8 x 8.1 x 3.12 in. (20.3 x 20.57 x 7.87 cm)	4.62 x 4.76 x 1.07 in. (11.73 x 12.09 x 2.71 cm)
Weight	2.5 lb (1.25 kg)	2 lb (1 kg)
Operational temperature	-22½ to 131½ºF (-30½ to 55½ºC)	Same as AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R
Storage temperature	-40½ to 185½ºF (-40½ to 85½ºC)	Same as AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R
Operational altitude	13,800 ft (4206 m)	Same as AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R
Storage altitude	16,000 ft (4877 m)	Same as AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R
Humidity	0 to 100% at 100½ºF (38½ºC) (condensing)	0 to 90% at 100½F (38½C) (non-condensing)
Warranty	One Year	

1. Maximum power setting will vary according to individual country regulations
2. The distances referenced here are approximations and should be used for estimation purposes only.

Selected Part Numbers and Ordering Information

AIR-BR1310G-X-K9	Cisco Aironet 1300 2.4 GHz (802.11g) Outdoor Access Point /Bridge with integrated patch antenna
AIR-BR1310G-X-K9-R	Cisco Aironet 1300 2.4 GHz (802.11g) Outdoor Access Point /Bridge with RP-TNC type connector
AIR-LAP1310G-X-K9	Cisco Aironet 1300 2.4 GHz (802.11g) Outdoor Lightweight Access Point /Bridge with integrated patch antenna
AIR-LAP1310G-X-K9	Cisco Aironet 1300 2.4 GHz (802.11g) Outdoor Lightweight Access Point /Bridge with RP-TNC type connector

For More Information

http://www.cisco.com/en/US/products/hw/wireless/ps5279/index.html

Cisco Secure Services Client

The Cisco Secure Services Client is a software application that allows businesses of all sizes to deploy a single authentication framework across endpoint devices to enable access to both wired and wireless networks. The solution delivers simplified management, robust security, and lower total cost of ownership. Through a simplified and scalable deployment mechanism, IT administrators can deploy and manage the Cisco Secure Services Client across the enterprise. The software client manages the user and device identity and the

network access protocols required for secure access. The Cisco Secure Services Client uses the IEEE 802.1X authentication standard to provide a robust first line of defense against unauthorized network intrusions.

Ideal for Companies That Need These Features

Cisco Secure Services Client

- Secure Wi-Fi connections
- Control of users' access policies
- Identity-based access
- FIPS support
- Simple end-user experience (two-click connect, automated VPN, and automated access to network)

Key Features and Benefits

- Automatic VPN feature—Cisco IP Security (IPsec) VPN and Secure Computing Soft Token are integrated in the Cisco Secure Services Client.
- FIPS 140-2 Level 1-compliant solution—FIPS drivers (ordered separately) are available.
- Cisco enterprise deployment mechanism—A unified .xml file allows for client provisioning; the single provisioning schema is independent of hardware. The administrator can now easily create an .msi file containing the .xml and .exe files for installation, and then deploy the files using standard deployment tools such as Microsoft Active Directory, Microsoft Short Message Service (SMS), and Altiris.
- Filtering of unwanted Service Set Identifiers (SSIDs)—This feature decreases the number of available networks for users and enforces corporate security policies for end users.
- Enforcing wired over wireless—This feature allows you to disable the wireless interface when a wired connection is present, and it eliminates unwanted wireless bridging to a wired network.
- Policy Enforcement Manager—The Policy Enforcement Manager enforces an 802.1X identity-based network security framework and configures and enforces access policies to protect corporate resources and assets.
- Network Profile Manager—Using the administrator console, administrators can define preconfigurations, lock down client features, and deploy end-user profiles for enterprise, travel, and home connections. The Network Profile Manager provides network entitlement rights for employees, guests, and suppliers with different levels of security.
- Credential Manager—The Credential Manager facilitates Windows single sign-on (SSO) capabilities, including device and user authentication, user-based authentication sessions, and credential challenges.
- Secure network access—This feature allows for authenticated access to 802.1X wired and wireless LANs. Cisco Secure Services Client is compatible with Wi-Fi-certified devices; it supports all Wi-Fi encryption modes: Wired Equivalent Privacy (WEP), Wi-Fi Protected Access-personal mode (WPA-personal mode), WPA2-personal mode, WPA-enterprise mode, WPA2-enterprise mode, Dynamic WEP (802.1X), Advanced Encryption Standard (AES), and Temporal Key Integrity Protocol (TKIP). It also supports a wide selection of Extensible Authentication Protocol (EAP) types; and protects user privacy with EAP "anonymous" access. In addition, it is compatible with the Cisco Secure Access Control Server (ACS).
- Access management and automated configuration control—This enterprise deployment mechanism, available through a unified .xml file, delivers user-access policies to any port accessed by users. It supports Microsoft Active Directory machine and user group profiles, and facilitates automatic configuration of VLANs, in addition to offering comprehensive SSO support for the Windows login environment.
- Flexible Credential Selection—Machine and/or user credentials, Windows single sign-on, username/password, RSA SecurID tokens; one-time password (OTP) tokens; Smartcards (Axalto, Gemplus, SafeNet iKey, and Alladin); and X.509 certificates.

Specifications

Feature	Cisco Secure Services Client
Operating systems	Windows XP, Windows 2000, Windows Vista
EAP protocols (XP/2000)	EAP-Message Digest 5 (MD5), EAP-Transport Layer Security (TLS), EAP-Tunneled TLS (TTLS), Cisco LEAP, EAP-Flexible Authentication via Secure Tunneling (FAST), Protected Extensible Authentication Protocol (PEAP)
EAP protocols (Vista)	Cisco LEAP, EAP-Flexible Authentication via Secure Tunneling (FAST), Protected Extensible Authentication Protocol (PEAP)
EAP-TTLS (XP/2000)	Password Authentication Protocol (PAP), Challenge Handshake Authentication Protocol (CHAP), Microsoft CHAP (MSCHAP), MSCHAPv2, EAP-MD5
EAP-PEAP (XP/2000)	EAP-MSCHAPv2, EAP-TLS, and EAP-Generic Token Card (GTC)
EAP-PEAP (Vista)	EAP-MSCHAPv2 and EAP-Generic Token Card (GTC)
Encryption support	WEP, WPA, WPA2, WPA-Pre-Shared Key (WPA-PSK), WPA2-PSK, Dynamic WEP (802.1X), AES, TKIP
Media support	Wired Ethernet 802.3 and Wi-Fi 802.11a, 802.11b, 802.11g, 802.11n
Switch interoperability	Any 802.1X-compatible Wi-Fi access point and wired Ethernet switch
Authentication, authorization, and accounting (AAA) interoperability	Supports standard RADIUS servers such as Cisco Secure Access Control Server (ACS) and Microsoft Internet Authentication Service (IAS)

Windows SSO	Active Directory machine and user authentication
Enterprise deployment	Export network profiles and lock user interface
Integrated VPN	Automatic VPN requires the following software to be preinstalled: • Cisco IPSec VPN version 4.8 or higher on Windows XP • Cisco IPSec VPN version 5.0.03.0560 or higher on Windows Vista
FIPS solution	Meets Federal Information Processing Standard 140-2 Level 1. Requires the purchase of separate drivers for a complete FIPS 140-2 Level 1 client solution. Driver part numbers are AIR-SSCFIPS-DRV (see ordering guide for more detail). Supports many popular Intel, Broadcom, and Atheros Wi-Fi chipsets FIPS mode includes support for EAP-TLS, EAP-FAST, and PEAP association methods.
Integrated Software Token Applications (XP/2000)	Automatic software token generation requires the following software to be preinstalled: • Secure Computing SofToken II (Version 2.1 or later)

Selected Part Numbers and Ordering Information

Windows 2000 Windows XP	
AIR-SC5.0-XP2K	SW Client 5.0 for Win XP/2K for wired/wireless devices
AIR-SC5.0-XP2K-L1, L2, L3, L4, L5, L6, L7, L8	Specified seat count up to 250, 251–1000, 1001–2500, 2501–5000, 5001–10,000, 10,001–25,000, 25,001–50,000, 50,001–100,000
AIR-SSCFIPS-DRV	FIPS drivers
AIR-SSCFIPS-DRV-L1, L2, L3, L4, L5, L6, L7, L8	Specified seat count up to 250, 251–1000, 1001–2500, 2501–5000, 5001–10,000, 10,001–25,000, 25,001–50,000, 50,001–100,000
Windows Vista	
AIR-SSC-VISTA	Software Client 5.1 for Windows Vista for wired/wireless devices
AIR-SSC-VISTA-L1, L2, L3, L4, L5, L6, L7, L8	Specified seat count up to 250, 251–1000, 1001–2500, 2501–5000, 5001–10,000, 10,001–25,000, 25,001–50,000, 50,001–100,000

For More Information

http://www.cisco.com/en/US/products/ps7034/index.html

Cisco Aironet Antennas and Accessories

Cisco offers a complete range of 2.4- and 5-GHz antennas for access-point and bridge equipment that facilitate a customized wireless solution for almost any installation. Customers can select an antenna that will increase the overall efficiency and data rates of their wireless network, while accommodating specific deployment conditions, including physical layout, distance, and aesthetics.



Key Features and Benefits

- Access-point antennas are compatible with all Cisco RP-TNC-equipped access points; they are available with different gain and range capabilities, beam widths, and form factors.
- Bridge antennas are available in directional configurations for point-to-point transmission and in an omnidirectional configuration for point-to-multipoint implementations.
- Low-loss cable extends the length between any Cisco Aironet bridge and the antenna. With a loss of 6.7 dB per 100 feet (30m), low-loss cable provides installation flexibility without a significant sacrifice in range.
- Cisco offers a complete range of antennas for 5-GHz bridging applications.

Specifications

Cisco Aironet 2.4 and 5 GHz Directional Antenna for 3500p Access Points

Cisco Aironet Six-Element Dual-Band MIMO Patch Array Antenna (AIR-ANT25137NP-R) is a six-element, dual-band, multiple-input and multiple-output (MIMO), patch array antenna that operates in the 2.4- and 5-Ghz frequency ranges. The antenna is designed for use in indoor and outdoor environments with Cisco Aironet 3502p Access Points for high density deployments.

Antenna Type	**MIMO Patch Array**
	
Operating frequency range	2400-2500 MHz 5250-5850 MHz

VSWR bandwidth	2:1
Peak gain (dBi)	2.4-GHz band: 13 5-GHz band: 7
Polarization, 2.4 GHz	Cable A: Horizontal Cable B: Vertical Cable C: Vertical
Polarization, 5 GHz	All antennas: Vertical
E-plane 3-dB beamwidth (degrees)	2.4-GHz: 36 5-GHz: 48
H-plane 3-dB beamwidth	2.4-GHz: 36 5-GHz: 55
Cable length	36 in. (91 cm)
Connectors	RP-TNC male
Length (Radome)	18 in. (45.7 cm)
Width (Radome)	13 in. (33 cm)
Thickness (Radome)	2 in. (5 cm)
Weight (antenna and bracket)	7.75 lbs. (3.52 kg)
Environmental Ratings	Water: IP65, dust and jetting water immunity Ice: Mil-810F, Method 521.2 Wind: 100 mph operational Operating Temperature: -30 to 70 degrees C (-22 to 158 degrees F)

Cisco Aironet 2.4 GHz Access Point Antennas with RP-TNC Connectors

Feature	AIR-ANT24020V-R=	AIR-ANT3213	AIR-ANT2410Y-R
			
Description	Diversity omnidirectional ceiling mount	Pillar mount diversity omnidirectional	Yagi mast or wall mount
Application	Indoor unobtrusive antenna, best for ceiling mount; excellent throughput and coverage solution in high multipath cells and dense user population	Indoor, unobtrusive midrange antenna	Indoor/outdoor directional antenna for use with access points or bridges
Gain	Two separate 2-dBi omnidirectional elements; minimum gain of 2.0, maximum gain of 2.35	5.2 dBi with two radiating elements	10 dBi
Frequency	2.4 GHz	2.4 GHz	2.4 GHz
Approximate Indoor Range at 6 Mbps[1]	295 ft (90 m)	379 ft (121 m)	548 ft (167 m)
Approximate Indoor Range at 54 Mbps[1]	88 ft (27 m)	114 ft (35 m)	165 ft (50 m)
Beam Width	360°H, 80°V	360°H, 25°V	55°H, 47°V
Cable Length	3 ft (0.91 m)[2]	3 ft (0.91 m)	3 ft (0.91 m)
Dimensions	5.3 x 2.8 x 0.9 in. (13.5 x 7.1 x 2.3 cm)	14 x 5 x 1 in. (35.5 x 12.7 x 2.5 cm)	7.25 x 3 in. (18.4 x 7.62 cm)
Weight	7 oz (0.19 kg)	1 lb (0.45 kg)	8 oz (0.23 kg)
Operating Temperature	0° to +55°C	0° to +70°C	-30° to +70°C

1. All range estimations are based on an external antenna associating with an integrated Intel Centrino client adapter under ideal conditions. The distances referenced here are approximations and should be used for estimation purposes only.

2. The cable provided on noted antennas meets UL 2043 certification for plenum rating requirements set by local fire codes and supports installation in environmental air spaces such as areas above suspended ceilings.

Feature	AIR-ANT1728	AIR-ANT4941	AIR-ANT2422DG-R[1]	AIR-ANT2422DW-R
				
Description	Omnidirectional ceiling mount	2.2-dBi black dipole antenna	2.2 dBi gray non-articulating dipole antenna	2.2-dBi white dipole antenna
Application	Indoor midrange antenna, typically hung from crossbars of drop ceilings	Indoor omnidirectional coverage	Indoor omnidirectional coverage	Indoor omnidirectional coverage
Gain	5.2 dBi	2.2 dBi	2.2 dBi	2.2 dBi
Frequency	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz
Approximate Indoor Range at 6 Mbps[2]	379 ft (116 m)	300 ft (91 m)	300 ft (91 m)	300 ft (91 m)
Approximate Indoor Range at 54 Mbps1	114 ft (35 m)	90 ft (27 m)	90 ft (27 m)	90 ft (27 m)
Beam Width	360°H, 36°V	360°H, 65°V	360°H, 65°V	360°H, 65°V
Cable Length	3 ft (0.91 m)	None	None	None
Dimensions	Length: 11.25 in. (28.5 cm) Diameter: 1 in. (2.5 cm)	5.5 in. (14 cm)	3.9 in (9.9 cm)	5.5 in. (14 cm)
Weight	4.6 oz (0.13 kg)	1.1 oz (31 g)	1.1 oz (31 g)	1.1 oz (31 g)
Operating Temperature	0° to +55°C	0° to +55°C	0° to +55°C	0° to +55°C

1. Best suited for use on the Cisco Aironet 1250 Series Access Point but can also be used on other access points with RP-TNC connectors.
2. All range estimations are based on an external antenna associating with an integrated Intel Centrino client adapter under ideal conditions. The distances referenced here are approximations and should be used for estimation purposes only.

Feature	AIR-ANT2485P-R	AIR-ANT2460P-R	AIR-ANT2450S-R	AIR-ANT2465P-R
				
Description	Patch wall mount	Patch wall mount	Wall Mount sector	Diversity patch wall mount
Application	Indoor/outdoor, unobtrusive, long-range antenna (may also be used as a midrange bridge antenna)	Indoor/outdoor, unobtrusive, midrange antenna (may also be used as a midrange bridge antenna)	Indoor, outdoor, midrange, sector antenna (may be used as a midrange bridge antenna	Indoor/outdoor, unobtrusive midrange antenna
Gain	8.5 dBi	6 dBi	5 dBi	6.5 dBi with two radiating elements
Frequency	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz
Approximate Indoor Range at 6 Mbps*	507 ft (155 m)	403 ft (123 m)	379 ft (116 m)	418 ft (127 m)
Approximate Indoor Range at 54 Mbps*	153 ft (47 m)	121 ft (37 m)	114 ft (35 m)	126 ft (38 m)
Beam Width	66°H, 56°V	75°H, 73°V	135°H, 54°V	75°H, 57°V
Cable Length	3 ft (0.91 m)	3 ft (0.91 m)	3 ft (0.91 m)**	3 ft (0.91 m)**

Dimensions	5.3 x 5.3 x .90 in. (13.5 x 13.5 x 2.28 cm)	4.1 x 3.9 x .75 in. (10.4 x 9.9 x 1.9 cm)	6 x 3 x 2 in (15.2 x 7.6 x 5 cm)	5 x 6.7 x .90 in. (12.7 x 17 x 2.28 cm)
Weight	8.2 oz (0.23 kg)	6 oz (0.17 kg)	7 oz (0.2 kg)	11.6 oz (0.33 kg)
Operating Temperature	-30° to +70°C	-30° to +70°C	-30° to +70°C	-30° to +70°C

Cisco Aironet 5 GHz Access Point Antennas with RP-TNC Connectors

Feature	AIR-ANT5135D-R	AIR-ANT5135DG-R[1]	AIR-ANT5135DW-R
			
Description	3.5-dBi black dipole antenna	3.5 dB5 gray non-articulating dipole antenna	3.5-dBi white dipole antenna
Application	Indoor omnidirectional coverage	Indoor omnidirectional	Indoor omnidirectional coverage
Gain	3.5 dBi	3.5 dBi	3.5 dBi
Frequency[2]	5 GHz	5 GHz	5 GHz
Approximate Indoor Range at 6 Mbps[3]	675 ft (206 m)	675 ft (206 m)	675 ft (206 m)
Approximate Indoor Range at 54 Mbps[1]	75 ft (21 m)	75 ft (21 m)	75 ft (21 m)
Beam Width	360°H, 40°E	360°H, 40°E	360°H, 40°E
Cable Length	None	None	None
Dimensions	5.3 x 0.6 in. (13.5 x 1.5 cm)	3.61 x .06 in (9.2 x 1.5 cm)	5.3 x 0.6 in. (13.5 x 1.5 cm)
Weight	1 oz (28.3 g)	1 oz (28.3 g)	1 oz (28.3 g)
Operating Temperature	0° to +55°C	0° to +55°C	0° to +55°C

1. Best suited for use on the Cisco Aironet 1250 Series Access Point but can also be used on other access points with RP-TNC connectors. Cisco Dual Band Antenna for 2.4 GHz and 5 GHz Access Points Cisco offers a dual band antenna, or a radome which has both 2.4 GHz and 5 GHz elements in one low profile package. The antenna has 4 cables, two for 2.4 GHz and 2 for 5 GHz, color coded to prevent any accidental connections. Easy to install and lightweight, this antenna is ideal for indoor wall or ceiling mount applications
2. 5 GHz antennas are denoted by either a blue dot on the radome or blue marker on the cable near the connector.
3. All range estimations are based on an external antenna associating with an integrated Intel Centrino client adapter under ideal conditions. The distances referenced here are approximations and should be used for estimation purposes only.

Cisco Dual Band Antenna for 2.4 GHz and 5 GHz Access Points

Feature	AIR-Ant2451v-r=
	
Description	dUAL BAND: 2 Dbi in 2.4 GHz and 3 dBi in 5 GHz omnidirectional ceiling mount
Application	Indoor midrange antenna
Gain	2 dBi in 2.4 GHz 3 dBi in 5 GHz
Frequency[1]	2.4 and 5 GHz
Approximate Indoor Range at 6 Mbps[2]	2.4 GHz: 295 ft (90 m) 5 GHz: 675 ft (206 m)
Approximate Indoor Range at 54 Mbps[2]	2.4 GHz: 88 ft (27 m) 5 GHz: 75 ft (21 m)

Beam Width	2.4 GHz: 360°H, 80°E 5 GHz: 360°H, 50°E
Cable Length	18 in (45.7 cm)
Dimensions	8.5 in. x 6 in. x .93 in (21.5 cm x 15.2 cm x 2.4cm)
Weight	1 lb (4.5 kg)
Operating Temperature	0° to +55°C

1. 5 GHz antennas are denoted by either a blue dot on the radome or blue marker on the cable near the connector.
2. All range estimations are based on an external antenna associating with an integrated Intel Centrino client adapter under ideal conditions. The distances referenced here are approximations and should be used for estimation purposes only.

2.4 GHz and 5 GHz Access Point Antennas with RP-TNC Connectors for Cisco Aironet 1250 Series Access Points

Cisco offers antennas that can be used with the Cisco Aironet 1250 Series Access Points, which feature 802.11n technology. The antennas and access points use an RP-TNC type connector. Two antennas are available for the 2.4 and 5 GHz band.

Feature	AIR-ANT2430V-R	AIR-ANT5140V-R	AIR-ANT2451V-R=
			
Description	Ceiling mount omnidirectional	Ceiling mount omnidirectional	Dual band: 2 dBi in 2.4 GHz and 3dBi in 5 GHz omnidirectional ceiling mount
Application	Indoor carpeted area type, unobtrusive omnidirectional antennas for Cisco Aironet 1250 Series MIMO Radios	Indoor carpeted area type unobtrusive omnidirectional antenna for Cisco Aironet 1250 Series MIMO Radios	Indoor midrange antenna
Gain	3.0 dBi	4.0 dBi	2 dBi in 2.4 GHz 3 dBi in 5 GHz
Frequency	2.4 GHz	5 GHz	2.4 and 5 GHz
Approximate Indoor Range at 6 Mbps[1]	507 ft (155 m)	403 ft (123 m)	2.4 GHz: 295 ft (90 m) 5 GHz: 675 ft (206 m)
Approximate Indoor Range at 54 Mbps[1]	153 ft (47 m)	121 ft (37 m)	2.4 GHz: 88 ft (27 m) 5 GHz: 75 ft (21 m)
Beam Width	360°H, 60°V	360°H, 45°V	2.4GHz: 360°H, 80°E 5 GHz: 360°H, 50°E
Cable Length	3 ft (0.91 m) 3 cables with RP-TNC	3 ft (0.91 m) 3 cables with RP-TNC	18 in (45.7 cm)
Dimensions	12.1 x 4.2 x 1.6 in. (30.73 x 10.67 x 4.06 cm)	6.9 x 3 x .9 in (17.53 x 7.62 x 2.29 cm)	8.5 in. x 6 in. x .93 in (21.5 cm x 15.2 cm x 2.4cm)
Weight	27 oz (0.76 kg)	14.1 oz (0.40 kg)	1 lb (4.5 kg)
Operating Temperature	0º to +55ºC	-0º to +55ºC	0° to +55°C

1. All range estimations are based on an external antenna associating with an integrated Intel Centrino client under ideal conditions. The distances referenced here are approximations and should be used for estimation purposes only.

Feature	AIR-ANT5145V-R	AIR-ANT5160V-R	AIR-ANT5170P-R	AIR-ANT5195P-R
				
Description	4.5-dBi diversity omnidirectional ceiling mount	6 dBi omnidirectional antenna	Diversity patch wall mount	Patch wall or articulating mast mount

Application	Indoor midrange antenna	Indoor/outdoor midrange antenna	Indoor/outdoor directional wall mount antenna	Indoor/outdoor patch antenna provides different mounting options
Gain	4.5 dBi	6 dBi	7.0 dBi	9.5 dBi
Frequency[1]	5 GHz	5 GHz	5 GHz	5 GHz
Approximate Indoor Range at 6 Mbps[2]	732 ft (223 m)	822 ft (251 m)	880 ft (270 m)	1030 ft (313 m)
Approximate Indoor Range at 54 Mbps*	82 ft (25 m)	92 ft (28 m)	140 ft (43 m)	170 ft (52 m)
Beam Width	360°H, 50°E	360°H, 17°E	70° H, 50° V	50° H, 43° V
Cable Length[3]	3 ft (0.91 m)	3 ft (0.91 m)	3 ft (0.91 m)	3 ft (0.91 m)
Dimensions	6.75 x 4.1 in. (17.1 x 10.4 cm)	12 in. length; 1 in. diameter (30.5 x 2.5 cm)	5.7 in. (14.5 cm) x 4.3 in. (10.9 cm) x 0.7 in. (1.8 cm)	5.1 in. (12.9 cm) x 5.1 in. (12.9 cm) x 1.0 in. (2.5 cm)
Weight	11.5 oz (0.33 kg)	5.3 oz (0.15 kg)	8 oz (0.2 kg)	9 oz. (0.25 kg)
Operating Temperature	0° to +55°C	-30° to +70°C	-30° to +70°C	-30° to +70°C

1. 5 GHz antennas are denoted by either a blue dot on the radome or blue marker on the cable near the connector.
2. All range estimations are based on an external antenna associating with an integrated Intel Centrino client adapter under ideal conditions. The distances referenced here are approximations and should be used for estimation purposes only.
3. The cable provided on noted antennas meets UL 2043 certification for plenum rating requirements set by local fire codes and supports installation in environmental air spaces such as areas above suspended ceilings.

2.4 GHz Bridge Antennas

Cisco Aironet bridge antennas allow for extraordinary transmission distances between two or more buildings. Available in directional configurations for point-to-point transmission and omnidirectional configuration for point-to-multipoint implementations, Cisco has a bridge antenna for every application.

Cisco Aironet 2.4 GHz Access Point and Bridge Antennas with RP-TNC Connectors for Cisco Aironet 1200 and 1300 Series Products

Feature	**AIR-ANT2506**	**AIR-ANT24120**	**AIR-ANT2414S-R**	**AIR-ANT1949**	**AIR-ANT3338**
					
Description	Omnidirectional mast mount	High-gain omnidirectional mast mount	Vertically polarized sector	Yagi mast mount	Solid dish
Application	Outdoor short-range point-to-multipoint applications	Outdoor midrange point-to-multipoint applications	Outdoor long range point-to-multipoint applications	Outdoor midrange directional connections	Outdoor long-range directional connections
Gain	5.2 dBi	12 dBi	14 dBi	13.5 dBi	21 dBi
Approximate Range at 2 Mbps[1]	3.3 miles (5.31 km)	15.81 miles (25.43 km)	16.71 miles (26.89 km)	18.33 miles (29.49 km)	26.49 miles (42.62 km)
Approximate Range at 11 Mbps[1]	1.66 miles (2.66 km)	7.92 miles (12.75 km)	8.89 miles (14.30 km)	11.19 miles (18.01 km)	20.1 miles (32.33 km)
Approximate Range at 54 Mbps[1]	.21 miles (.34 km)	1.0 miles (1.6 km)	1.26 miles (2.02 km)	1.41 miles (2.27 km)	4.46 miles (7.17 km)
Beam Width	360°H, 36°V	360°H, 7°V	90°H, 8.5°V	30°H, 25°V	12°H, 12°V
Cable Length	3 ft (0.91 m)	1 ft (0.30 m)	5 ft (1.5m)	3 ft (0.91 m)	2 ft (0.61 m)
Dimensions	Length: 11.5 in. (29.2 cm) Diameter: 1 in. (2.5 cm)	Length: 42 in. (107 cm) Diameter: 1.25 in. (3.1 cm)	Length: 36 in. (91 cm) Width: 6 in. (15 cm) Depth: 4 in. (10 cm)	Length: 18 in. (46 cm) Diameter: 3 in. (7.6 cm)	Diameter 24 in. (61 cm)
Weight	5 oz (0.14 kg)	1.5 lb (0.68 kg)	6.5 lb (3 kg)	12 oz (34 kg)	11 lb (5 kg)
Operating Temperature	-30° to +70°C	-30° to +70°C	-30° to +70°C	-30° to +70°C	-30° to +70°C

1. All range estimations are based on use of a BR 1310 access point and the same type of antenna at each end of the connection under ideal outdoor conditions. The distances referenced here are approximations and should be used for estimation purposes only.

Cisco Aironet 5.8 GHz Bridge Antennas with N-Type Connectors for Cisco Aironet 1400 Series Bridges.

This section highlights the antennas for use with the Cisco Aironet 1400 Series Wireless Bridge featuring an N-type connector.

Feature	AIR-ANT58G9VOA-N	AIR-ANT58G10SSA-N	AIR-ANT58G28SDA-N
			
Description	Omnidirectional mast mount	Sector antenna, mast mount	Dish antenna, mast mount
Application	Outdoor short-range point-to-multipoint applications	Outdoor medium-range point-to-point and point-to-multipoint applications	Outdoor long-range directional connections
Gain	9.0 dBi	9.5 dBi	28.0 dBi
Frequency	5.8 GHz	5.8 GHz	5.8 GHz
Polarization	Vertical	Vertical or horizontal Field configurable	Vertical or horizontal Field configurable
Elevation Adjustment	None	None	+/- 12.5 degrees
Approximate Range at 9 Mbps[1]	8 miles (13 km) (with 22.5 dBi captive antenna on the remote site)	8 miles (13 km) (with 22.5 dBi captive antenna on the remote site)	23 miles (37 km) (with 28 dBi antennas on each end)
Approximate Range at 54 Mbps	2 miles (3 km) (with 22.5 dBi captive antenna on the remote site)	2 miles (3 km) (with 22.5 dBi captive antenna on the remote site)	12 miles (19 km) (with 28 dBi antennas on each end)
Beam Width	360° H, 6° V	60° H, 60° V	4.75°H, 4.75°V
Supplied Jumper Cable Length	4.9 ft. (1.5 m)	4.9 ft. (1.5 m)	4.9 ft. (1.5 m)
Dimensions	Length: 20.25 in. (51.4 cm) Diameter: .64 in. (1.62 cm)	Length: 2.5 in. (6.4 cm) Width: 2.5 in. (6.4 cm) Depth: 1.75 in. (4.5 cm)	Diameter: 29 in. (74 cm) Depth: 14.5 in. (36.8 cm)
Weight	2.0 lb. (0.9 kg)	1.25 lb. (0.6 kg)	9.5 lb. (4.3 kg)
Operating Temperature	-20° to 60°C	-20° to 60°C	-30° to 60°C

1. All range estimations are based on use of a BR 1310 access point and the same type of antenna at each end of the connection under ideal outdoor conditions. The distances referenced here are approximations and should be used for estimation purposes only.

2.4 GHz and 5 GHz Antennas with N Type Connectors for the Cisco Aironet 1500 Series Lightweight Outdoor Mesh Access Points

Cisco offers antennas for the Cisco Aironet 1500 Series Lightweight Outdoor Mesh Access Points in various gains and antenna types.

Cisco Aironet 2.4 GHz and 4.9-5 GHz Access Point Antennas with N-Type Connectors for Cisco Aironet 1500 Series Lightweight Outdoor Mesh Access Points

Cisco Aironet 1500 Series Access Points are available in single-band (2.4 GHz) and dual-band (2.4 GHz and 5 GHz) versions. Check your access point for proper antenna selection before placing an order.

Feature	AIR-ANT2450V-N	AIR-ANT2455V-N	AIR-ANT2480V-N
			
Description	5 dBi, direct mount omnidirectional antenna for 2.4 GHz	5.5 dBi, direct mount omnidirectional antenna for 2.4 GHz	8 dBi direct mount omnidirectional antenna for 2.4 GHz

Application	Omnidirectional antenna for outdoor mesh access points. Suitable for all access point deployments, specifically for cable strand mount applications.	Omnidirectional antenna suitable for use on Cisco Aironet 1500 Series Lightweight Outdoor Mesh Access Points in all deployments. Not suitable for use on Cisco Aironet 1500 Series Lightweight Outdoor Mesh Access Points in cable strand mount situations.	Extended range omnidirectional antenna for outdoor mesh access points. Suitable for pole or roof mounting deployments.
Gain	5 dBi	5.5 dBi	8 dBi
Frequency	2.4 GHz	2.4 GHz	2.4 GHz
Beam Width	30° V	25° V	10° V
Cable Length	None	None	None
Dimensions	11 in. x 1 in. (27.94 x 2.54 cm)	12.5 in. x 1 in. (31.75 x 2.54 cm)	19.5 in. x 7/8 in. diameter (49.5 cm x 2.22 cm)
Weight	0.40 lbs. (0.18 kg)	0.31 lbs. (0.14 kg)	0.45 lbs. (0.20 kg)
Operating Temperature	-30° to +70 C	-30° to 70°C	-30° to +70° C

Feature	AIR-ANT5175V-N	AIR-ANT5180V-N	AIR-ANT5114P-N	AIR-ANT5117S-N
				
Description	7.5 dBi omnidirectional antenna for 5 GHz	8 dBi direct mount omnidirectional antenna for 5 GHz	14 dBi wall/mast mount articulating patch antenna for 5 GHz	17 dBi, 90 degree mast mount sector antenna for 5 GHz
Application	Omnidirectional antenna suitable for use on Cisco Aironet 1500 Series Lightweight Outdoor Mesh Access Points in all deployments.	Omnidirectional antenna for Cisco Aironet 1520 series mesh access points. Suitable for all deployments, including cable strand mount applications.	Recommended for medium range point to point deployments	Recommended for point-to-multipoint deployments of medium to long range.
Gain	5 GHz bands = 7.5 dBi 4.9 GHz bands = 6 dBi	8 dBi	14 dBi	17 dBi
Frequency	4.9-5.8 GHz	4.9-5.85 GHz	4.9-5.85 GHz	4.9-5.85 GHz
Beam width	16°V	16° V	25° H, 29° E	90° H, 8° E
Cable Length	1 ft (0.30 m)	None	1 ft. (0.30 m)	None
Dimensions	11.65 in. x 1 in. (29.41 x 2.54 cm)	11 in. x 1 in. (27.94 x 2.54 cm)	4 1/8 in. x 4 1/8 in. (10.48 cm x 10.48 cm)	24 1/2 in. x 2 ½ in. (62.23 cm x 6.35 cm)
Weight	0.38 lbs. (0.17 kg)	0.4 lbs. (0.18 kg)	0.70 lbs. (0.32 kg)	1.95 lbs. (0.88 kg)
Operating Temperature	-30° to 70°C	-30° to +70 C	-30° to +70° C	-30° to +70° C

Low-Loss/Ultra-Low-Loss Cables

Low-loss cables extend the length between any Cisco Aironet 2.4 GHz and 5 GHz radio and the antenna with RP-TNC connectors. With a loss of 6.7 dB per 100 feet (30 m) for the low-loss cable and 4.4 dB for the ultra-low-loss cable, this provides installation flexibility without a significant sacrifice in range.

Cisco Aironet Low-Loss Antenna Cable Features

Part Number	Type of Cable	Description	Loss at 2.4 GHz	Loss at 5.8 GHz
AIR-CAB005LL-N	Interconnect	5-ft low loss cable, one straight N connector, one 90-degree N connector	0.5 dB	0.8 dB
AIR-CAB005LL-R	Interconnect	5-ft low loss cable, one RP-TNC plug, one RP-TNC jack	0.5 dB	0.8 dB

AIR-CAB010LL-N	Interconnect	10-ft low loss cable, one straight N connector, one 90-degree N connector	0.9 dB	1.5 dB
AIR-CAB020LL-R	Interconnect	20-ft low loss cable, one RP-TNC plug, one RP-TNC jack	1.3 dB	2.5 dB
AIR-CAB050LL-R	Interconnect	50-ft low loss cable, one RP-TNC plug, one RP-TNC jack	3.4 dB	5.75 dB
AIR-CAB100ULL-R	Interconnect	100-ft ultra low loss cable, one RP-TNC plug, one RP-TNC jack	4.4 dB	7.25 dB
AIR-CAB150ULL-R	Interconnect	150-ft ultra low loss cable, one RP-TNC plug, one RP-TNC jack	6.6 dB	11 dB
AIR-ACC2537-060	Bulkhead Extender	5-ft (60 inches) RG-58 type cable with one RP-TNC plug and one RP-TNC jack	2 dB	3 dB

Accessories

To complete an installation, Cisco provides accessories that offer increased capabilities, safety, and convenience

Cisco Aironet Antenna Accessories for use with RP-TNC Connectors



Cisco Aironet Accessory Features

Feature	AIR-ACC2537-060	AIR-ACC245LA-R	AIR-ACC2662
Description	60 in. (152 cm) bulkhead extender	2.4 GHz and 5 GHz lightning arrestor	Mount to provide articulation of Yagi and AIR-ANT5195 antennas
Application	Flexible antenna cable that extends access point cabling, typically within an enclosure	Supports both 2.4 GHz and 5 GHz applications; Helps prevent damage due to lightning-induced surges or static electricity; helps prevent damage due to lightning-induced surges or static electricity	Adds swiveling capability to mast-mounted Yagi antennas and AIR-ANT5195

Power Injector Cables for Cisco Aironet 1400 Series Wireless Bridges

Typical installations place the outdoor unit on an external mast with the power injector unit placed indoors. These cables come with a pair of F-type connectors on each end. To allow flexibility in the distance between the units, a variety of cables are available.

Cisco Aironet Power Injector Cables



Cisco Aironet Power Injector Cable Features

Feature	AIR-CAB020DRG6-F=	AIR-CAB050DRG6-F=	AIR-CAB100DRG6-F
Cable Length	20 ft. (6m)	50 ft. (15m)	100 ft. (30m)

Cisco Aironet 1400 Series Bridge Accessories



Cisco Aironet 1400 Series Bridge Accessory Features

Feature	AIR-ACCRWM1400	AIR-ACCBRGB=	AIR-ACCMFM1400=
Description	Roof/Wall mount kit	Grounding block	Multifunction mount
Application	Allows mounting to flat surfaces Includes full elevation and azimuth adjustment	Helps prevent damage due to lightning-induced surges or static electricity	Allows mounting to poles with a diameter between 1.5 in. and 2.5 in. Includes both elevation and polarization adjustment

Cisco Aironet 1300 Series Mounting Hardware

In addition to the antennas available from Cisco, the Cisco 1300 Series has different mounting options (Figure 6). These optional mounting kits are available for mounting to a roof, wall, or pole. The quick-hang mounting bracket allows a simple one-person installation.



Mounting Kits for Cisco Aironet 1300 Series Outdoor Access Point/Bridges

A roof-mount kit is available for use with Cisco Aironet 1300 Series outdoor access points/bridges (integrated antenna and connectorized versions). A wall-mount kit is available for use with Cisco Aironet 1300 Series outdoor access points/bridges with RP-TNC type connectors. The wall-mount kit is for indoor use only. These kits must be ordered separately.

Product Number	Product Description
AIR-ACCWAMK1300=	Cisco Aironet 1300 Series Wall-Mount Kit for use with AIR-BR1310G-x-K9-R Kit includes: · Two 1-ft RG-59 power injector cables · Wall-mount bracket · Mounting hardware
AIR-ACCRMK1300=	Cisco Aironet 1300 Series Roof-Mount Kit for use with AIR-BR1310G-x-K9 Kit includes: · Roof-mount mast (pole and mounting base) · Multifunction mount (allows mounting to roof-mount mast, or directly to a wall) · Mounting hardware · 20-ft dual RG-6 cable assembly with F-Type connectors · 50-ft dual RG-6 cable assembly with F-Type connectors · Coaxial sealant · One Cisco Aironet grounding block · Grounding lug · Anticorrosion gel · U-bolts · Coaxial sealant · Optional 100-ft dual RG-6 cable available separately

Cisco Aironet 1500 Series Accessories

In addition to the antennas offered by Cisco for the 1500 Series, various accessories are available.

Product Number	Product Description
AIR-ACCPMK1500=	Pole Mount Kit
AIR-PWR-ST-LT-TAP=	Streetlight Power Tap, 105-260 VAC
AIR-PWRINJ1500=	Power Injector, In 100-240VAC, Out 48 VDC
AIR-ETH1500-150=	Outdoor Ethernet Cable, 150 ft.

AIR-LAP1510KITP-A	Pole-Top Kit, 2.4 Omni 5 GHz Omni
AIR-LAP1510KITRO-A	Roof-Top Kit, 2.4 Omni 5GHz Omni
AIR-LAP1510KITRS-A	Roof-Top Kit, 2.4 Omni 5GHz Sector

For More Information

http://www.cisco.com/go/antenna

Wireless LAN Controllers

View the online model comparison chart for Cisco Wireless LAN Controllers: http://www.cisco.com/en/US/products/hw/wireless/products_category_buyers_guide.html#~mid-range

Cisco Flex 7500 Series Cloud Controller

The Cisco Flex 7500 Series Cloud Controller is a highly scalable branch-office controller for multisite wireless deployments. Deployed in the private cloud the Cisco Flex 7500 Series Controller extends wireless services to distributed branch offices with centralized control that lowers total cost of operations. This controller can manage up to 500 branch-office locations and 2000 access points from the data center, and it supports secure guest access, rogue detection for Payment Card Industry (PCI) compliance, and in-branch (locally switched) voice and video.



Ideal for Companies That Need These Features

Cisco Flex 7500 Series Cloud Controller

- Economies of scale for multisite branch-office deployments
- Centralized provisioning, management and client trouble shooting
- Licensing flexibility
- Keep clients connected at the branch office in rare case of WAN failure
- System level security including DTLS encryption between access points and the controller
- Integrated radio resource management (RRM)—An intelligent RF control plane for self-configuration, self-healing, and self-optimization
- Cross-network access to real-time and historic RF interference information for quick troubleshooting and resolution
- Enterprise reliability—Automated recovery from lightweight access point and WLAN controller failures to maximize the availability of the wireless network

Key Features and Benefits

- Ideal for data center consolidation—Use a single controller to manage up 500 sites, 2000 access points, and 20,000 clients. Save on the cost for onsite visits, utility bills, and hardware support
- Flexibility to remotely configure wireless policy, management, or security settings at any time
- 802.11n performance for reliable video and voice.
- Flexible software licensing to add support for up to 2000 access points.
- Designed specifically for wireless branch offices with WAN survivability features and local RADIUS server for new clients to get on the network and access the services.
- Integrated RF intelligence with Cisco CleanAir technology as part of the Cisco Unified Wireless Network for self-healing self-optimizing branch-office network.
- Centralized security policies with support for rogue access point detection and denial-of-service attacks.
- Control and Provisioning of Wireless Access Points (CAPWAP) encryption that helps ensure full-line-rate encryption between access points and controllers across remote WAN and LAN links
- Deploy secure guest access across 500 sites.

Specifications

Feature	Cisco Flex 7500 Series Cloud Controller
Wireless	IEEE 802.11a, 802.11b, 802.11g, 802.11d, WMM/802.11e, 802.11h, 802.11n
Wired/Switching/Routing	IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX specification, 1000BASE-T. 1000BASE-SX, 1000-BASE-LH, IEEE 802.1Q VLAN tagging, and IEEE 802.1AX Link Aggregation
Data Request For Comments (RFC)	RFC 768 UDP; RFC 791 IP; RFC 2460 IPv6 (pass through Bridging mode only); RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 1122 Requirements for Internet Hosts; RFC 1519 CIDR; RFC 1542 BOOTP; RFC 2131 DHCP; RFC 5415 CAPWAP Protocol Specification
Encryption	WEP and TKIP-MIC: RC4 40, 104 and 128 bits (both static and shared keys); AES: CBC, CCM, CCMP; DES: DES-CBC, 3DES; SSL and TLS: RC4 128-bit and RSA 1024- and 2048-bit; DTLS: AES-CBC; IPSec: DES-CBC, 3DES, AES-CBC

Security Standards	WPA; IEEE 802.11i (WPA2, RSN); RFC 1321 MD5 Message-Digest Algorithm; RFC 1851 The ESP Triple DES Transform; RFC 2104 HMAC: Keyed Hashing for Message Authentication; RFC 2246 TLS Protocol Version 1.0; RFC 2401 Security Architecture for the Internet Protocol; RFC 2403 HMAC-MD5-96 within ESP and AH; RFC 2404 HMAC-SHA-1-96 within ESP and AH; RFC 2405 ESP DES-CBC Cipher Algorithm with Explicit IV; RFC 2407 Interpretation for ISAKMP; RFC 2408 ISAKMP; RFC 2409 IKE; RFC 2451 ESP CBC-Mode Cipher Algorithms; RFC 3280 Internet X.509 PKI Certificate and CRL Profile; RFC 4347 Datagram Transport Layer Security; RFC 4346 TLS Protocol Version 1.1
Authentication, Authorization, and Accounting (AAA)	IEEE 802.1X; RFC 2548 Microsoft Vendor-Specific RADIUS Attributes; RFC 2716 PPP EAP-TLS; RFC 2865 RADIUS Authentication; RFC 2866 RADIUS Accounting; RFC 2867 RADIUS Tunnel Accounting; RFC 3576 Dynamic Authorization Extensions to RADIUS; RFC 3579 RADIUS Support for EAP; RFC 3580 IEEE 802.1X RADIUS Guidelines; RFC 3748 Extensible Authentication Protocol; Web-based authentication; TACACS support for management users
Management	SNMP v1, v2c, v3; RFC 854 Telnet; RFC 1155 Management Information for TCP/IP-Based Internet; RFC 1156 MIB; RFC 1157 SNMP; RFC 1213 SNMP MIB II; RFC 1350 TFTP; RFC 1643 Ethernet MIB; RFC 2030 SNTP; RFC 2616 HTTP; RFC 2665 Ethernet-Like Interface types MIB; RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual Extensions; RFC 2819 RMON MIB; RFC 2863 Interfaces Group MIB; RFC 3164 Syslog; RFC 3414 User-Based Security Model (USM) for SNMPv3; RFC 3418 MIB for SNMP; RFC 3636 Definitions of Managed Objects for IEEE 802.3 MAUs; Cisco private MIBs
Management Interfaces	• Web-based: HTTP/HTTPS • Command-line interface: Telnet, Secure Shell (SSH) Protocol, serial port • Cisco Wireless Control System (WCS)
Interfaces and Indicators	• 2x 10 Gigabit Ethernet interfaces • Small Form-Factor Pluggable (SFP) options (only Cisco SFPs supported): SFP-10G-SR • LED indicators: Network Link, Diagnostics • 1x Service Port: 10/100/1000 Mbps Ethernet (RJ-45)
Physical Dimensions	• Dimensions (WxDxH): 17.30 x 28.00 x 1.69 in. (440.0 x 711.4 x 43.0 mm) • Weight: 35.1 lbs (15.9 kg) with 2 power supplies
Environmental Conditions	Air temperature: • Appliance On: 10°C to 35°C (50°F to 95°F); altitude: 0 to 914.4 m (3000 ft), decrease system temperature by 1.0°C for every 1000-foot increase in altitude • Appliance Off: 5°C to 45°C (41°F to 113°F); maximum altitude: 3048 m (10,000 ft) • Storage: -40°C to 60°C (-40°F to 140°F); maximum altitude: 3048 m (10,000 ft) • Humidity: • Appliance On: 20% to 80%; maximum dew point: 21°C; maximum rate of change: 5 °C/hr • Appliance Off: 8% to 80%; maximum dew point: 27°C Electrical input: • Sine-wave input (47 - 63 Hz) required • Input voltage low range: • Minimum: 100 V ac • Maximum: 127 V ac • Input voltage high range: • Minimum: 200 V ac • Maximum: 240 V ac • Input kilovolt-amperes (kVA), approximately: • Minimum: 0.090 kVA • Maximum: 0.700 kVA • Heat output (Maximum) 2302 Btu per hour (675 watts) • Acoustical noise emissions: • Sound power, idling: 6.1 bels maximum • Sound power, operating: 6.1 bels maximum
Regulatory Compliance	CE Mark Safety: UL 60950-1:2003; EN 60950:2000 EMI and susceptibility (Class A): • U.S.: FCC Part 15.107 and 15.109 • Canada: ICES-003 • Japan: VCCI • Europe: EN 55022, EN 55024

Selected Part Numbers and Ordering Information

Part Number	Product Name	Cisco SMARTnet® 8x5xNBD
AIR-CT7510-300-K9	7500 Series Cloud Controller for up to 300 Cisco access points	CON-SNT-CT75300
AIR-CT7510-500-K9	7500 Series Cloud Controller for up to 500 Cisco access points	CON-SNT-CT75500

AIR-CT7510-1K-K9	7500 Series Cloud Controller for up to 1000 Cisco access points	CON-SNT-CT751K
AIR-CT7510-2K-K9	7500 Series Cloud Controller for up to 2000 Cisco access points	CON-SNT-CT752K

For More Information

http://www.cisco.com/en/US/products/ps11635/index.html

Cisco Wireless Services Module 2 (WiSM2) Controller for Cisco Catalyst 6500 Series Switches



The Cisco Wireless Services Module 2 (WiSM2) Controller for Cisco Catalyst 6500 Series Switches is a highly scalable and flexible platform that enables services-rich wireless functions in medium-sized to large enterprises and campus environments. Designed for 802.11n performance and maximum scalability, the WiSM2 controller supports a higher density of clients and delivers more efficient roaming, simultaneously managing up to 500 access points and 10,000 clients. The Wireless Services Module in the Cisco Catalyst 6500 chassis provides the highest performance, security, and scalability to support mission-critical wireless business communications. The integrated wireless blade in the Cisco Catalyst chassis offers users a cost-effective wireless controller option, increasing the ROI of their Cisco Catalyst investment while reducing hardware costs.

Ideal for Companies That Need These Features

Cisco Wireless Services Module 2 (WiSM2) Controller for Cisco Catalyst 6500 Series Switches

- Enhanced enterprise scalability with a larger mobility domain that supports more access points
- Enhanced up-time, reliable streaming video and voice and improved fault recovery for consistent mobility in demanding environments
- Flexible licensing that allows access point capacity to be added as the business grows
- Teleworking features for improved business continuity
- Cisco VoiceStream technology for optimized video performance
- System-level security including DTLS encryption between access points and the controller
- Integrated radio resource management (RRM)—An intelligent RF control plane for self-configuration, self-healing, and self-optimization
- Cross-network access to real-time and historic RF interference information for quick troubleshooting and resolution
- Enterprise reliability—Automated recovery from lightweight access point and WLAN controller failures to maximize the availability of the wireless network
- PCI integration

Key Features and Benefits

- Enhanced scalability with support for up to 500 access points and 10,000 clients per blade, and support for up to 3500 access points and 70,000 clients per switch
- Wired-network speed, nonblocking performance for 802.11n networks
- Roaming across wider geographic areas and faster performance for simultaneous applications
- Enhanced uptime with ability to simultaneously upgrade and manage 500 access points
- Provides both real-time and historical information about RF interference affecting network performance across controllers, through systemwide Cisco CleanAir technology integration
- Integrates Cisco VideoStream technology as part of the Cisco technology optimizing the medianet framework to optimize the delivery of video applications across the WLAN
- Flexible software licensing to add additional access points as your business needs grow
- Support for advanced features in the base software license including the Cisco OfficeExtend solution for secure, mobile teleworking, an Enterprise Wireless Mesh that dynamically establishes wireless connections in hard-to-wire areas
- Control and Provisioning of Wireless Access Points (CAPWAP) encryption that helps ensure full-line-rate encryption between access points and controllers across remote WAN and LAN links
- Part of Payment Card Industry (PCI) certified architecture, and well-suited for retail customers who deploy transactional data applications such as scanners and kiosks

Specifications

Feature	Cisco Wireless Service Module 2 (WiSM 2) for Catalyst 6500 Series
Wireless	IEEE 802.11a, 802.11b, 802.11g, 802.11d, WMM/802.11e, 802.11h, 802.11n
Wired/Switching/Routing	IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX specification, 1000BASE-T. 1000BASE-SX, 1000-BASE-LH, IEEE 802.1Q Vtagging, and IEEE 802.1AX Link Aggregation
Data Request for Comments (RFC)	RFC 768 UDP; RFC 791 IP; RFC 2460 IPv6 (pass through Bridging mode only); RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 1122 Requirements for Internet Hosts; RFC 1519 CIDR; RFC 1542 BOOTP; RFC 2131 DHCP; RFC 5415 CAPWAP Protocol Specification

Security Standards	WPA; IEEE 802.11i (WPA2, RSN); RFC 1321 MD5 Message-Digest Algorithm; RFC 1851 The ESP Triple DES Transform; RFC 2104 HMAC: Keyed Hashing for Message Authentication; RFC 2246 TLS Protocol Version 1.0; RFC 2401 Security Architecture for the Internet Protocol; RFC 2403 HMAC-MD5-96 within ESP and AH; RFC 2404 HMAC-SHA-1-96 within ESP and AH; RFC 2405 ESP DES-CBC Cipher Algorithm with Explicit IV; RFC 2407 Interpretation for ISAKMP; RFC 2408 ISAKMP; RFC 2409 IKE; RFC 2451 ESP CBC-Mode Cipher Algorithms; RFC 3280 Internet X.509 PKI Certificate and CRL Profile; RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec; RFC 3686 Using AES Counter Mode with IPsec ESP; RFC 4347 Datagram Transport Layer Security; RFC 4346 TLS Protocol Version 1.1
Encryption	WEP and TKIP-MIC: RC4 40, 104 and 128 bits (both static and shared keys); AES: CBC, CCM, CCMP; DES: DES-CBC, 3DES; SSL and TLS: RC4 128-bit and RSA 1024- and 2048-bit; DTLS: AES-CBC; IPsec: DES-CBC, 3DES, AES-CBC
Authentication, Authorization, and Accounting (AAA)	IEEE 802.1X; RFC 2548 Microsoft Vendor-Specific RADIUS Attributes; RFC 2716 PPP EAP-TLS; RFC 2865 RADIUS Authentication; RFC 2866 RADIUS Accounting; RFC 2867 RADIUS Tunnel Accounting; RFC 3576 Dynamic Authorization Extensions to RADIUS; RFC 3579 RADIUS Support for EAP; RFC 3580 IEEE 802.1X RADIUS Guidelines; RFC 3748 Extensible Authentication Protocol; Web-based authentication; TACACS support for management users
Regulatory Compliance	CE Mark; Safety: UL 60950-1:2003; EN 60950:2000; EMI and susceptibility (Class A): U.S.: FCC Part 15.107 and 15.109; Canada: ICES-003; Japan: VCCI; Europe: EN 55022, EN 55024
Physical and Environmental	· Dimensions (W x D x H): 1.6 x 15.3 x 16.3 in. (4.0 x 37.9 x 40.3 cm) · Weight: 11 lbs (54.99 kg) · Temperature: Operating temperature: 32 to 104°F (0 to 40°C); Storage temperature: -40 to 167°F (-40 to 75°C) · Humidity: Operating humidity: 10 to 95%, noncondensing; Storage humidity: up to 95% · Input power: 225W maximum; Test conditions: 104°F (40°C), Full TrafficMost deployments and environments would use less power · Heat Dissipation: 768 Btu/h Maximum; Test Conditions: 104°F (40°C), Full Traffic
Management Interfaces	· Web-based: HTTP/HTTPS · Command-line interface: Telnet, Secure Shell (SSH) Protocol, serial port · Cisco Wireless Control System (WCS)
Interfaces and Indicators	· Service port: 1000 Mbps Ethernet Internal · Redundancy port: 1000 Mbps Ethernet Internal · Console port: RS232 (DB-9 male/RJ-45 connector included), mini-USB · Status indicators: Power, System, Alarm, Console, USB
Management	SNMP v1, v2c, v3; RFC 854 Telnet; RFC 1155 Management Information for TCP/IP-Based Internet; RFC 1156 MIB; RFC 1157 SNMP; RFC 1213 SNMP MIB II; RFC 1350 TFTP; RFC 1643 Ethernet MIB; RFC 2030 SNTP; RFC 2616 HTTP; RFC 2665 Ethernet-Like Interface types MIB RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual Extensions; RFC 2819 RMON MIB; RFC 2863 Interfaces Group MIB; RFC 3164 Syslog; RFC 3414 User-Based Security Model (USM) for SNMPv3; RFC 3418 MIB for SNMP; RFC 3636 Definitions of Managed Objects for IEEE 802.3 MAUs; Cisco private MIBs

Selected Part Numbers and Ordering Information

Part Number	Description	Cisco SMARTnet® 8x5xNBD Part Number
WS-SVC-WISM2-1-K9(=)	Wireless Services Module: WiSM-2: w/ 100 AP Support License	CON-SNT-WSM2100
WS-SVC-WISM2-3-K9(=)	Wireless Services Module: WiSM-2: w/ 300 AP Support License	CON-SNT-WSM2300
WS-SVC-WISM2-5-K9(=)	Wireless Services Module: WiSM-2: w/ 500 AP Support License	CON-SNT-WSM2500

For More Information

http://www.cisco.com/en/US/products/ps11634/index.html

Cisco 5500 Series Wireless LAN Controller



The Cisco 5500 Series Wireless Controller is a highly scalable and flexible platform that enables systemwide services for mission-critical wireless in medium to large-sized enterprises and campus environments. Designed for 802.11n performance and maximum scalability, this controller offers enhanced uptime with the ability to simultaneously manage 500 access points; superior performance for reliable streaming video and toll quality voice; and improved fault recovery for a consistent mobility experience in the most demanding environments.

Ideal for Companies That Need These Features

Cisco 5500 Series

- Enhanced enterprise scalability with a larger mobility domain that supports more access points
- Flexible licensing that allows access point capacity to be added as the business grows
- Teleworking features for improved business continuity
- System level security including DTLS encryption between access points and the controller
- Integrated radio resource management (RRM)—An intelligent RF control plane for self-configuration, self-healing, and self-optimization
- Cross-network access to real-time and historic RF interference information for quick troubleshooting and resolution
- Enterprise reliability—Automated recovery from lightweight access point and WLAN controller failures to maximize the availability of the wireless network

Key Features and Benefits

- Optimized for next-generation wireless networking
- Offer nine times the performance of 802.1 1a/g networks
- Support up to 500 access points and 7000 clients
- Support a larger mobility domain for improved network scale
- Offer integrated RF intelligence with CleanAir technology as part of the Cisco Unified Wireless Network with Cisco Aironet 3500 Series Access Points
- Flexible software licensing to add additional access points as your business needs grow
- Support advanced features in the base software license including the Cisco OfficeExtend solution for secure, mobile teleworking, Enterprise Wireless Mesh that dynamically establishes wireless connections in hard to wire areas.and Control and Provisioning of Wireless Access Points (CAPWAP) encryption that helps ensure full-line-rate encryption between access points and controllers across remote WAN and LAN links

Specifications

Feature	Cisco 5500 Series Wireless LAN Controller
Wireless	IEEE 802.1 1a, 802.1 1b, 802.1 1g, 802.1 1d, WMM/802.1 1e, 802.1 1h, 802.1 1n
Data RFCs	RFC 768 UDP; RFC 791 IP; RFC 2460 IPv6 (pass through Bridging mode only); RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 1122 Requirements for Internet Hosts; RFC 1519 CIDR; RFC 1542 BOOTP; RFC 2131 DHCP; CAPWAP RFC
Security Standards	WPA; IEEE 802.1 1i (WPA2, RSN); RFC 1321 MD5 Message-Digest Algorithm; RFC 1851 The ESP Triple DES Transform; RFC 2104 HMAC: Keyed Hashing for Message Authentication; RFC 2246 TLS Protocol Version 1.0; RFC 2401 Security Architecture for the Internet Protocol; RFC 2403 HMAC-MD5-96 within ESP and AH; RFC 2404 HMAC-SHA-1-96 within ESP and AH; RFC 2405 ESP DES-CBC Cipher Algorithm with Explicit IV; RFC 2406 IPsec; RFC 2407 Interpretation for ISAKMP; RFC 2408 ISAKMP; RFC 2409 IKE; RFC 2451 ESP CBC-Mode Cipher Algorithms; RFC 3280 Internet X.509 PKI Certificate and CRL Profile; RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec; RFC 3686 Using AES Counter Mode with IPsec ESP; RFC 4347 Datagram Transport Layer Security; RFC 4346 TLS Protocol Version 1.1
Encryption	WEP and TKIP-MIC: RC4 40, 104 and 128 bits (both static and shared keys); SSL and TLS: RC4 128-bit and RSA 1024- and 2048-bit; AES: CCM, CCMP; IPSec: DES-CBC, 3DES, AES-CBC
AAA	IEEE 802.1X; RFC 2548 Microsoft Vendor-Specific RADIUS Attributes; RFC 2716 PPP EAP-TLS; RFC 2865 RADIUS Authentication; RFC 2866 RADIUS Accounting; RFC 2867 RADIUS Tunnel Accounting; RFC 2869 RADIUS Extensions; RFC 3576 Dynamic Authorization Extensions to RADIUS; RFC 3579 RADIUS Support for EAP; RFC 3580 IEEE 802.1X RADIUS Guidelines; RFC 3748 Extensible Authentication Protocol; Web-based authentication; TACACS support for management users
Management	SNMP v1, v2c, v3; RFC 854 Telnet; RFC 1155 Management Information for TCP/IP-Based Internets; RFC 1156 MIB; RFC 1157 SNMP; RFC 1213 SNMP MIB II; RFC 1350 TFTP; RFC 1643 Ethernet MIB; RFC 2030 SNTP; RFC 2616 HTTP; RFC 2665 Ethernet-Like Interface types MIB; RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering and Virtual Extensions; RFC 2819 RMON MIB; RFC 2863 Interfaces Group MIB; RFC 3164 Syslog; RFC 3414 User-Based Security Model (USM) for SNMPv3; RFC 3418 MIB for SNMP; RFC 3636 Definitions of Managed Objects for IEEE 802.3 MAUs; Cisco private MIBs
Management Interfaces	Web-based: HTTP/HTTPS; Command-line interface: Telnet, Secure Shell (SSH) Protocol, serial port; Cisco Wireless Control System (WCS)
Interfaces and Indicators	Uplink: 8 (5508) 1000BaseT, 1000Base-SX and 1000Base-LH transceiver slots; Small Form-Factor Pluggable (SFP) options (only Cisco SFPs supported): GLC-T, GLC-SX-MM,; GLC-LH-SM; LED indicators: link; Service Port: 10/100/1000 Mbps Ethernet (RJ45); Service Port: 10/100/1000 Mbps Ethernet (RJ45) For High Availability for future use; LED indicators: link; Utility Port: 10/100/1000 Mbps Ethernet (RJ45); LED indicators: link; Expansion Slots: 1 (5508); Console Port: RS232 (DB-9 male/RJ-45 connector included), mini-USB; Other Indicators: Sys, ACT, Power Supply 1, Power Supply 2
Regulatory Compliance	CE Mark; Safety: UL 60950-1:2003; EN 60950:2000; EMI and susceptibility (Class A): U.S.: FCC Part 15.107 and 15.109; Canada: ICES-003; Japan: VCCI; Europe: EN 55022, EN 55024

Selected Part Numbers and Ordering Information

AIR-CT5508-12-K9	Cisco 5500 Series WLAN Controller with 12 Cisco Aironet access point licenses
AIR-CT5508-25-K9	Cisco 5500 Series WLAN Controller with 25 Cisco Aironet access point licenses
AIR-CT5508-50-K9	Cisco 5500 Series WLAN Controller with 50 Cisco Aironet access point licenses
AIR-CT5508-100-K9	Cisco 5500 Series WLAN Controller with 100 Cisco Aironet access point licenses
AIR-CT5508-250-K9	Cisco 5500 Series WLAN Controller with 250 Cisco Aironet access point licenses
AIR-CT5508-500-K9	Cisco 5500 Series WLAN Controller with 500 Cisco Aironet access point licenses

For More Information

http://www.cisco.com/en/US/products/ps10315/index.html

Cisco 2500 Series Wireless LAN Controller



The Cisco 2500 Series Wireless LAN Controller enables systemwide wireless functions in small to medium-sized enterprises and branch offices. Designed for 802.11n performance, the Cisco 2500 Series Wireless LAN Controllers are entry-level controllers that provide real-time communication between Cisco Aironet access points to simplify the deployment and operation of wireless networks

This controller delivers centralized security policies, wireless intrusion prevention system (wIPS) capabilities, award-winning RF management and quality of service (QoS) for voice and video. Delivering 802.11n performance and scalability it provides low total cost of ownership and flexible access point licensing for 5, 15, 25, or 50 access points.

Ideal for Companies That Need These Features

Cisco 2500 Series

- An enterprise scalable architecture that provides business-critical wireless services for small businesses and branch offices
- Flexible licensing that allows access points to be added as business grows
- Teleworking features for improved business continuity
- Videostream for enhanced video performance
- An intelligent RF control plane for self-configuration, self-healing, and self-optimization
- Centralized security policies to detect rogue access points and protect against denial-of-service attacks and PCI support
- Support for highly secure guest access, voice, location services, and other collaboration applications

Key Features and Benefits

- 802.11n performance and scalability at an attractive entry-level price
- Support for up to 50 access points and 500 clients
- Flexible licensing and support for advanced features in the base software, including office extend for secure mobile teleworking, award-winning Cisco CleanAir technology for RF management, and comprehensive end-to-end security with CAPWAP access point-to-controller encryption
- Payment Card Industry (PCI) certified and well suited for retail customers who deploy transactional data
- Highly secure guest access, voice, location services, and other collaboration applications
- Simplified network deployment, operations, and management to help reduce overall operational expenses

Specifications

Feature	Cisco 2500 Series Wireless Controller
Wireless Standards	IEEE 802.11a, 802.11b, 802.11g, 802.11d, WMM/802.11e, 802.11h, 802.11n.
Wired/Switching/Routing	IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX specification, 1000BASE-T, and IEEE 802.1Q VLAN tagging.
Data Request for Comments (RFCs)	RFC 768 UDP; RFC 791 IP; RFC 2460 IPv6 (pass through Bridging mode only); RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 1122 Requirements for Internet Hosts; RFC 1519 CIDR; RFC 1542 BOOTP; RFC 2131 DHCP;RFC 5415 CAPWAP Protocol Specification
Encryption	• WEP and Temporal Key Integrity Protocol-Message Integrity Check (TKIP-MIC): RC4 40, 104 and 128 bits (both static and shared keys) • Advanced Encryption Standard (AES): CBC, CCM, Counter Mode with Cipher Block Chaining Message Authentication Code Protocol (CCMP) • DES: DES-CBC, 3DES • Secure Sockets Layer (SSL) and Transport Layer Security (TLS): RC4 128-bit and RSA 1024- and 2048-bit • DTLS: AES-CBC

Management Interfaces	· Designed for use with Cisco Wireless Control System · Web-based: HTTP/HTTPS individual device manager · Command-line interface: Telnet, SSH, serial port
Interfaces and Indicators	· Console port: RJ-45 connector · Network: Four 1 Gbps Ethernet (RJ-45) Note: Access point directly connected to the controller is not currently supported. · LED indicators: Link Activity (each 1G port), Power, Status, Alarm
Authentication, Authorization, and Accounting (AAA)	IEEE 802.1X; RFC 2548 Microsoft Vendor-Specific RADIUS Attributes; RFC 2716 PPP EAP-TLS;RFC 2865 RADIUS Authentication; RFC 2866 RADIUS Accounting; RFC 2867 RADIUS Tunnel Accounting; RFC 3576 Dynamic Authorization Extensions to RADIUS; RFC 3579 RADIUS Support for EAP; RFC 3580 IEEE 802.1X RADIUS Guidelines; RFC 3748 Extensible Authentication Protocol; Web-based authentication;TACACS support for management users
Security Standards	WiFi Protected Access (WPA); IEEE 802.1 1i (WPA2, RSN); RFC 1321 MD5 Message-Digest Algorithm; RFC 1851 The ESP Triple DES Transform; RFC 2104 HMAC: Keyed Hashing for Message Authentication; RFC 2246 TLS Protocol Version 1.0; RFC 2401 Security Architecture for the Internet Protocol; RFC 2403 HMAC-MD5-96 within ESP and AH; RFC 2404 HMAC-SHA-1-96 within ESP and AH; RFC 2405 ESP DES-CBC Cipher Algorithm with Explicit IV; RFC 2406 IP Encapsulating Security Payload (ESP); RFC 2407 Interpretation for ISAKMP; RFC 2408 ISAKMP; RFC 2409 IKE; RFC 2451 ESP CBC-Mode Cipher Algorithms; RFC 3280 Internet X.509 PKI Certificate and CRL Profile; RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec; RFC 3686 Using AES Counter Mode with IPsec ESP; RFC 4347 Datagram Transport Layer Security; RFC 4346 TLS Protocol Version 1.1
Management	SNMP v1, v2c, v3; RFC 854 Telnet; RFC 1155 Management Information for TCP/IP-Based Internets; RFC 1156 MIB; RFC 1157 SNMP; RFC 1213 SNMP MIB II; RFC 1350 TFTP; RFC 1643 Ethernet MIB; RFC 2030 SNTP; RFC 2616 HTTP; RFC 2665 Ethernet-Like Interface types MIB RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual Extensions; RFC 2819 RMON MIB; RFC 2863 Interfaces Group MIB; RFC 3164 Syslog; RFC 3414 User-Based Security Model (USM) for SNMPv3; RFC 3418 MIB for SNMP; RFC 3636 Definitions of Managed Objects for IEEE 802.3 MAUs; Cisco private MIBs
Physical and Environmental	Dimensions: 1.73 x 8.00 x 6.75 in. (43.9 x 203.2 x 271.5mm) Weight: 3.5 lbs (with power supply) Temperature: · Operating: 32 to 104 °F (0 to 40°C) · Storage: -13 to 158°F (-25 to 70°C) Humidity: · Operating humidity: 10 to 95 percent, noncondensing · Storage humidity: Up to 95 percent Power adapter: Input power: 100 to 240 VAC; 50/60 Hz Heat dissipation: 72 BTU/hour
Regulatory Compliance	Safety: UL 60950-1, 2nd Edition · EN 60950:2005 EMI and susceptibility (Class B): · U.S.: FCC Part 15.107 and 15.109 · Canada: ICES-003 · Japan: VCCI · Europe: EN 55022, EN 55024

Selected Part Numbers and Ordering Information

Part Number	Description	Cisco SMARTnet® 8x5xNBD
AIR-CT2504-5-K9	2500 Series Wireless Controller for up to 5 Cisco access points	CON-SNT-CT255
AIR-CT2504-15-K9	2500 Series Wireless Controller for up to 15 Cisco access points	CON-SNT-CT2515
AIR-CT2504-25-K9	2500 Series Wireless Controller for up to 25 Cisco access points	CON-SNT-CT2525
AIR-CT2504-50-K9	2500 Series Wireless Controller for up to 50 Cisco access points	CON-SNT-CT2550

For More Information

http://www.cisco.com/en/US/products/ps11630/index.html

Cisco Wireless Controller Module for the ISR G2



The Cisco Wireless Controller application on the Cisco Services-Ready Engine (SRE) enables systemwide wireless functions in small to medium-sized enterprises and branch offices. The Cisco SRE modules are router blades for the Cisco Integrated Services Routers Generation 2 (ISR G2). These routers allow for remote provisioning in order to consolidate branch-office infrastructure, reduce operating cost and deploy wireless on demand. The Cisco Wireless Control Module for the ISR G2 has centralized security policies to detect rogue access points and protect against denial-of-service attacks Delivering 802.1 1n performance up to

500 Mbps, Cisco SRE modules with the wireless controller application provide low total cost of ownership and offer flexible licensing in order to scale as network requirements grow.

Ideal for Companies That Need These Features

Cisco Wireless Controller Module for the ISR G2

- Quickly deploy wireless on demand
- Reduce operating costs
- Consolidate branch-office infrastructure
- Business-critical wireless services for small to midsize businesses and branch offices
- Flexible licensing that allows access points to be added as business grows
- On-demand remote application provisioning
- Cisco VideoStream technology for enhanced video performance
- Centralized security policies to detect rogue access points and protect against denial-of-service attacks and PCI support
- Support for secure guest access, voice, location services, and other collaboration applications

Key Features and Benefits

- 802.11n performance with 500-Mbps throughput
- Support for up to 50 access points and 500 clients
- Ability for customers to provision the Cisco Wireless Controller either at the time of Cisco SRE installation or remotely any time thereafter.
- Remote installation and activation eliminates the need for separate equipment upgrades, service calls, and onsite IT personnel.
- Support for scanners and kiosks for Payment Card Industry (PCI) certified customers, secure guest access, voice, location services, video and wireless mesh
- One-to-one hard drive redundancy increases the availability and robustness of the network.
- Control and Provisioning of Wireless Access Points (CAPWAP) encryption that helps ensure full-line-rate encryption between access points and controllers across remote WAN and LAN links
- Support for rogue access point detection and denial-of-service attack

Specifications

Feature	Cisco Wireless Controller Module on the ISR G2
Wireless Standards	IEEE 802.11a, 802.11b, 802.11g, 802.11d, WMM/802.11e, 802.11h, 802.11n
Wired/Switching/Routing	Several Ethernet switching modules and Power-over-Ethernet (PoE) options are supported on Cisco 1941, 2900, 3900 Series ISR G2 routers
Encryption	• Wired Equivalent Privacy (WEP) and Temporal Key Integrity Protocol-Message Integrity Check (TKIP-MIC): RC4 40, 104 and 128 bits (both static and shared keys) • Advanced Encryption Standard (AES): CBC, CCM, Counter Mode with Cipher Block Chaining Message Authentication Code Protocol (CCMP) • Data Encryption Standard (DES): DES Cipher Block Chaining (DES-CBC), 3DES • Secure Sockets Layer (SSL) and Transport Layer Security (TLS): RC4 128-bit and RSA 1024- and 2048-bit • IPsec: DES-CBC, 3DES, AES-CBC
Data Request for Comments (RFCs)	RFC 768 UDP; RFC 791 IP; RFC 2460 IPv6 (pass through Bridging mode only); RFC 792 ICMP; RFC 793 TCP; RFC 826 ARP; RFC 1122 Requirements for Internet Hosts; RFC 1519 CIDR; RFC 1542 BOOTP; RFC 2131 DHCP; RFC 5415 CAPWAP Protocol Specification; RFC 5416 CAPWAP Binding for 802.11
Security Standards	Wi-Fi Protected Access (WPA); IEEE 802.11i (WPA2, RSN); RFC 1321 MD5 Message-Digest Algorithm; RFC 1851 The ESP Triple DES Transform; RFC 2104 HMAC: Keyed Hashing for Message Authentication; RFC 2246 TLS Protocol Version 1.0; RFC 2401 Security Architecture for the Internet Protocol; RFC 2403 HMAC-MD5-96 within ESP and AH; RFC 2404 HMAC-SHA-1-96 within ESP and AH; RFC 2405 ESP DES-CBC Cipher Algorithm with Explicit IV; RFC 2406 IP Encapsulating Security Payload (ESP); RFC 2407 Interpretation for ISAKMP; RFC 2408 ISAKMP; RFC 2409 IKE; RFC 2451 ESP CBC-Mode Cipher Algorithms; RFC 3280 Internet X.509 PKI Certificate and CRL Profile; RFC 3602 The AES-CBC Cipher Algorithm and Its Use with IPsec; RFC 3686 Using AES Counter Mode with IPsec ESP;RFC 4346 TLS Protocol Version 1.1
Authentication, Authorization, and Accounting (AAA)	IEEE 802.1X; RFC 2548 Microsoft Vendor-Specific RADIUS Attributes; RFC 2716 PPP EAP-TLS; RFC 2865 RADIUS Authentication; RFC 2866 RADIUS Accounting; RFC 2867 RADIUS Tunnel Accounting; RFC 2869 RADIUS Extensions; RFC 3576 Dynamic Authorization Extensions to RADIUS; RFC 3579 RADIUS Support for EAP; RFC 3580 IEEE 802.1X RADIUS Guidelines; RFC 3748 Extensible Authentication Protocol (EAP); Web-based authentication; Terminal Access Controller Access-Control System (TACACS) support for management users
Management Interfaces	• Designed for use with Cisco Wireless Control System • Web-based: HTTP/HTTPS individual device manager • Command-line interface: Telnet, SSH
Software Compatibility	Routers: Cisco IOS Software Release

Management	SNMP v1, v2c, v3; RFC 854 Telnet; RFC 1155 Management Information for TCP/IP-Based Internets; RFC 1156 MIB; RFC 1157 SNMP; RFC 1213 SNMP MIB II; RFC 1350 TFTP; RFC 1643 Ethernet MIB; RFC 2030 SNTP; RFC 2616 HTTP; RFC 2665 Ethernet-Like Interface types MIB; RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual Extensions; RFC 2819 RMON MIB; RFC 2863 Interfaces Group MIB; RFC 3164 Syslog; RFC 3414 User-Based Security Model (USM) for SNMPv3; RFC 3418 MIB for SNMP; RFC 3636 Definitions of Managed Objects for IEEE 802.3 MAUs; Cisco private MIBs
Product Compatibility	· Router: Cisco 1941, 2900 Series, and 3900 Series ISR G2 routers · Management: Cisco Wireless Control System · Location tracking: Cisco Mobility Service Engine · Wireless Controllers: Cisco 2100, 2500, 4400, 5500, Cisco Wireless Services Module (WiSM), WiSM2

Selected Part Numbers and Ordering Information

Part Number	Product Name	Cisco SMARTnet® 8x5xNBD
SRE-WLC	Wireless Controller on SRE option when sold with ISR G2 system	Requires SRE SASU
FL-SRE-WLC-5	5 AP License for Cisco Wireless Controller on SRE (when sold with ISR G2 system)	Requires SRE SASU
FL-SRE-WLC-25	25 AP License for Cisco Wireless Controller on SRE (when sold with ISR G2 system)	Requires SRE SASU

For More Information

http://www.cisco.com/en/US/products/ps6730/index.html

Network Management

Cisco Prime Network Control System (NCS)

Cisco Prime Network Control System (NCS), the industry's most comprehensive management platform, delivers converged user, access, and identity management, with complete visibility into endpoint connectivity, regardless of device, network, or location. This visibility speeds troubleshooting for the most reported customer pain point—network problems related to client devices. Cisco Prime NCS also provides monitoring of endpoint security policy through integration with the Cisco Identity Services Engine (ISE) to deliver visibility into compliance based on real-time contextual information from the network, users, and devices across the entire wired and wireless access network.

Built on the foundation of the Cisco Wireless Control System (WCS), Cisco Prime NCS includes complete lifecycle management of 802.11n and 802.11a/b/g and enterprise-class indoor and outdoor wireless networks. As the management platform for the Cisco Unified Wireless Network, Cisco Prime NCS supports the delivery of high-performance applications and mission-critical solutions that simplify business operations and improve productivity.

Cisco Prime NCS is a scalable platform that meets the needs of small, midsize, and large-scale wired and wireless LANs across local, remote, national, and international locations. Cisco Prime NCS gives IT managers immediate access to the tools they need, when they need them, so that they can more efficiently implement and maintain secure wireless LANs, monitor wired and wireless LANs, and view users and endpoints across both networks—all from a centralized location. Operational costs are significantly reduced through the workflow-oriented, simplified, and intuitive user experience offered by the platform, as well as built-in tools that improve IT efficiency, lower IT training costs, and minimize IT staffing requirements, even as the network grows. Unlike overlay management tools, Cisco NCS incorporates the full breadth of management requirements—from radio frequency, to controllers, switches, endpoints, and users on wired and wireless networks, to mobility and identity services—to deliver a scalable and unified platform.

Ideal for Companies That Need These Features

Cisco Wireless Control System	· Resolve access problems across wired and wireless networks and get users back online faster · Visibility and diagnosis of access infrastructure includes Cisco Catalyst switches, Cisco wireless controllers and Cisco Access Points · Allows IT to design and maintain optimal RF environments · Centrally manage Cisco MSE and wireless services and RF interference with Cisco CleanAir technology · Eliminates complexity, improves IT efficiency and minimizes staffing requirements · Built-in security monitoring with intrusion detection systems (IDSs) and adaptive wireless intrusion prevention systems (wIPSs) · Cisco EnergyWise power savings

Key Features and Benefits

· Complete lifecycle management of hundreds of Cisco Wireless LAN Controllers and 15,000 Cisco Aironet lightweight access points from a centralized location. Additionally, manage up to 5000 autonomous Cisco Aironet access points.

- Manage up to 5000 switches for monitoring and troubleshooting functions.
- Scalable mobility and identity service management are delivered through integration with the Cisco MSE and the Cisco ISE, respectively.
- Delivered as a physical or a virtual appliance allowing deployment scalability to help customers meet various deployment models.
- Comprehensive monitoring and troubleshooting support for Cisco Catalyst switches allows for visibility into critical performance metrics for interfaces, ports, endpoints and users, and basic switch inventory.
- WLAN lifecycle management—Comprehensive wireless LAN lifecycle management includes a full range of planning, deployment, monitoring, troubleshooting, and reporting capabilities.
- Simplified ease of use—Intuitive GUI and easy-to-use tools, guides, and templates deliver improved IT efficiency, and lowered IT training costs.
- Planning—Built-in planning and design tools simplify defining access point placement and coverage helping to reduce (and in many cases, eliminate) improper RF designs and coverage problems.
- Information from third-party site survey tools can be easily imported and integrated into Cisco Prime NCS to aid in WLAN design and deployment.
- Deployment—A broad array of integrated templates and tools delivers quick and cost-effective deployments and effective configuration management.
- Centralized security and network protection—Streamlined administration and monitoring of the WLAN security status for all security-related events and network conditions is provided from a single, comprehensive view. Automated alarms enable rapid responses to mitigate risks.
- Robust wIPS—Quick detection, location, and containment of unauthorized (rogue) devices is supported by a robust wIPS.
- Monitoring—Centralized monitoring of the entire WLAN helps maintain robust WLAN performance and an optimal wireless experience.
- Hierarchical maps—Quick access to different geographies, campuses, buildings, floors, and regions supports better network visibility and control.
- Google Earth integration—Enhanced visibility and management of outdoor wireless mesh deployments is delivered through integration with Google Earth.
- Troubleshooting—Integrated workflows and tools help IT administrators quickly assess service disruptions, receive notices about performance degradation, research resolutions, and take action to remedy nonoptimal situations.
- Client troubleshooting tool—A client troubleshooting tool supports a step-by-step method to analyze problems for all client devices. Specialized diagnostic tools support enhanced analysis of connection problems and mis-configurations occurring with Cisco Compatible Extensions Version 5 or later Client devices.
- Integration with Cisco ISE and Cisco Secure Access Control Server (ACS) View provides a simple way to collect and analyze additional data relevant to endpoints.
- Reporting—Extensive on-demand and automated reports can be run to address inventory, performance, controllers, access points, clients, security, RF environment, and alarms. Reports are customizable.
- PCI compliance report—Event analysis and audit trails provide assistance in creating a PCI Assessment Report.
- The Cisco unified wireless security solution integrates security alerts, alarms, adaptive wireless intrusion prevention system (wIPS), and Cisco CleanAir technology into a single unified platform, from a centralized view—making it unprecedented in the industry.

Specifications

Feature	Cisco Prime Network Control System (NCS)
VMware ESX and ESXi Versions (Virtual Appliance on a Customer-Supplied Server)	If deploying Cisco Prime NCS as a virtual appliance, on a customer-supplied server, one of the following versions of VMware ESX or ESXi may be used: • VMware ESX or VMware ESXi version 3.5 • VMware ESX or VMware ESXi version 4.1
Managed Devices	Cisco 2000, 2100, 2500, 4100 and 4400, 5500 Series Wireless LAN Controllers; Cisco Catalyst 6500 Series Wireless Services Module (WiSM) and Cisco Wireless LAN Controller Module 2 (WiSM2); Cisco Catalyst 3750G Integrated Wireless LAN Controller; Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for Integrated Services Routers; Cisco Aironet access points with CleanAir technology, Cisco Aironet lightweight access points, Cisco Aironet lightweight outdoor mesh access points, Cisco OfficeExtend 600 Access Point, Cisco 3300 Series Mobility Services Engine (MSE), Cisco Wireless Location Appliance, Cisco Spectrum Expert Wi-Fi, Cisco Context-Aware Software, and Cisco Adaptive wIPS Software. Monitoring and migration of selected Cisco Aironet standalone (autonomous) access points. Monitoring of the standalone access points of Cisco 800, 1800, 2800, and 3800 Series Integrated Services Routers.
Minimum Client Requirements	Internet Explorer 8.0 or later and Mozilla Firefox 3.6 or later
Management and Security	SNMP v1, v2c, v3 and Cisco Terminal Access Controller Access-Control System Plus (TACACS+) PNG, JPEG, and AutoCAD (DXF and DWG) import file types supported

Managed Devices	Cisco 2000, 2100, 2500, 4100 and 4400, 5500 Series Wireless LAN Controllers; Cisco Catalyst 6500 Series Wireless Services Module (WiSM) and Cisco Wireless LAN Controller Module 2 (WiSM2); Cisco Catalyst 3750G Integrated Wireless LAN Controller; Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for Integrated Services Routers; Cisco Aironet access points with CleanAir technology, Cisco Aironet lightweight access points, Cisco Aironet lightweight outdoor mesh access points, Cisco OfficeExtend 600 Access Point, Cisco 3300 Series Mobility Services Engine (MSE), Cisco Wireless Location Appliance, Cisco Spectrum Expert Wi-Fi, Cisco Context-Aware Software, and Cisco Adaptive wIPS Software. Monitoring and migration of selected Cisco Aironet standalone (autonomous) access points. Monitoring of the standalone access points of Cisco 800, 1800, 2800, and 3800 Series Integrated Services Routers.
Minimum Server Requirements for Deploying Virtual Appliances	· Cisco Prime NCS High-End Virtual Appliance · 15,000 lightweight access points; 5000 standalone access points; 750 wireless LAN controllers and 5000 switches · Minimum RAM: 16GB · Minimum Hard disk space allocation: 300GB · Processors: 8, at 2.93GHz or better
	· Cisco Prime NCS Standard Virtual Appliance · 7500 lightweight access points; 2500 standalone access points; 450 wireless LAN controllers and 2500 switches · Minimum RAM: 14GB · Minimum Hard disk space allocation: 200GB · Processors: 6, at 2.93GHz or better
	· Cisco Prime NCS Low-End Virtual Appliance · 3500 lightweight access points; 1000 standalone access points; 125 wireless LAN controllers and 1000 switches · Minimum RAM: 10GB · Minimum Hard disk space allocation: 150GB · Processors: 4, at 2.93GHz or better
	· Deploying Cisco Prime NCS Virtual Appliance on CiscoWorks Wireless LAN Solution Engine (WLSE) models 1130-19 or 1133 · Cisco Prime NCS is not supported on the Cisco WLSE hardware.

Selected Part Numbers and Ordering Information

Part Number	Description
PRIME-NCS-APL-K9	Cisco Prime Appliance
L-NCS-1.0-K9	Cisco Prime NCS Device Count Licenses Family
L-NCS-1.0-50	Cisco Prime NCS Software and License for 50 Devices
L-NCS-1.0-100	Cisco Prime NCS Software and License for 100 Devices
L-NCS-1.0-500	Cisco Prime NCS Software and License for 500 Devices
L-NCS-1.0-1K	Cisco Prime NCS Software and License for 1,000 Devices
L-NCS-1.0-2.5K	Cisco Prime NCS Software and License for 2,500 Devices
L-NCS-1.0-5K	Cisco Prime NCS Software and License for 5,000 Devices
L-NCS-1.0-10K	Cisco Prime NCS Software and License for 10,000 Devices

For More Information

http://www.cisco.com/en/US/products/ps11686/index.html

Cisco Wireless Control System

The Cisco Wireless Control System (WCS) is the industry's most comprehensive management platform for lifecycle management of 802.11n and 802.11a/b/g, enterprise-class wireless networks. This robust platform delivers a cost-effective management solution that enables IT administrators to successfully plan, deploy, monitor, troubleshoot, and report on indoor and outdoor wireless networks.

As the management platform for the Cisco Unified Wireless Network, Cisco WCS supports the delivery of high-performance applications and mission-critical solutions that simplify business operations and improve productivity. It also supports Cisco CleanAir technology, a system-wide capability of the Cisco Unified Wireless Network that uses silicon-level intelligence to create a self-healing, self-optimizing wireless network

Cisco WCS is a comprehensive platform that scales to meet the needs of small, midsize, and large-scale wireless LANs across local, remote, national, and international locations. This award-winning solution gives IT managers immediate access to the tools they need, when they need them, to more efficiently implement and maintain secure wireless LANs —all from a centralized location requiring minimal IT staffing.

Operational costs are significantly reduced through the Cisco WCS intuitive GUI, simplified ease-of-use, and built-in tools that deliver improved IT efficiency, lowered IT training costs, and minimized IT staffing requirements, even as the network grows. Unlike overlay management tools, Cisco WCS lowers operational costs by incorporating the full breadth of management requirements from radio frequency to controllers to services into a single unified platform.

Ideal for Companies That Need These Features

Cisco Wireless Control System

- Centralized platform for comprehensive, wireless LAN lifecycle management of Cisco Wireless LAN controllers, Cisco Aironet access points, and mobility services delivered by the Cisco Mobility Services Engine (MSE)
- Easy-to-use tools, templates, and guides to more effectively plan, deploy, monitor, troubleshoot, and report on indoor and outdoor wireless networks
- Built-in security monitoring with intrusion detection systems (IDSs) and adaptive wireless intrusion prevention systems (wIPS)
- Secure, cost-effective wired and wireless guest access
- Cisco Energy-Wise power savings
- Protects the performance of 802.11n by mitigating RF interference with Cisco CleanAir technology

Key Features and Benefits

- WLAN lifecycle management—Comprehensive wireless LAN lifecycle management includes a full range of planning, deployment, monitoring, troubleshooting, and reporting capabilities.
- Simplified ease-of-use—Intuitive GUI and easy-to-use tools, guides, and templates deliver improved IT efficiency, and lowered IT training costs.
- Modularized interface—User-defined customization is supported to display only the most relevant information.
- Scalability—Manage hundreds of Cisco wireless LAN controllers and thousands of Cisco Aironet access points from a centralized location.
- RF interference detection and mitigation—Integration with Cisco CleanAir technology to find, classify, correlate, and mitigate sources of interference from Wi-Fi and non-Wi-Fi sources to improve air quality and create a self-healing, self-optimizing wireless network.
- Planning—Built-in planning and design tools simplify defining access point placement and coverage helping to reduce (and in many cases, eliminate) improper RF designs and coverage problems.
- Deployment—A broad array of integrated templates and tools deliver quick and cost-effective deployments and effective configuration management.
- Centralized security and network protection—Streamlined administration and monitoring of the WLAN's security status for all security-related events and network conditions is provided from a single, comprehensive view. Automated alarms enable rapid responses to mitigate risks.
- Robust wIPS—Quick detection, location, and containment of unauthorized (rogue) devices is supported by a robust wIPS.
- Monitoring—Centralized monitoring of the entire WLAN helps maintain robust WLAN performance and an optimal wireless experience.
- Hierarchical maps—Quick access to different geographies, campuses, buildings, floors, and regions supports better network visibility and control.
- Google Earth integration—Enhanced visibility and management of outdoor wireless mesh deployments is delivered through integration with Google Earth.
- Troubleshooting—Integrated workflows and tools help IT administrators quickly assess service disruptions, receive notices about performance degradation, research resolutions, and take action to remedy nonoptimal situations.
- Client troubleshooting tool—A client troubleshooting tool supports a step-by-step method to analyze problems for all client devices. Specialized diagnostic tools support enhanced analysis of connection problems and mis-configurations occurring with Cisco Compatible Extensions clients Version 5 or later.
- Reporting—Extensive on-demand and automated reports can be run to address inventory, performance, controllers, access points, clients, security, RF environment, and alarms. Reports are customizable.
- Reporting to third-party northbound receivers—Alarms and events can be forwarded to third-party northbound receivers and FCAPS applications that understand traps such as HP OpenView or IBM Tivoli Netcool.
- PCI compliance report—Event analysis and audit trails provide assistance in creating a PCI Assessment Report.
- Standalone access point migration tool—Easy migration of standalone (autonomous) access points to operate as lightweight access points with wireless LAN controllers reduces operational costs.
- Monitoring of standalone access points—Built-in monitoring of selected Cisco Aironet standalone access points is supported as well as monitoring of selected Cisco integrated services routers access points.
- Role-based access control—Virtual domains give IT organizations and managed service providers the ability to easily manage multiple WLANs directly from a single Cisco WCS platform.
- Context-Aware Mobility Solution—Detailed contextual information about items such as location, temperature, the availability of an asset, and applications used can be integrated into the network in conjunction with Cisco MSE and Cisco Context-Aware software.
- Secure guest access—Organizations can provide wired and wireless access to guests such as customers, vendors, and partners, while keeping their wireless network secure.
- Voice over wireless LAN—A variety of advanced tools are included to plan, deploy, monitor, and optimize the WLAN for voice over wireless LAN (VoWLAN).
- Cisco Energy-Wise—Power savings are delivered through adaptive WLAN power management features.
- Simplified software upgrades—One-click software upgrade simplifies the process for upgrading to the latest software release.
- Easy conversion of CiscoWorks Wireless LAN Solution Engine (WLSE)—Converting an existing CiscoWorks WLSE (models 1130-19 and 1133) to operate as a Cisco WCS is supported to reduce capital expenditures and improve operational efficiency.

Specifications

Feature	Cisco Wireless Control System (WCS)
Operating Systems (Customer Supplied Server)	• Windows 2003 SP1 or subsequent service packs. Windows 2008 is not a supported platform • Redhat Linux AS/ES v5.0 (Releases 4.2.x or 5.0 or later); Redhat Linux AS/ES v4.0 (Release 4.2 and later) • VMware ESX Server 3.0.1 or later. (Minimum hardware requirements for a dedicated and guaranteed VMware server: Intel® Xeon Quad CPU; 3.15 GHz, 8 GB RAM, 200 GB HDD)
Minimum Client Requirements	Internet Explorer 6.0/SP1 or later, and Mozilla Firefox 3.5 or later
Management and Security	SNMP v1, v2c, v3 and TACACS+ PNG, JPEG, PDF, and AutoCAD (DXF and DWG) import file types supported
Minimum Server Requirements	• Cisco WCS High-End Server: 3000 lightweight access points, 1250 standalone access points, 750 wireless LAN controllers, Two Intel Xeon Quad Core CPUs; 3.16 GHz, 8 GB RAM, 200 GB HDD (free space) • Cisco WCS Standard Server: 2000 lightweight access points, 1000 standalone access points, 450 wireless LAN controllers, Intel® Dual Core CPU; 3.2 GHz, 4 GB RAM, 80 GB HDD (free space) • Cisco WCS Low-End Server: 500 lightweight access points, 200 standalone access points, 125 wireless LAN controllers, Intel® CPU; 3.06 GHz, 2 GB RAM, 50 GB HDD (free space) • CiscoWorks WLSE Models 1130-19 or 1133 running Cisco WCS: 1500 lightweight access points, 161 wireless LAN controllers, Intel Pentium 4 CPU; 3 GHz, 3 GB RAM, 38 GB HDD (free space)
Managed Devices	• Cisco 2000, 2100, 4100, 4400, and 5500 Series Wireless LAN Controllers; Cisco Catalyst 6500 Series Wireless Services Module (WiSM), Cisco Catalyst 3750G Integrated Wireless LAN Controller, Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for Integrated Services Routers; Cisco Aironet lightweight access points, Cisco Aironet access points with Cisco CleanAir technology, Cisco Aironet lightweight outdoor mesh access points, Cisco CleanAir (Cisco Spectrum Expert Wi-Fi), Cisco Wireless Location Appliance, Cisco 3300 Series Mobility Services Engine (MSE), Context-Aware Software, and Cisco wireless Intrusion Prevention System (wIPS) • Monitoring and migration of selected Cisco Aironet standalone (autonomous) access points. Monitoring of the standalone access points of Cisco 800, 1800, 2800, and 3800 Series Integrated Services Routers
Database	Integrated Solid Flow Engine SQL

Selected Part Numbers and Ordering Information

WCS-STANDARD-K9	Cisco WCS Base and Plus licenses for new and expanded Cisco WCS deployments. Supports deployment of Cisco WCS on a single server. Cisco WCS Plus license supports mobility services enablement, high availability, and location services for one Wi-Fi device or tag on demand. Cisco WCS Plus license backward-compatible with existing Cisco WCS location and enterprise licenses.
WCS-APBASE-50, 100, 500	Cisco WCS Base License, Windows/Linux (supports 50, 100, and 500 APs)
WCS-PLUS-50, 100, 500	Cisco WCS with Plus license for mobility services enablement and high availability, Windows/Linux (supports 50, 100, and 500 APs)
WCS-WLSE-UPG-K9	Converting Existing CiscoWorks WLSE to Cisco WCS (Only supported on Linux platform for CiscoWorks WLSE Models 1130-19 and 1133)
WCS-WLSE-APB-50, 100, 500, 1000	Cisco WCS Base License for WLSE conversion, Linux (supports 50, 100, 500, and 1000 APs)
WCS-WLSE-PLUS-50, 100, 500	Cisco WCS Plus license with mobility services enablement and high availability for WLSE conversion, Linux (supports 50, 100, 500, and 1000 APs)
WCS-PLUS-UPG-K9	Upgrading Cisco WCS Base to Cisco WCS Plus. Supports deployment of Cisco WCS on a single server. Supports upgrading a Cisco WCS base license to support mobility services enablement, high availability, and location services for one Wi-Fi device or tag on demand.
WCS-PLUS-UPG-50, 100, 500	Cisco WCS Plus Upgrade license with mobility services enablement and high availability, Windows/Linux (supports 50, 100, and 500 APs)
WCS-ENT-PLUS-K9	Enterprise licenses for large-scale deployments. Supports deployment of Cisco WCS on a single or multiple servers. Supports mobility services enablement, high availability and the ability to track the location of a single Wi-Fi device or tag on demand, Enterprises Plus licenses of 10,000 and 50,000 include a Cisco WCS Navigator license (WCS-NAV-20), Enterprise Plus licenses are operational with Cisco Unified Wireless Network Software Release 4.1 and later.
WCS-ENT-PLUS-1000, 2500, 10000, 50000	Cisco WCS Enterprise Plus license with mobility services enablement and high availability, Windows/Linux on multiple Cisco WCS servers (supports 1000, 2500, 10000, and 50000 APs)
AIR-WCS-DEMO-K9	Cisco WCS Demonstration License (This license is only available from https://tools.cisco.com/SWIFT/Licensing/PrivateRegistrationServlet?DemoKeys=Y. After requesting the license, go to Cisco Wireless Software Center (login required) to download Cisco WCS software. Free Cisco WCS full featured, location-enabled, 30 day-demonstration license supporting ten lightweight access points.

For More Information

http://www.cisco.com/en/US/products/ps6305/index.html

Cisco Wireless Control System Navigator

The Cisco Wireless Control System (WCS) Navigator delivers an aggregated platform for enhanced scalability, manageability, and visibility of large-scale implementations of the Cisco Unified Wireless Network. This solution gives network administrators cost-effective, easy access to information from multiple, geographically dispersed Cisco WCS management platforms.

The navigator supports partitioning of the unified wireless network at the management plane. It runs on a server platform with an embedded database.

Ideal for Companies That Need These Features

Cisco Wireless Control System Navigator	• Ability to manage up to 20 geographically dispersed Cisco WCS management platforms with up to 30,000 Cisco Aironet lightweight access points from a single management console • Ability to partition the unified wireless network at the management plane • Ability to conduct centralized and quick searches across the entire network, multiple Cisco WCS management platforms, and all devices • Ability to partition Cisco WCS platforms to restrict selected users to a single Cisco WCS platform or group of Cisco WCS platforms to support access control based on a variety of criteria, including geography, departments, and managed services customers

Key Features and Benefits

- Intuitive GUI—Easy configuration and monitoring of multiple Cisco WCS management platforms with minimal training is supported.
- Monitoring—Centralized network monitoring is fully supported.
- Network summary screen—Outstanding alarms, fault summaries, client counts, and status counts of all connected Cisco WCS management platforms and devices are displayed on a network summary screen.
- Secure single sign-on—With a secure single sign-on feature, individual users do not need to be created on each Cisco WCS management platform.
- Automated browser redirect—Users are automatically redirected to the corresponding Cisco WCS management platform detail page on searches or displays.
- Searches— Centralized and quick searches across the entire network, multiple Cisco WCS management platforms, and all devices are easy to perform.
- Tracking—Client locations and Wi-Fi and rogue devices are easily tracked across the entire network.
- Ease-of-use—The solution offers simplified setup and configuration.
- Centralized management— Indoor and outdoor WLANs can be monitored from a single management console.
- Reports—Detailed inventory reports can be automatically generated, scheduled and exported by e-mail message or CSV file.

Specifications

Feature	Cisco Wireless Control System Navigator
Minimum server requirements	Windows 2003 SP1 or greater, or Redhat Linux AS/ES v4.0 High-End Server: Intel® Xeon Quad CPU; 3.15 GHz, 8-GB RAM, and 200-GB HDD
Minimum client requirements	Internet Explorer 6.0 with SP1 or later
Software release requirements	Cisco WCS management platforms must be running Cisco Unified Wireless Network Software Release 4.1 or later to interface with Cisco WCS Navigator
Management	SNMP v1, v2c, and v3
Managed devices	Up to 20 Cisco WCS management platforms with manageability of up to 30,000 Cisco Aironet lightweight access points
Database	Integrated Solid FlowEngine Structured Query Language (SQL)

Selected Part Numbers and Ordering Information

WCS-NAV-20	Cisco WCS Navigator License to support 20 Cisco WCS management platforms

For More Information

http://www.cisco.com/en/US/products/ps7305/index.html

Cisco Spectrum Expert Wi-Fi

The Cisco Spectrum Expert Wi-Fi integrates with the Cisco Unified Wireless Network to deliver real-time spectrum intelligence for Wi-Fi networks. This industry-leading solution detects, classifies, and locates sources of RF interference in the unlicensed 2.4- and 5-GHz bands using a PCMCIA card.

The Cisco Wireless Control System (WCS) works in conjunction with Cisco Spectrum Expert Wi-Fi to provide visibility into non-Wi-Fi interference sources that may cause wireless performance degradation. You can determine the source of the interference with Cisco Spectrum Expert Wi-Fi, allowing your business to remove, move, shield, adjust, or replace the interference source. Your organization can troubleshoot its wireless networks to determine the root causes of interference problems and optimize network performance.

Note: For integrated RF detection and mitigation using system-level intelligence, please see the Cisco Aironet 3500 Series access point with Cisco CleanAir technology.

Ideal for Companies That Need These Features

Cisco Spectrum Expert Wi-Fi	· Ensure access points are providing reliable coverage with spectrum performance audits · Secure a network by locating non-Wi-Fi rogue devices · See hacked or rogue Wi-Fi devices that other intrusion detection systems/intrusion protection systems (IDSs/IPSs) do not detect · Locate unauthorized devices such as Bluetooth radios and video cameras · Determine whether neighbors are interfering with the Wi-Fi network

Key Features and Benefits

The Cisco Spectrum analysis tool monitors the airwaves in your wireless network and allows you to:

- Quickly and accurately determine Wi-Fi spectrum health and sources of interference
- Manage channel capacity and quality at the physical layer
- Quickly eliminate interference sources

Specifications

Feature	Cisco Spectrum Expert Wi-Fi Specifications
Dimensions	Unit sizes: Cardbus Type II and Express Card 54 mm; Unit weight: 1.65 oz and 1.35 oz; Shipping weight: 1 lb; Operating temperature: 32F to 131F; Storage temperature: -4F to 149F
Analyzer Specification	Displayed average noise level: -124 dBm; Reference level: -150 (min) to +10 (max) dBm; 512 MB capture limit; Frequency stability: +/-20 ppm; Max safe input level: 0 dBm; Amplitude accuracy: =/- 2.5 dBm; Public safety: 4.9 GHz; Frequency span at 2.4 GHz: 0.03 (min) to 100 (max) MHz; Frequency span at 5 GHz: 0.03 (min) to 975 (max) MHz; Center frequency resolution: 10 kHz; Resolution bandwidth: 0.01 (min) to 5 (max) MHz; Sweep time RTFFT mode: 6.4 us; Sweep time PvT mode: 10 ms (max); Trigger delay (ms): -10 (min) to +10 (max); Power consumption: -3.3V @ 425 mA or 1.4 watts
Classifier Specification	802.11a/bg via onboard or external Wi-Fi chipset; Bluetooth SCO, ACL; DECT cordless phones TDD cordless phones; Analog cordless phones; Analog video (NTSC, PAL, SECAM); Microwave ovens; Generic classifiers; Radar
Application	
Minimum system requirements	Microsoft Vista or Windows XP SP2; Processor: 1 GHz or equivalent; 150 MB hard drive available storage space; 800 x 600 display
Interoperability	Cisco WCS 4.2 Later
Cisco Spectrum Expert Antenna	
Frequency Range	2.4-2.5 GHz, 4.9-5.9 GHz
Gain	5 dBi
Polarization	Linear

Selected Part Numbers and Ordering Information

Cisco Spectrum Expert Wi-Fi Product and Service	
AIR-CSCO-SE-WIFI-C	Cisco Spectrum Expert Wi-Fi (CardBus)—Includes CardBus adapter, omni antenna with clip, and quick start guide with software download instructions. A single Cisco Spectrum Expert Software seat can only be used with one Cisco Spectrum Expert Sensor Wi-Fi.
CON-SNT-SEWIFICB	Cisco Spectrum Expert Wi-Fi (CardBus)—SMARTnet next business day service[1]
Cisco Spectrum Expert Wi-Fi Antenna Spare	
AIR-ANT-SE-WIFI-D=	2.4-2.5 and 4.9-5.9 GHz Directional Antenna, Spare—Spare Directional antenna for Cisco Spectrum Expert Wi-Fi
AIR-ANT-SE-WIFI-O=	2.4-2.5 and 4.9-5.9 GHz Omni Antenna, Spare—Spare Omni antenna for Cisco Spectrum Expert Wi-Fi

1. Includes advanced replacements next business day, 24-hour Cisco Technical Assistance Center (TAC) access, and software downloads.

A Cisco WCS Spectrum Intelligence license is required to operate Cisco Spectrum Expert Wi-Fi with Cisco WCS. The following table provides the part numbers for the Cisco WCS Spectrum Intelligence license for Cisco Spectrum Expert Wi-Fi.

WCS-ADV-K9	Family SKU for WCS Advance License Products—Top-level SKU for Cisco WCS advance feature licenses
WCS-ADV-SI-SE-10	Cisco WCS Spectrum Intelligence License for 10 Sensors—License option compatible with Cisco WCS 4.2 or later configured with Base and/or Location license.
WCS-ADV-SI-SE-10=	Cisco WCS Spectrum Intelligence License for 10 Sensors, Spare—Spare license compatible with Cisco WCS 4.2 or later configured with Base and/or Location license.

License Pack Guidelines

Customers can purchase the Cisco Spectrum Intelligence license for Cisco Spectrum Expert Wi-Fi in two ways. Customers who wish to purchase all WCS advanced feature licenses, including the Cisco Spectrum Intelligence license, for use on a single WCS host should purchase the Cisco WCS advanced feature pack (WCS-ADV-K9) and then specify the option for the Cisco Spectrum Intelligence license (WCS-ADV-SI-SE-10). Customers who wish to purchase licenses that can be used across multiple WCS hosts should purchase Cisco Spectrum Intelligence license spares (WCS-ADV-SI-SE-10).

- WCS-ADV-K9—The Cisco WCS advanced feature license pack includes license keys for advanced features, including Cisco Spectrum Intelligence. The license pack may only be used on a single WCS host.
- WCS-ADV-SI-SE-10—This part number represents the option for the Cisco Spectrum Intelligence advanced feature as part of the Cisco WCS advanced feature license pack (WCS-ADV-K9). Customers must specify this part number when ordering Cisco Spectrum Intelligence as part of the combined WCS advanced feature license pack.
- WCS-ADV-SI-SE-10=—Users who wish to purchase multiple licenses to be deployed across numerous WCS hosts should purchase the Cisco Spectrum Intelligence license as a spare unit (WCS-ADV-SI-SE-10=). If a customer orders more than one spare, the system will generate a license pack for each spare ordered. In other words, the number of license packs equals the number of spares ordered.

Cisco customers can contact their local Cisco representatives for questions related to Cisco WCS licensing. Cisco employees or partners can contact wcs-customer-license@cisco.com.

For More Information

http://www.cisco.com/en/US/products/ps9393/index.html

Mobility Services

Cisco 3300 Series Mobility Services Engine



The Cisco 3300 Series Mobility Services Engine is an open platform that provides a new approach to the delivery of mobility services in a centralized & scalable fashion. A combination of hardware and software, the Cisco 3300 Series Mobility Services Engine (MSE) is an appliance-based solution that supports a suite of software services. The Mobility Services Engine transforms the wireless LAN into a mobility network by abstracting the application layer from the network layer, effectively allowing for the delivery of mobile applications across wired and wireless networks.

To deliver true business mobility, IT must take a practical approach focused on unifying networks, managing the wave of mobile devices, and enabling mobile application development. The Cisco 3300 Series Mobility Services Engine is at the heart of this mobility architecture evolution. It provides an open API that allows a broader ecosystem of partners to access network intelligence to develop industry-relevant mobility solutions. The Mobility Services Engine is part of the Cisco Unified Wireless Network, delivering a comprehensive approach to business mobility - an approach that extends applications to the right device at the right time, no matter which network is being used.

Ideal for Companies That Need These Features

Cisco 3300 Series

- Rapid delivery of new services and applications
- Unification of multiple access networks to help ensure more transparent application delivery
- Central management, and scalable and flexible services delivery
- Investment protection of their existing Cisco Unified Wireless Network

Key Features and Benefits

- Extensible platform for rapid delivery of services and applications
  - Allows the abstraction of services and applications from control planes and the network so that each may evolve independently.
  - Common framework for hosting multiple mobility services.
  - Open API to support third-party and partner application development.
- Ecosystem of application partners
  - To deliver mobility solutions targeted at various industries, including healthcare, retail, education, and manufacturing.
- Scalability
  - Multiple services can be deployed on a single Cisco Mobility Services Engine, or a single service can span multiple Cisco Mobility Services Engines.
- Manageability
  - The Cisco Mobility Services Engine serves as a single point of integration for the various value-added services.

- All mobility services are managed centrally through the integration with the Cisco Wireless Control System.

- Flexibility
  - The Cisco Mobility Services Engine is an extensible platform capable of supporting a variety of services configurations to meet business requirements. The architecture enables the inclusion of newer technology standards as and when they become available.
- Return on investment
  - The Cisco Mobility Services Engine integrates with the Cisco Unified Wireless Network to provide network intelligence, including contextual information to optimize business applications. This architecture builds upon the existing investment in Cisco wireless and mobility solutions and provides a platform that is both flexible and scalable to meet evolving business mobility requirements.

Specifications

Feature	Cisco 3310 Mobility Services Engine	Cisco 3355 Mobility Services Engine
Supported Services	• Context-aware software to track up to 2,000 Wi-Fi clients or Wi-Fi tags • Adaptive wireless intrusion prevention system software to support up to 2000 monitor mode or Enhanced Local Mode (ELM) access points	• Context-aware software to track up to 18,000 Wi-Fi clients or Wi-Fi tags • Adaptive wireless intrusion prevention system software to support up to 3000 monitor mode or Enhanced Local Mode (ELM) access points
Evaluation Support	Customers who purchase a mobility service have the option to trial other mobility services on their MSE at the following scale: • Context-aware client tracking: 100 clients • Context-aware tag tracking: 100 tags • Adaptive wireless intrusion prevention: 20 monitor mode access points	Customers who purchase a mobility service have the option to trial other mobility services on their MSE at the following scale: • Context-aware client tracking: 100 clients • Context-aware tag tracking: 100 tags • Adaptive wireless intrusion prevention: 20 monitor mode or Enhanced Local Mode access points
Processor	(1) Dual-Core Intel Processor 1.8 GHz	(2) Quad-Core Intel Nehalem Processor 2.0 GHz, 4-MB cache
Memory	4-GB PC2-5300 (4 x 1 GB)	16-GB DDR3 (2 x 8 GB)
Hard Disk	(2) Fixed 247-GB Serial ATA-150 / SATA-300 MBps	(4) Hot-swappable 146-GB SAS drives with up to 6Gbps transfer rate
Removable Media	DVD/CD-RW combo drive	DVD-ROM drive
Connectivity	Network: Two embedded Multifunction Gigabit Network Adapters	Network: Two embedded Multifunction Gigabit Network Adapters with TCP/IP Offload Engine
Management	SNMP v1, v2c, and v3	SNMP v1, v2c, and v3
Programming Interfaces	SOAP/XML APIs	SOAP/XML APIs
Management Interface	Cisco WCS Mobility Services v.5.2 or greater running Internet Explorer 6.0/Service Pack 1 or later	Cisco WCS Mobility Services Version 7.1 or later running Internet Explorer 6.0/Service Pack 1 or later
Cooling Fans	Total of three fans	Total of nine fans, N+1 fan redundancy
Ports	• Serial: One 9-pin connector • RJ-45: Two RJ-45 connectors for connection to two Gigabit Network Adapters • 3 USB 2.0 ports: (1) front, and (2) rear accessible ports • 2 PS2 ports: One mouse and one keyboard • 1 VGA port	• Four USB ports: two in front, two in back • Two VGA ports: one in front and one in back • One RJ-45 management port for out-of-band management • RJ-45: Two rear RJ-45 connectors for connection to two Gigabit Network Adapters
Network Devices	Cisco 2100, 4400, 5500 (requires WCS Mobility Services v. 6.0) Series Wireless LAN Controllers; Cisco Catalyst 6500 Series Wireless Services Module, Cisco Catalyst 3750G Integrated Wireless LAN Controller, Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for Integrated Services Routers; Cisco Aironet® lightweight access points	Cisco 2100, 4400, and 5500 Series Wireless LAN Controllers; Cisco Catalyst 6500 Series Wireless Services Module, Cisco Catalyst 3750G Integrated Wireless LAN Controller, Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for integrated services routers; Cisco Aironet lightweight access points
Form Factor	1RU	1RU
Physical Dimensions	Height: 1.70 in. (4.32 cm) Width: 16.78 in. (42.62 cm) Depth: 20 in. Weight: 15 lbs maximum	Height: 1.69" (43mm) Width: 17.3" (440mm) Depth: 28.0" (711.4mm) Weight: 28 (minimum) - 35.1 lb (maximum) (12.7 - 15.9 kg)
Power	AC power supply wattage: 540W AC power supply voltage: 100–120V at 50–60 Hz; 200–240V at 50–60 Hz	AC power supply wattage: 625W AC power supply voltage: 100-120V at 50-60 Hz; 200-240V at 50-60 Hz 92% efficient Auto switching, hot-swappable Redundant power supplies

Software Compatibility	• Available with Cisco Mobility Services Engine (MSE) Software Release 5.1.xxx or later • Requires WLC software version 4.2.130 or later and Wireless Control System (WCS) Version 5.2 or later • Supported services may have different software requirements	• Available with Cisco Mobility Services Engine (MSE) Software Release 6.0 or later • Requires WLC software Version 4.2.130 or later and WCS Version 6.0 or later • Multiple mobility services can run concurrently on the same MSE using WLC and MSE Software Release 6.0 or later • Supported services may have different software requirements
Environmental	Operating temperature: 50 to 95ûF (10–35ûC) at sea level Nonoperating: –40 to 158ûF (–40 to 70ûC) Maximum rate of change is 20ûC/hr (36ûF/hr)	Operating temperature: 50 to 95°F (10 to 35°C) up to 3,000 ft/914.4 m 50 to 90°F (10 to 32°C) 3000 ft to 7000 ft/914.4m to 2133m Nonoperating: -40 to 140°F (-40 to 60°C) Maximum rate of change is 20°C/hr (36°F/hr) Environment: v Air temperature: Server on: 10°C to 35°C (50°F to 95°F); altitude: 0 to 914.4 m (3000 ft), decrease system temperature by1.0°C for every 1000-foot increase in altitude Server off: 5°C to 45°C (41°F to 113°F): maximum altitude: 3048 m (10000 ft) Shipment: -40°C to 60°C (-40°F to 140°F): maximum altitude: 3048 m (10000 ft) v Humidity: Server on: 20% to 80%; maximum dew point: 21°C; maximum rate of change: 5 °C/hr Server off: 8% to 80%; maximum dew point: 27°C
Approvals and Compliance	Safety UL 60950 CAN/CSA -C22.2 No. 60950 EN60950 IEC 60950: EMC FCC Part 15 (CFR 47) Class A ICES-003 Class A EN 55022 Class A CISPR22 Class A AS/NZS 3548 Class A VCCI Class A EN 55024 EN 50082-1	Safety UL 60950 CAN/CSA -C22.2 No. 60950 EN60950 IEC 60950: EMC FCC Part 15 (CFR 47) Class A ICES-003 Class A EN 55022 Class A CISPR22 Class A AS/NZS 3548 Class A VCCI Class A EN 55024 EN 50082-1 Energy Star compliant

Selected Part Numbers and Ordering Information

AIR-MSE-3310-K9	Cisco 3310 Mobility Services Engine
AIR-MSE-3355-K9	Cisco 3355 Mobility Services Engine
AIR-CAS-1KC-K9 (=)	Cisco Context-Aware Engine for Clients License for 1K Clients
AIR-CAS-3KC-K9 (=)	Cisco Context-Aware Engine for Clients License for 3K Clients
AIR-CAS-6KC-K9 (=)	Cisco Context-Aware Engine for Clients License for 6K Clients
AIR-CAS-12KC-K9 (=)	Cisco Context-Aware Engine for Clients License for 12K Clients
AIR-CAS-1KT-K9 (=)	Cisco Context-Aware Engine for Tags License for 1K Tags
AIR-CAS-3KT-K9 (=)	Cisco Context-Aware Engine for Tags License for 3K Tags
AIR-CAS-6KT-K9 (=)	Cisco Context-Aware Engine for Tags License for 6K Tags
AIR-CAS-12KT-K9 (=)	Cisco Context-Aware Engine for Tags License for 12K Tags

For More Information

http://www.cisco.com/go/mse

Cisco Context-Aware Software

The Cisco Context-Aware Mobility Solution provides the ability to capture and integrate into business processes detailed contextual information about parameters such as location, temperature, and the availability of an asset. The integration of contextual information with business-process applications is fast becoming the next level of true enterprise mobility. With the Cisco Context-Aware Mobility Solution, mobile users can go beyond anytime, anywhere connectivity to automatically having the right device, the right application, and the right environment while on the go. They can now answer business-critical questions about both mobile assets and the users of those assets, to improve their organization's profitability.

Ideal for Companies That Need These Features

Cisco Context-Aware Software	• Advanced and scalable context-aware mobility service that simultaneously tracks thousands of Wi-Fi clients and Wi-Fi tags • Context-aware information integrated into business processes (Cisco Context-Aware Software supports integration with customizable business applications through tight and transparent integration with the open API). • Context-aware services are available in indoor, high-ceiling indoor, and outdoor environments. • Integrated context-aware services using existing Cisco Unified wireless-enabled infrastructure, to minimize capital expenditures and help ensure better wireless LAN (WLAN) visibility

Key Features and Benefits

- Scalability—Cisco Context-Aware Software can track up to 18,000 assets simultaneously, including Wi-Fi clients and assets with Wi-Fi tags.
- Multiple context-aware engines—The modular design of the software allows for the use of the context-aware engine for clients and the context-aware engine for tags simultaneously or separately for the estimation of location.
- Multiple location technologies—Clients and tags can be tracked in indoor, indoor high-ceiling, and outdoor environments. Tracking is done using the Received Strength Signal Indicator (RSSI)-based RF fingerprinting technology for indoor environments and Time Difference of Arrival (TDOA) technology for outdoor and high-ceiling environments. The Cisco Context-Aware Mobility Service Module also supports the use of chokepoints for applications requiring high fidelity and deterministic context-aware information.
- Open platform for business applications—To facilitate the deployment of context-aware based applications in the enterprise, the context-aware mobility software allows for the integration of business applications through a rich and open Simple Object Access Protocol (SOAP)- or Extensible Markup Language (XML)-based application programming interface (API).
- Alerts and notifications—Alerts and notifications can be customized by the user based on business policy requirements.
- Deployment planning optimization—The process of planning and deployment of data, voice, and context-aware services is made simpler by the identification of coverage holes for the particular deployment scenario.
- Enhanced security—Detection of rogue access points and devices is made simpler by providing the location of these devices.
- Information-exchange configuration—Information-exchange configuration allows for control of which layer of information gets forwarded from the Cisco Unified Network controller to the Cisco Context-Aware Mobility Service Module. This control helps reduce the amount of contextual information gathered and transmitted across the network.
- Historical data—Historical data on the elements being tracked is collected and stored. This information can be used for drawing up trends and troubleshooting, among other uses.
- Scalable license management—The license management of the Cisco Context-Aware Software allows for flexibility in the type and quantity of licenses purchased to match the various scenarios. The licenses are additive (up to 2000 assets tracked on MSE 3310 and up to 18,000 assets tracked on MSE 3350) and thus provide for growth of the system.

Specifications

Feature	Cisco Context-Aware Software
Hardware requirements	Cisco Mobility Services Engine 3310 or Cisco Mobility Services Engine 3350
Number of Assets Tracked	Track up to 2000 Wi-Fi clients or Wi-Fi tags on MSE 3310 and up to 18,000 Wi-Fi clients or Wi-Fi tags on MSE 3350
Network Management	Cisco WCS v.5.1 or greater running Internet Explorer 6.0/Service Pack 1 or later
Programming Interfaces	SOAP/XML APIs
Database	Integrated Solid Flow Engine Structured Query Language (SQL)

Selected Part Numbers and Ordering Information

AIR-CAS-1KC-K9	Cisco Context-Aware Engine for Clients License for 1K Clients
AIR-CAS-3KC-K9	Cisco Context-Aware Engine for Clients License for 3K Clients
AIR-CAS-6KC-K9	Cisco Context-Aware Engine for Clients License for 6K Clients
AIR-CAS-12KC-K9	Cisco Context-Aware Engine for Clients License for 12K Clients
AIR-CAS-1KT-K9	Cisco Context-Aware Engine for Tags License for 1K Tags
AIR-CAS-3KT-K9	Cisco Context-Aware Engine for Tags License for 3K Tags
AIR-CAS-6KT-K9	Cisco Context-Aware Engine for Tags License for 6K Tags
AIR-CAS-12KT-K9	Cisco Context-Aware Engine for Tags License for 12K Tags

AIR-MSE-3310-K9	Cisco 3310 Mobility Services Engine
AIR-MSE-3350-K9	Cisco 3350 Mobility Services Engine

For More Information

http://www.cisco.com/en/US/products/ps9806/index.html

Cisco Adaptive Wireless Intrusion Prevention System (IPS)

The Cisco Adaptive Wireless IPS solution protects against attacks and proactively prevents threats. It scales to meet the robust demands of even the largest networks, and delivers visibility and control across the network without the need for additional scanning equipment.

Ideal for Companies That Need These Features

Cisco Adaptive Wireless Intrusion Prevention System (IPS) (Monitor Mode and Enhanced Local Mode)

- A system to mitigate unauthorized wireless access and attacks against the wireless network and rogue access points
- A system to assist with regulatory compliance, particularly Payment Card Industry (PCI) compliance
- Integration with Cisco wired security infrastructure
- Investment protection of existing Cisco Unified Wireless Network

Key Features and Benefits

- Detects, analyzes, and mitigates RF-based attacks using signature- and network-based methods for protection against known and unknown wireless threats
- Integrates into the Cisco Unified Wireless Network infrastructure using the same access points and wireless LAN controllers for simplified administration and lower capital expenditures and total cost of ownership
- Offers advanced reporting for increased regulatory compliance and forensic analysis
- Provides increased visibility and ease of administration through wired and wireless network security integration
- Uses the Cisco 3300 Series Mobility Services Engine for performance and centralized processing of wireless network threat analysis

Specifications

Feature	Cisco Adaptive Wireless IPS Software
Hardware requirements	Cisco Mobility Services Engine 3310
Number of Supported Monitor Mode APs and Enhanced Local Mode APs	Support for up to 2000 monitor mode APs on MSE 3310 and support for up to 3000 monitor mode APs on MSE 3355
Management Interface	Cisco Wireless Control System version 5.2 or later

Selected Part Numbers and Ordering Information

AIR-WIPS-AP-25 (=) AIR-WIPS-AP-100 (=) AIR-WIPS-AP-500 (=) AIR-WIPS-AP-2000 (=) AIR-LM-WIPS-5 (=) AIR-LM-WIPS-100 (=) AIR-LM-WIPS-500 (=) AIR-LM-WIPS-2000 (=)	License for Access Points (supports 25,100, 500, and 2000 APs) for Monitor and ELM mode
AIR-MSE-3310-K9	Cisco 3310 Mobility Services Engine
AIR-MSE-3350-K9	Cisco 3355 Mobility Services Engine

Ordering Multiple Services on the Mobility Services Engine

The following are possible combinations when ordering multiple services (Context-Aware software licensees and Adaptive Wireless Intrusion Prevention licensees for Monitor Mode Access Points).

Context-Aware	18,000	17,000	16,000	15,000	14,000	13,000	12,000	11,000	10,000	9,000
WIPs (Monitor Mode or ELM Mode	0	165	330	500	665	830	1,000	1,165	1,330	1,500

Context-Aware	8,000	7,000	6,000	5,000	4,000	3,000	2,000	1,000	0
WIPs (Monitor Mode or ELM Mode	1,665	1,830	2,000	2,165	2,330	2,500	2,665	2,830	3,000

For More Information

http://www.cisco.com/go/wips

Cisco Wireless Services

Cost-effectively deploy secure mobile access to business-critical applications and rich media collaboration while improving operational efficiency with smart, personalized services from Cisco and our partners. Based on leading practices, these services help accelerate your transition to an advanced mobility architecture that optimizes performance, reliability, and security, helping you maintain business innovation while controlling costs.

Through smart services, Cisco and our partners help customers predictably manage the health and stability of their networks, mitigate risk and drive innovation. By delivering actionable insight into the network through automated comparison of customer network data against Cisco intellectual capital, smart services helps reduce overall network cost.

Services from Cisco and our Wireless LAN Specialized Partners help you:

- Respond to new business challenges for wireless LAN network upgrades
- Design security into how you access business-critical applications
- Deploy rich media collaboration requiring mobile access
- Scale connectivity to diverse mobile devices
- Speed migration to next generation wireless technology
- Increase wireless LAN performance,

For more information, visit http://www.cisco.com/go/wirelesslanservices.

Chapter 4: Collaboration

This chapter provides only a subset of Cisco products and part numbers.

Collaboration At-a-Glance

Product	Features	Page
CONFERENCING		
Cisco Unified MeetingPlace	· On-premises virtual meeting solution within Cisco Unified Communications that delivers integrated voice, video, and web conferencing and interfaces that make it simple to set up, attend, and manage meetings · Extends the value of Cisco WebEx Meeting Applications with on-premises voice, video, and web conferencing options that provide cost savings and added security	4–8
Cisco Unified Video Advantage	· Provides video telephony functionality to Cisco Unified IP phones (these include select models from the 6900 Series, 7900 Series, and the Cisco IP Communicator softphone application) · Compatible with Cisco VT Camera III or other third-party USB cameras · Cisco SMARTnet services available	4–9
Cisco WebEx Meeting Center	· Allows business professionals to easily and reliably meet online anywhere, anytime, on any device, to present information, share applications, and collaborate on projects with customers and coworkers worldwide	4–9
Cisco WebEx Training Center	· Online classroom solution used to deliver engaging, effective, and interactive instructor-led training to employees, customers, and partners	4–10
Cisco WebEx Event Center	· Allows you to stage large-scale online events and web seminars to generate leads and train employees, customers, and partners	4–11
Cisco WebEx Advanced Services	· Help customers reach and exceed their collaboration goals with a wide range of services that can be tailored to their organization. · Online collaboration experts assess organizational requirements and develop a plan to reach key goals. Key service portfolio offers are: Event Collaboration Services; Planning, Design, and Implementation Services; and Learning Services.	4–11
Cisco WebEx Support Center	· Enables you to provide instant, personalized customer or IT support worldwide by allowing support staff to diagnose and fix problems remotely in real-time	4–11
CUSTOMER CARE		
Cisco Unified Contact Center Enterprise	· Delivers multisite, intelligent contact routing, network-to-desktop computer telephony integration (CTI), and multichannel contact management to contact center agents over an all-IP infrastructure or mixed IP and time-division multiplexing (TDM) infrastructure · Solution can also be deployed with third-party automatic call distributors (ACDs) · Supports a variety of deployment models from premise-based to hosted installations. Essential Operate Service (ESW) required for most features	4–12
Cisco Unified Contact Center Express	· Software-based automatic call distributor (ACD), IVR, and CTI application is designed for small-to-medium-sized companies, enterprise branches, or corporate departments with Cisco IP Telephony networks · Solution supports up to 300 agents and is available in three versions: Standard, Enhanced, and Premium, to better match product functions with your customer contact interaction management requirements · Essential Operate Service (ESW) required for agents only	4–13
Cisco Unified Intelligence Center	· Offers customers a powerful web-based reporting platform that is as flexible as it is intuitive · Customers can report on the details of every contact across all channels from a single interface, regardless of the resources involved · Essential Operate Service (ESW) required for most features	4–14
Cisco and salesforce.com Customer Interaction Cloud	· Multichannel contact center solution that allows customers to use the salesforce.com Service Cloud as their primary agent desktop while having full Cisco Unified Contact Center capabilities and salesfore.com CRM capabilities to operate a customer care or support center in any industry from North America · Designed specifically for small and midsize businesses, supporting 30 to 300 agents or knowledge workers, this joint solution follows a cloud-computing or software-as-a-service (SaaS) model, resulting in faster deployment times, no capital investments, and higher agent productivity	4–14
Cisco Unified Customer Voice Portal	· Award-winning product that provides IP-based self-service and call routing. It combines open-standards support for speech with intelligent application development and industry-best call control to deliver personalized self-service to callers, either as a standalone interactive-voice-response (IVR) system or transparently integrated with a contact center · Solution offers a prompt collect, queuing, and call-control service using standard IP technologies, and provides sophisticated speech-enabled voice self-service with the ability to quickly and easily escalate to agent-assisted service if necessary · Essential Operate Service (ESW) strongly recommended	4–15

Cisco Customer Care Services	Services, delivered by Cisco and our partners, help contact centers maximize customer relationships, enable richer collaboration, and accelerate technology innovations, to gain and sustain competitive advantage.	4–16
Cisco SocialMiner ***NEW PRODUCT***	· Social media customer care solution that enables your company to proactively respond to customers and prospects communicating through public social media networks such as Twitter and Facebook or other public forum or blogging sites · Provides social media monitoring, queuing, and workflow to organize customer posts on social media networks and deliver them to your customer care team, your company can respond to customers in real time through the same social network they are using to communicate.	4–16
Cisco Finesse ***NEW PRODUCT***	· Next-generation agent and supervisor desktop for Cisco Unified Contact Center Enterprise, providing benefits across a variety of communities that interact with your customer service organization. · Designed to provide a collaborative experience that improves the customer experience by enhancing customer service representative experience	4–17
Cisco Media Sense ***NEW PRODUCT***	· Open-standards, network-based, scalable platform that supports recording, playback, live streaming, and storage of media, including audio and video, with rich recording metadata · Provides an efficient, cost-effective platform for capturing conversations between businesses and their customers that can be examined by third-party analytics applications from Cisco technology partners to provide a variety of valuable business functions, including: regulatory compliance review, quality management, service optimization, legal discovery, business intelligence gathering, agent training, and real-time guidance	4–17
ENTERPRISE SOCIAL SOFTWARE		
Cisco Show and Share	· Integrated component of the Cisco Digital Media Suite for webcasting and video sharing that provides the ability to create live and on-demand video content and define who can watch specific content · Offers viewer collaboration tools such as commenting, rating, and word tagging, and provides comprehensive access reporting	See 7–1
Services	· Find and view video quickly and easily through speaker identification and keyword tagging. · Makes it easy to find specific content or speakers in videos. Delivered on the Cisco Media Experience Engine (MXE) 3500, a powerful and flexible network appliance for video transformation and processing.	4–16
IP COMMUNICATIONS		
Cisco Unified Communications Manager	· Single unified communications and call-processing and call-control platform for all Cisco, delivering voice, video, mobility, and presence services · Now available on virtualized Cisco UCS servers, select third-party servers, as well as Cisco Media Convergence Servers. · Essential Operate Service (ESW) are required, based on server platform	4–18
Cisco Unified Communications Manager Assistant	· Component of the Cisco Unified Communications Manager, this PC and phone application provides productivity tools that enhance communications between manager and administrative assistant · No separate services required	4–20
Cisco Unified Communications Manager Express	· Cisco IOS Software-based call control supported on first and second generation Cisco Integrated Services Routers. Ideal for branch office applications with up to 450 users. · Included in the Cisco SMARTnet services when originally purchased router or Cisco Unified Communications 500 Series for Small Business	4–20
Cisco Unified Communications Manager Business Edition	· Designed for medium-sized businesses with up to 500 employees and up to 20 sites (19 remote sites) · Single server solution combines Cisco Unified Communications Manager media processing and Cisco Unity Connection integrated voice-messaging capabilities · Essential Operate Service (ESW) that covers the MCS server hardware replacement and software support are required	4–21
Cisco Unified Communications Manager Business Edition 3000 ***NEW PRODUCT***	· Designed for small and medium-sized businesses with smaller IT staffs with the capacity to support up to 300 employees and 10 sites · Includes Cisco Unified Communications Manager Business Edition 3000 call-processing and voicemail application · Support for the Cisco Unified IP Communicator	4–22
Cisco Unified Communications Manager Session Management Edition	· Provides centralized trunking, application and private-branch-exchange (PBX) aggregation, and policy control · Reduces communication tolls, cuts administrative overhead, and supports easier migration to a full IP telephony environment	4–23
Cisco IP Communicator	· Software application that acts as an IP end-point to deliver voice and video calling through a Windows PC, enabling remote users to take their office extension with them · Essential Operate Service (ESW) required for User License	4–23

Cisco Unified IP Phones 6900 Series	· Affordable portfolio of endpoints that support business-grade voice and video communications to branch, midmarket, and enterprise customers in a user- and eco-friendly design · Includes a range of offerings spanning occasional use settings, such as lobbies, to highly active communications environments, such as for managers and administrative staff · Cisco SMARTnet services available	4–24
Cisco Unified IP Phones 7900 Series	· Diverse endpoint portfolio for advanced business communications offering support for voice, video and data communications · Meets a wide range of customer needs from the lobby to the conference room to the executive office and everywhere in between · Offers a choice of wired, wireless LAN and specialty endpoint solutions · Cisco SMARTnet services available	4–26
Cisco Unified IP Phones 8900 Series	· Portfolio of advanced professional multimedia endpoints designed to elevate business performance with increased productivity by delivering a robust suite of Unified Communications and multimedia applications in a design that is elegant, easy-to-use and eco-friendly · Cisco SMARTnet services available	4–27
Cisco Unified IP Phones 9900 Series	· Portfolio of advanced collaborative multimedia endpoints, with support for the most comprehensive suite of Unified Communications services and multimedia applications, including video communications as simple as a telephone call made directly from the IP phone, in a design that is intuitive, clutter-free and earth-friendly · Cisco SMARTnet services available	4–28
Cisco SPA 500 Series IP Phones	· For small businesses with robust features that support the Cisco Unified Communications 500 Series, Cisco SPA9000 Voice System, and hosted IP telephony.	4–30
Cisco Unified Attendant Console Portfolio	· Comprises three full-featured software-based attendant console solutions designed specifically for use with Cisco Unified Communications Manager · Includes Cisco Unified Department Attendant Console for departmental use, Cisco Unified Business Attendant Console for small- to medium-sized businesses, and the Cisco Unified Enterprise Attendant Console for the larger enterprise customer · Essential Operate Service (ESW) required for software	4–31
Cisco Emergency Responder	· Works with Cisco Unified Communications Manager to automatically provide E9-1-1 features in North America; intra-enterprise features are also compatible with any internal or external emergency number · Now works with Cisco EnergyWise · Essential Operate Service (ESW) for the software license and per seat	4–32
Cisco Intercompany Media Engine	· Enables true boundary-less communications among organizations, including business partners and customers · Makes communications among separate companies and organizations as effortless and transparent as it is within an individual company · Included with Cisco Unified Communications Manager 8.0 and beyond, as well as Cisco Unified Communications Manager Session Management Edition 8.0 and beyond	4–33
Cisco Unified Survivable Remote Site Telephony (SRST) and Cisco Unified Enhanced SRST (E-SRST)	· Cisco IOS software-based feature sets that automatically provide key backup telephony functions for centralized Cisco call-processing deployments during WAN link failures. During a WAN outage, the Cisco Unified SRST-enabled router provides robust telephony services (including off-net calls to 911) · E-SRST provides all functionality of Cisco Unified SRST and: - Enhanced user experience in failover mode by maintaining phone displays and providing full call-control features - GUI interface to provision, monitor, report and troubleshoot remote sites - Lower cost deployment and maintenance through automatic synchronization with Cisco Unified Communications Manager for additions, deletions and modifications of users and phones - Preserves access control & billing restrictions in failover mode · Cisco Unified SRST works with Cisco Unified Communications Manager and Cisco Unified Communications Manager Business Edition. Cisco's E-SRST works with Cisco Unified Communications Manager.	4–34
Cisco Unified Communications Services	Services, delivered by Cisco and our partners, help organizations deploy a secure, resilient Cisco Unified Communications solution, enabling powerful ways to collaborate with coworkers, partners, and customers across any workspace.	4–35
MESSAGING		
Cisco Jabber for Mac ***NEW PRODUCT***	· Unified Communications client for Mac OS X. · Delivers presence, instant messaging, voice, desktop sharing, and conferencing capabilities through a single client on your desktop. · Can be deployed as an on-premises or on-demand solution.	4–35
Cisco WebEx Connect	· Enterprise-class, on-demand unified communications client that delivers instant messaging, rich presence, audio, video, and integrated web conferencing and soft phone capabilities to streamline communications and enhance productivity	4–36

Cisco Unified Personal Communicator	· Integrates frequently used communications applications and services into a single, unified client · From an easy-to-use interface on a PC or Mac, it provides quick and easy access to powerful communications tools—softphone, presence, instant messaging, visual voicemail, click to call, employee directory, communication history, video/audio conferencing, and web conferencing—to help you communicate effectively and work more productively	4–36
Cisco Unified Presence	· Standards-based platform collects information from multiple sources about user availability and communications capabilities to provide rich presence status and facilitate presence-enabled communications with Cisco Unified Communications and other critical business applications · Cisco Unified Presence is tightly integrated with Cisco and a range of third-party compatible desktop and mobile presence and IM clients and applications and facilitates the ability to expose presence in corporate web directories, point-of-sale applications, or customer relationship management systems through standards-based application programming interfaces (APIs) · Essential Operate Service (ESW) required for most features	4–37
Cisco Unity Connection	· Enterprise-class voice and unified messaging solution that delivers speech recognition and call routing rules on a Linux appliance · Essential Operate Service (ESW) required for Voice Mail Boxes	4–38
Speech Connect for Cisco Unity Connection	· Internal or external callers can say the name of an employee into the phone and instantly be connected · New feature included with Cisco Unity Connection	4–38
Cisco SpeechView	· Converts voice messages to text and delivers them to you via e-mail, allowing you to read your voice messages and take immediate action · A feature of Cisco Unity Connection	4–38
Cisco Unity Express	· Integrated voice mail, automated attendant, IVR, and time card services locally delivered for small businesses or branch offices · Takes advantage of the data infrastructure; supported on a broad range of Cisco Integrated Services Routers · Cisco SMARTnet services available	4–38
Cisco Unified Survivable Remote Site Voicemail	· Cost-effective solution for supporting survivable voicemail service for your organization's remote sites, such as branch offices or small sites · Centralized configuration and management for CUCM/Unity Connection-based deployments	4–39
Cisco Unified Messaging Gateway	· Open and secure method of intelligently routing messages and exchanging subscriber and directory information within a unified messaging network · Acts as the central hub in a network of voice and unified messaging solutions · Includes Software Application Support and Software Applications Support with Upgrades (SAS/SASU) · In a centralized call-control network with Cisco Unified Communications Manager, it automatically provisions remote-site telephony (Cisco Unified E-SRST) on branch-office Cisco Integrated Services Routers (ISRs).	4–40
Cisco Unity Unified Messaging	· Unified messaging system that delivers voice, e-mail, and fax messages into single inbox for access through phone, e-mail, and many other clients and devices · Essential Operate Service (ESW) required for Voice Mail Boxes (VM or UM)	4–40
Speech Connect for Cisco Unity	· Internal or external callers can say the name of an employee into the phone and instantly be connected · For use with Cisco Unity unified messaging systems	4–40
Cisco WebEx Advanced Services	Cisco WebEx Advanced Services can help customers reach and exceed their collaboration goals with a wide range of services that can be tailored to their organization. Online collaboration experts assess organizational requirements and develop a plan to reach key goals. Key service portfolio offers are: Event Collaboration Services; Planning, Design, and Implementation Services; and Learning Services.	4–11
MOBILE APPLICATIONS		
Cisco Jabber and Cisco Mobile ***NEW PRODUCT***	· Place, receive, and manage calls over a Wi-Fi network · An application that delivers IP Telephony features to your Apple, Android, or BlackBerry mobile device · Cisco Jabber IM for smartphones lets you stay connected on the go with enterprise-class instant messaging and presence	4–41
Cisco Unified Mobile Communicator	· Enables collaboration by securely extending Cisco Unified Communications to your mobile smartphone · Provides real-time access to company directory, presence, visual voice mail, integrated call history, and conference notifications; so you have the information you need at your fingertips when you are on the go · Essential Operate Service (ESW) required for most features	4–41
Cisco Unified Mobility	· Mobility application, native to Cisco Unified Communications Manager, which extends call control capabilities to mobile devices · Redirects of incoming calls to up to four different phones simultaneously (single number reach/single business voicemail) and enables the transition of calls between Cisco Unified IP Phones and mobile devices	4–42
Nokia Call Connect for Cisco	· Enables Nokia business-class dual-mode handsets to operate on cellular Global System for Mobile Communications (GSM) and Wi-Fi networks with access to the advanced features provided by Cisco Unified Communications Manager	4–42

Cisco WebEx Meeting Center on Mobile Devices	· Free Cisco WebEx Meeting Center application for Cisco Cius as well as Apple, Android, and BlackBerry mobile devices · Join WebEx meetings from your mobile device to view shared presentations, applications, and desktop, view attendee list and chat with attendees · Participate in a two-way, multiparty video conference on the Apple iPad	4–42
Cisco WebEx Meeting Center on Smartphone Browsers	· Using the mobile browser on a smartphones, users can attend Cisco WebEx Meeting Center meetings, view presentations applications and desktops with live annotations · No download required	4–43
Cisco Mobile Supervisor	· Free application available from Apple Inc's App Store · Extension to the Cisco Supervisor Desktop (CSD) on a mobile device · Extension to your Cisco Unified Contact Center Express (Unified CCX) product, contact center supervisors can receive real-time performance metrics on their iPhone3G and iPod touch devices	4–43
TELEPRESENCE		
Endpoints		
Immersive Endpoints		
Cisco TelePresence System 3010	To deliver an immersive collaborative environment with an in-person experience, the Cisco TelePresence System 3010 allows 6 people to connect with up to 48 locations. Ideal for customer engagements with small or large groups, supply-chain optimizations, press and media briefings, or regular team meetings.	4–44
Cisco TelePresence System 1300 Series ***NEW PRODUCT***	Provides the flexibility that you need to deploy Cisco TelePresence throughout your organization. You can use almost any conference room and its existing table. Optimally designed for various environments and room sizes, this series delivers a high-quality experience for remote or branch offices with limited space or bandwidth.	4–44
Multipurpose Endpoints		
Cisco TelePresence Profile Series	The Cisco TelePresence Profile Series offers a lifelike HD video collaboration experience for teams of all sizes. This integrated telepresence solution brings you an easy-to-use and consistent video experience. The Cisco TelePresence Profile Series has several options powered by the C Series Codec, depending on the size of your meeting room and your requirements for collaboration and content sharing: · Cisco TelePresence Profile 42-inch · Cisco TelePresence Profile 52-inch and 52-inch Dual · Cisco TelePresence Profile 65-inch and 65-inch Dual	4–45
Cisco TelePresence MX200 ***NEW PRODUCT***	In approximately 15 minutes, you can turn a conference room into a telepresence room and call team members to a meeting on a brilliant 42-inch screen. The Cisco TelePresence MX200 brings colleagues from around the world face-to-face as if they were in the same room -- in a simple, cost-effective way.	4–45
Personal Endpoints		
Cisco TelePresence System EX Series ***NEW PRODUCT***	This family of personal telepresence for the desktop lets you and your colleagues instantly collaborate face-to-face, whether you are separated by a hallway, a street, or several time zones. Access the features you need right from your desktop, with the touch of a finger. The EX Series includes the Cisco TelePresence touch-screen interface, so you can make and manage telepresence calls with a simple glide of the finger. New enhancements bring even greater usability and simplicity to connecting and sharing content over telepresence.	4–46
Cisco TelePresence Movi	Cisco TelePresence Movi extends the benefits of face-to-face video collaboration to remote workers. Using an existing PC or Mac and a USB camera, team members at every level of an organization can stay visually connected in a highly secure and reliable, enterprise-wide telepresence solution. At a moment's notice, workers can connect from home or on the road, whenever they need to collaborate.	4–47
Cisco TelePresence System 500 Series ***NEW PRODUCT***	Cisco TelePresence System 500 Series offers the same experience of three-screen meeting room solutions, but with a smaller footprint. This gives individuals the flexibility to join large, multilocation group meetings, or host intimate, remote one-on-one meetings from the personal office.	4–47
Solutions Platform		
Cisco TelePresence System Integrator C Series	Designed for integrators who specialize in telepresence installations, the Cisco TelePresence System Integrator C Series delivers a total telepresence engine. With an excellent level of video and audio across the product range, these codecs offer advanced APIs and industry-standard connectors for exceptional integration flexibility. Products include: · Cisco TelePresence Codec C40 · Cisco TelePresence Codec C60 · Cisco TelePresence Codec C90	4–48

Infrastructure		
Call Control		
Cisco TelePresence Video Communication Server	The Cisco TelePresence Video Communication Server extends the benefits of face-to-face video collaboration across networks and organizations by supporting any-to-any video and telepresence communications. The solution includes tools for large-scale installations and video network management, making deployment and management easier and cost-efficient. As organizations adopt telepresence for desktops and enable mobile workers with video, the Cisco TelePresence Video Communication Server supports highly scalable deployments.	4–48
Conferencing		
Cisco TelePresence MSE 8000 Series	Meet the mission-critical collaboration needs of large enterprises with the Cisco TelePresence MSE 8000 Series, an all-in-one multipoint control unit, ISDN and IP gateway, and recording solution. This highly scalable chassis-based platform is well suited for service providers seeking to offer their clients HD videoconferencing services. The Cisco MSE 8000 Series is a high-density, high-capacity video bridge that supports large video conferences.	4–49
Cisco TelePresence Server 7010	Bring together participants with high-definition (HD), standard-definition (SD), and telepresence endpoints with the Cisco TelePresence Server 7010. To facilitate the best possible user experience, the server intelligently recognizes system types. You can connect to up to nine screens or upgrade the system to support 16 screens. Increase the large-scale telepresence experience with a full-screen, immersive view of the primary speakers and an overlay of the other participants.	4–49
Cisco TelePresence MCU 4500 Series	The Cisco TelePresence MCU 4500 Series is the industry's leading full high-definition multimedia conferencing bridge. It delivers superior video and voice with an easy-to-use, versatile management interface. Compatible with all major vendors' endpoints, each model maintains its capacity and performance in every configuration, providing an optimal experience for each participant, every time.	4–50
Cisco TelePresence Content Server	• Network appliance that enables organizations to record and stream meetings and multimedia presentations • Organizations can share knowledge and enhance communication through high-quality, user-generated video content	See 7–16
Media Services		
Cisco TelePresence ISDN Gateway	Organizations that use ISDN can now enjoy the benefits of high-definition video with the Cisco TelePresence ISDN Gateway. This high-capacity and scalable gateway grows with your business demands and provides transparent communication between all features of IP and ISDN video networks and devices. This gateway also offers transparent communication with the Cisco TelePresence Video Communication Server for call control and firewall traversal.	4–50
Cisco TelePresence Advanced Media Gateway Series	The Cisco TelePresence Advanced Media Gateway Series are unified communications products that help increase the value of your existing video and collaboration infrastructure. They connect to all standards-based video devices, including endpoints, multipoint control units, recording and streaming servers, and telepresence servers. Combined with the Cisco TelePresence Video Communication Server, this series provides an innovative unified communications solution. This combination is the first network-centric solution to facilitate true high-definition communication between Microsoft Office Communications Server 2007 R2 users and standards-based telepresence and video-conferencing devices.	4–51
Management		
Cisco TelePresence Management Suite	Cisco TelePresence Management Suite is a scalable, easy-to-use, and reliable system that provides complete visibility and control for administrators while providing a simplified telepresence experience for end users. The Cisco TelePresence Management Suite provides one management platform for all your visual communication needs.	4–51
Cisco TelePresence Manager	Cisco TelePresence Manager software makes it easy to schedule, initiate, and manage Cisco TelePresence experiences. As an integral part of the Cisco TelePresence solution, this software facilitates call scheduling and setup from common enterprise groupware such as Microsoft Exchange and Lotus Notes so that starting meetings is as simple as pushing a single button.	4–52
Exchange System		
Cisco TelePresence Exchange System ***NEW PRODUCT***	The Cisco TelePresence Exchange System is a flexible telepresence and business video services-creation platform that enables service providers to develop and deliver a broad portfolio of cloud-based managed and hosted telepresence services for next-generation cloud-based business telepresence solutions. Using the Cisco TelePresence Exchange architecture, service providers can expand their revenue streams by extending their network and conferencing services portfolio with a range of advanced media services such as multimedia conferencing, interoperability services, recording and streaming, and new high-touch services such as personalized concierge and white-label wholesale services.	4–52

Cloud Services		
Cisco TelePresence Callway ***NEW PRODUCT***	Cisco TelePresence Callway is a hosted, subscription based high-definition telepresence and voice collaboration service to enable small and midsized business to get started with Cisco TelePresence. The service was designed to address challenges that growing businesses in the face in managing the cost and complexity of deploying Cisco TelePresence infrastructure for small deployments.	4–54
Peripherals		
Cisco TelePresence Touch ***NEW PRODUCT***	Experience the innovative unified user interface that enables you to access Cisco TelePresence intuitively. Make and manage video calls, share content, and access advanced features--all with the simple touch of a finger. The interface comes in three models, optimally designed for Cisco endpoints. The models come in 8-inch, 12-inch, or 23-inch sizes.	4–55
TelePresence Industry Solutions		
Healthcare		
Cisco TelePresence System Clinical Presence	Designed by medical professionals, the Cisco TelePresence System Clinical Presence is a telemedicine solution that is ideal for a variety of clinical video applications. Clinical Presence connects clinicians with patients, staff, and each other using powerful telepresence technology integrated with features and functionality optimized for a healthcare setting. Clinical Presence helps maximize quality, mobility, and ease of use for a telemedicine environment. It can be customized to your requirements with a wide variety of options.	4–55
Cisco TelePresence System Intern MXP	The Cisco TelePresence System Intern MXP provides interactive video communication that you can move to wherever it's needed. It is ideal for applications such as healthcare, emergency response, homeland security, and manufacturing. The compact IV-stand unit includes a shelf and a basket that make it easy to connect a laptop, medical imaging equipment, and other peripherals.	4–56
Education		
Cisco TelePresence Synch	This revolutionary technology transparently integrates supported interactive whiteboards with speakers and Cisco TelePresence C Series or MXP endpoints. Synch effectively converts a standard interactive whiteboard into a powerful multifunction collaboration tool that brings together "live," remote experts and classrooms.	4–56
Cisco TelePresence System Educator MXP	If your room includes monitors, carts, and peripherals, the Cisco TelePresence System Educator MXP is an ideal solution that can integrate with your existing configuration. Instructors can use the intuitive 12-inch color video touch panel to control video calls and multiple peripherals such as cameras, PCs, and DVDs.	4–57
TelePresence Services		
TelePresence Services	Realize the full business value of your TelePresence investments faster with smart, personalized services from Cisco and our partners: http://www.cisco.com/go/services/telepresence	4–57
INFRASTRUCTURE AND OTHER		
Cisco Unified Application Environment ***NEW PRODUCT***	• Offers a rich portfolio of applications and development tools that extend the Cisco Unified Communications platform • Broad support for development tools, including Eclipse and Microsoft Visual Studio; allows unified communication and network services to be quickly and easily integrated into business applications or to develop entirely new applications	4–57
Cisco UC Integration for Microsoft Office Communicator ***NEW PRODUCT***	• Cisco UC Integration™ for Microsoft Lync is a desktop integration that provides access to Cisco Unified Communications from Microsoft Lync and Microsoft Office Communicator. • Solution extends the presence and instant messaging (IM) capabilities of Microsoft Lync and Microsoft Office Communicator (MOC) by providing access to a broad set of Cisco Unified Communications capabilities, including softphone standards-based video, unified messaging, audio, video and web conferencing, desk-phone control, and phone presence. • Instantly access enhanced Cisco Unified Communications directly from Microsoft Lync or Microsoft Office Communicator on a PC client • Easy-to-deploy desktop integration, extend proven Cisco unified communications services to your workspace and benefit from the investment protection and reduced complexity delivered by a single call control solution	4–58
Cisco Unified Communications 500 Series	• Affordable unified communications appliance for Small Businesses that provides voice, data, voicemail, automated attendant, video, security, and wireless capabilities while integrating with existing desktop applications such as calendar, email, and CRM programs • Cisco SMARTnet services available	4–58
Cisco Unified Communications on the Cisco Unified Computing System	• Composed of Cisco Unified Communications applications running in a virtualized environment, consisting of VMware software, Cisco Unified Computing System servers, and Fibre Channel SAN storage	4–60

Cisco Unified Border Element	The Cisco Unified Border Element (Enterprise Edition) is Cisco's enterprise Session Border Controller for 4-16,000 sessions. When carrying end-to-end IP traffic within the enterprise and between different enterprises and service provider networks, Cisco Unified Border Element ensures network interconnections by performing the following key services: · Session Management: Call Admissions Control, QoS, Statistics & Billing and Redundancy/Scalability · Security: Encryption, Authentication, Registration, SIP Protection, Firewall Placement, and Toll Fraud · Interworking: H.323 and SIP, SIP Normalization, DTMF Interworking, Transcoding and Codec Filtering · Demarcation: Fault Isolation, Topology Hiding, Network Borders and L5/L7 Protocol Demarcation Cisco SMARTnet services are available.	4–60
Cisco Analog Voice Gateways	· Dedicated Cisco VG202, VG204, VG224, VG248, and 112-FXS Bundle Analog Voice Gateways provide connectivity between IP networks and traditional telephones · Cisco SMARTnet services available	4–61
Cisco AS5350XM Universal Gateway	· High performance, universal 1 rack unit high gateway ideal for deployments requiring SS7 interconnection or for those deployments requiring a T3 interface. · Cisco SMARTnet services available	4–62
Cisco AS5400XM Universal Gateway	· High performance, universal 2 rack unit high gateway ideal for deployments requiring SS7 interconnection or for those deployments requiring a T3 interface. · Cisco SMARTnet services available	4–64
Cisco ATA 187 Analog Telephone Adaptor	· Turns any analog telephone into an IP telephone. Each of the two voice ports supports independent telephone numbers, providing two separate lines · Cisco SMARTnet services available	4–65
Cisco Media Experience Engine	For product information, please refer to "Chapter 7: Video and Broadband Cable."	See 7–1
Cisco Unified Workspace Licensing	· Allows organizations to cost-effectively access a wide range of Cisco Collaboration applications and services in a cost-effective, simple package · Includes client and server software, licensing, service and support, and software subscription on a per-user basis	4–66
Cisco Unified Communications Software Subscription	· Increases business value by providing an economical and timely approach to upgrading to new Cisco technology · Offers major software releases at no additional charge for the duration of the activated subscription term, which can be for 1, 2, 3, or 5 years	4–68

FOR MORE INFORMATION

Product Ordering
To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml.

End-of-Life and End-of-Sale
Please visit the end-of-life and end-of-sale website for a complete and up-to-date listing of products that are no longer being sold or supported, what replacement products are available, and information about product support.
http://www.cisco.com/en/US/products/prod_end_of_life.html

NOTE: This chapter provides only a subset of Cisco products and part numbers. For the most up-to-date and comprehensive information, refer to the Cisco website at http://www.cisco.com, the Cisco ordering website at http://www.cisco.com/en/US/ordering/index.shtml, or reference the URL listed in the "For More Information" section of each product.

Conferencing

Cisco Unified MeetingPlace

Cisco Unified MeetingPlace conferencing is an on-premises virtual meeting solution within Cisco Unified Communications. It delivers an exceptional user experience with integrated voice, video, and web conferencing and interfaces that make it simple to set up, attend, and manage meetings. Cisco Unified MeetingPlace conferencing extends the value of Cisco WebEx meeting applications with on-premises voice, video, and web conferencing options that provide cost savings and added security.

Key Features and Benefits

- Cost savings—Cisco Unified MeetingPlace conferencing is deployed on-premises on an organization's converged IP network, a scenario that can reduce costs by virtually eliminating conferencing telephony and service fees paid to service providers.
- Deployment flexibility—On-premises voice conferencing for Cisco WebEx meeting applications. You can deploy the Cisco Unified MeetingPlace solution as a complete on-premises voice, video, and web conferencing solution or integrate it with Cisco WebEx web conferencing services. These solutions together combine the cost savings advantages of on-premises voice conferencing with the productivity benefits of on-demand web conferencing. The Cisco WebEx Node for MCS is a software component that is deployed with Cisco Unified MeetingPlace 8.0 to provide on-premises data options and improved performance for Cisco WebEx meetings.

- Simple rich-media conference setup, attendance, and management—Cisco Unified MeetingPlace conferencing is integrated with multiple applications and devices to enable you to better integrate conferencing into your business processes. Intuitive interfaces make setting up, attending, and managing meetings easy. Industry-standard protocols are supported to enable meeting attendance from virtually any phone and video application or endpoint.
- Security:
  - The solution offers a dedicated on-network system; each customer is provided with a dedicated Cisco Unified MeetingPlace solution integrated with the private network.
  - The solution offers Internet lockout controls; meetings can be set up as internal-only meetings and held entirely behind the corporate firewall, or as external meetings that are accessible to Internet and internal participants. Administrators and meeting organizers have complete control.
  - The solution offers access authentication, encryption, and in-session meeting controls.

For More Information

http://www.cisco.com/go/meetingplace

Cisco Unified Video Advantage

Cisco Unified Video Advantage (formerly Cisco VT Advantage) adds video to your communications experience by providing video telephony functions to Cisco Unified IP Phones (select Cisco Unified IP Phones 6900 Series and 7900 Series and Cisco IP Communicator softphone application). With Cisco Unified Video Advantage, video telephony is now just a phone call.

This solution comprises Cisco Unified Video Advantage software and Cisco VT Camera III, a video telephony USB camera. With Cisco Unified Video Advantage, you can use the familiar phone interface to make and receive video calls on your Cisco Unified IP Phone with the video component displayed on your PC. Enterprise organizations can take advantage of their existing IP networks to extend video to everyone in their organization.

Ideal for Companies That Need These Features

Cisco Unified Video Advantage	• Desktop video calling • High-quality video with rich telephony features on their Windows PC • Transparent integration with desktop IP phone or Cisco IP Communicator for familiar phone interface

Key Features and Benefits

- Consistent voice and video user experience: Cisco Unified Video Advantage offers easy, low-cost, high-quality video calling. Familiar call features such as call forward, transfer, conference, hold, and mute are initiated through the phone, and available video is viewed through the PC.
- Easy to manage: Unified administration is possible with Cisco Unified IP Phones and automatic software upgrades.

For More Information

http://www.cisco.com/go/cuva

Cisco WebEx Meeting Center

Cisco WebEx Meeting Center allows business professionals to meet online to present information, share applications, and collaborate on projects with customers, partners, and colleagues, worldwide, just as if you were face-to-face. Schedule meetings in advance or start an instant online meeting and invite people to join you by e-mail or IM. Cisco WebEx Meeting Center enables companies to extend their business models over the web in a high-touch yet low-cost manner anywhere, on any device.

Ideal for Companies That Need These Features

Cisco WebEx Meeting Center	• Ability to meet with remote colleagues, customers, and partners online to share presentations and collaborate through a rich, real-time meeting experience • Anywhere, anytime meeting access through multiple platforms and mobile devices • Enterprise integration existing Cisco investments such as Cisco Unified MeetingPlace, Cisco TelePresence, and more • Software as a Service (SaaS) delivery model that allows IT to deploy a global web conferencing solution quickly, eliminating the need for a large upfront investment in hardware or additional resources to maintain the infrastructure • A secure and reliable method to collaborate both inside and outside the firewall

Key Features and Benefits

- Integrated live audio, high-quality video, and data—Offer a rich meeting experience with integrated audio and high-quality video that enables participants to focus on the content being presented while also easily identifying who is speaking.
- Create dynamic multimedia presentations using powerful presentation techniques such as animations Macromedia Flash, audio, and video to deliver a true presentation experience.
- High-quality video—See up to six participants at a time in high-quality (360p), full-screen video mode with Active Speaker switching that focuses on the person talking.

- Powerful presentation and annotation tools—Presenters and participants can show documents, applications, or their desktop in real time. Control can be passed to participants so that they can share their desktops or annotate yours.
- Join WebEx meetings on mobile devices including Cisco Cius, Android, BlackBerry, iPhone, iPad, and more.
- Desktop integration—Initiate meetings instantly from Microsoft Office, Microsoft Outlook, Lotus Notes, and a variety of instant messaging solutions, including Cisco WebEx Connect and Cisco Jabber.
- Enterprise integration—Use single sign-on to access WebEx Meeting Center and other enterprise applications integrated with WebEx.
- Cisco WebEx Network-Based Recording (NBR)—Record meetings for future reference, training or demos.
- Cross-platform support—Meet with anyone using WebEx, on all common operating system platforms: Windows, Mac, Linux, and UNIX.
- Enterprise policy management—Cisco WebEx Site Administration allows IT to enforce security policy at all levels: enterprise, group or individual.
- Meeting platform you can trust—Cisco WebEx meeting applications run on the Cisco Collaboration Cloud, a high-performance, carrier-class global network that gives you the fast, reliable, highly secure performance you need.
- Integrates with existing Cisco investments—Cisco Unified MeetingPlace, Cisco Unified Video Conferencing, Cisco TelePresence, Cisco WebEx Node for the ASR 1000, Cisco WebEx Node for MCS

For More Information

http://www.cisco.com/en/US/products/ps10409/index.html

Cisco WebEx Training Center

Cisco WebEx Training Center is the leading virtual classroom solution on the market. WebEx Training Center is a hosted online training solution that enables you to deliver dynamic, interactive instruction to anyone with web access. You get flexible, easy-to-use tools that encourage interaction, engage learners, and enhance information retention. With Training Center, you can significantly decrease the cost of delivering live training while extending the frequency and reach of your training initiatives.

Ideal for Companies That Need These Features

Cisco WebEx Training Center	• Online classroom for interactive training and e-learning • High-quality video • Integrated polls, tests, and quizzes • Virtual breakout sessions and hands-on lab • Threaded Q&A and chat • Advanced registration management and rich reporting • Small and large capacity training (up to 1,000 participants)

Key Features and Benefits

- Use new high-quality (up to 360p) video to enhance instructor-audience interaction and provide live demonstrations. Self-adjusting video quality adapts to individual equipment and bandwidth conditions.
- Promote collaborative learning with virtual breakout sessions that allow students to break into small groups to work on projects, role-play, or develop case studies. Instructors can roam from group to group to provide guidance and support.
- Track questions and document associated responses with threaded Q&A. Instructor can assign panelists to answer questions while session continues. Panelists can prioritize questions, display answers publicly or privately, or assign to a colleague.
- Keep learners engaged and involved with Quick Response tools that make it easy for instructors and learners to communicate. These tools allow students to interact with instructors and other students with the click of an icon.
- Accelerate the rollout of new software applications and tools by providing learners with access to remote lab computers for hands-on technical training. Hands-on Lab sessions may be conducted during live training sessions or on-demand.
- Gauge individual and overall group attentiveness at any point with a visual attention indicator visible only to instructors or panelists. Post-session attendee reports indicate the ratio of attendee attention to session duration and the duration that an attendee was in the session
- Assess the understanding and ability of your learners to apply your training with the integrated Testing Engine. Deliver tests before, after, or during live training sessions, and integrate with LMS systems.
- Take full advantage of Cisco WebEx Integrated Audio to simplify the scheduling and management of audio sessions for your live online training programs. Innovative features such as Active Talker allow instructors and students to see who is speaking, promoting personal interactions and enabling instructors to "spot" audio distractions (hold music) and mute the line to minimize interruptions.
- Deliver live interactive training to learners regardless of their computing platform, with multiplatform support for Windows, Mac, Linux, and UNIX.

For More Information

http://www.cisco.com/en/US/products/ps10410/index.html

Cisco WebEx Event Center

Cisco WebEx Event Center is an online event-management application for staging large-scale online events and web seminars. Cisco WebEx Event Center allows you to manage the entire online event lifecycle from planning, promoting, and presenting to follow-up and analysis. Whether you need to increase your lead numbers, launch a new product, or hold all-hands company meetings, Cisco WebEx Event Center can help you cost-effectively target the right people—worldwide.

Ideal for Companies That Need These Features

Cisco WebEx Event Center

- Ability to deliver marketing events and corporate events to a large audience over the web
- Comprehensive online event management with registrations, promotions, and follow-ups
- Robust online event session features for high-quality, professional event production
- Software-as-a-service (SaaS) delivery model that allows them to deploy web-based event management over the web, eliminating the need for hardware and resources to maintain the infrastructure
- Secure and reliable method to conduct events both inside and outside the firewall

Key Features and Benefits

- Sophisticated event management features—From customizable HTML templates and event registration forms to automated lead management and lead scoring, Cisco WebEx Event Center has the features you need for a successful webcast that delivers the results you want, and allows you to integrate to your CRM application, such as Salesforce.com.
- Higher return on investment (ROI)—Extend the life of your events with Cisco WebEx Network Based Recording (NBR). With a simple click, you can record all your events, which are then available for replay. Choose from multiple options such as requiring registration or destination URL, or even posting surveys.
- Webcast platform you can trust—When the technology fails there is no makeup session. Rest assured; all Cisco WebEx events run on Cisco WebEx Collaboration Cloud, ensuring security, reliability, and performance.
- Audio broadcast—Cisco WebEx Event Center offers multiple audio options to meet your event needs and budget. Audio broadcast allows presenters to deliver over a regular telephone while the event participants listen through their computers.
- Multiplatform—Let your prospects join your event on the platform of their choice: Windows, Mac, Linux, or UNIX.

For More Information

http://www.cisco.com/en/US/products/ps10411/index.html

Cisco WebEx Advanced Services

Customers get more from their WebEx Investment with help from WebEx Advanced Services. Cisco WebEx Advanced Services are a comprehensive suite of offerings specifically designed to help customers achieve organizational objectives and maximize the return on their WebEx investment. The top priority is to help customers use WebEx more successfully. The WebEx Advanced Services team has deep domain expertise and extensive industry experience. WebEx Advanced Services offers valuable assistance with WebEx deployment, collaboration adoption, and integration with your business processes, technologies, and culture.

- Planning, design and implementation offers include collaboration readiness assessment, technical implementation services, adoption management services, integration services, and optimization services.
- Event collaboration services offers include virtual events, video streaming, and conferencing services.
- Learning offers include product training courses, product mastery programs, and virtual classroom instruction courses.

Key Features and Benefits

- Scalable collaboration design details and targeted communication activities that drive enterprise adoption
- Provide solutions to complex deployment and configuration requirements to support business goals and enhance productivity
- Ability to deliver marketing events and corporate events to a large audience over the web
- Comprehensive online event management with registrations, promotions, and follow-ups
- Robust online event session features for high-quality, professional event production

For more information about Cisco WebEx Advanced Services, visit:
http://cisco.com/en/US/prod/ps10352/advanced_services.html.

Cisco WebEx Support Center

Cisco WebEx Support Center helps quickly resolve support issues for remote users. Cisco WebEx Support Center provides real-time technical support to employees and customers anywhere in the world, decreasing downtime and increasing productivity. Tech support representatives can perform fast fixes, quickly resolve remote support issues, manage remote devices, and accelerate diagnosis and problem solving from anywhere in the world—without costly on-site service visits. Cisco WebEx Support Center delivers more personalized service and technical support with high-quality video.

Ideal for Companies That Need These Features

Cisco WebEx Support Center	• Ability to remotely deliver technical support • Reduced support time and cost with the ability to escalate an issue instantaneously for on-demand personalized support • Software-as-a-service (SaaS) delivery model that allows deployment of a remote support solution over the web, eliminating the need for hardware and resources to maintain the infrastructure • Secure and reliable method to deliver technical support both inside and outside the firewall

Key Features and Benefits

- Remotely access and manage computers:—With Cisco WebEx Remote Support and Cisco WebEx Remote Access, you can remotely support and access computers anywhere is the world through the Internet, without the need to access firewalls and open ports on the customer site.
- Cross-platform compatibility—Supports customers on multiple platforms: Windows, Mac, Linux, and UNIX.
- Inbound request management—Lets customers initiate a session with a button on your website, product, or e-mail signature. Automatically routes to a TSR's queue or a customized request form.
- File transfer—Drag and drop files to and from a customer's system to patch or update.
- Sign on to a customer's machine as an administrator.
- Integrated VoIP and high-quality video—Speak with customers via teleconference or integrated VoIP. Provides more personalized support using live high-quality video.
- Chat—Chat with several TSRs and customers at once.
- Multi-session client—Easily support multiple customers at once from a tabbed client interface.
- System information—Collect system information with one click. Print and save for future reference.
- Reboot and reconnect—Maintain the same session even after reboot and in safe mode.
- Bring in subject matter experts easily and transfer the session or conference in others.
- Cisco WebEx Network Based Recording (NBR)—All support interactions can be recorded for auditing, tracking, and security purposes. Both audio and visual support session details are recorded.
- Measure and improve support organization performance with detailed reporting.

For More Information

http://www.cisco.com/en/US/products/ps10412/index.html

Customer Care

Cisco Unified Contact Center Enterprise

Cisco Unified Contact Center Enterprise segments customers, monitors resource availability, and delivers each contact to the most appropriate resource in the enterprise. The software profiles each customer contact using related data such as dialed number and calling line ID, caller-entered digits, data submitted on a web form, and information obtained from a customer database lookup. Simultaneously, the system monitors the resources available in the contact center to meet customer needs, including agent skills and availability, interactive-voice-response (IVR) status, and queue lengths.

This combination of customer and contact center data is processed through user-defined routing scripts that graphically reflect your company's business rules, enabling Cisco Unified Contact Center Enterprise to route each contact to the right place. Wherever an agent is based, the system delivers a rich set of call-event and customer-provided data as a contact arrives, personalizing service and increasing efficiency. Throughout the process, distributed fault tolerance helps ensure uninterrupted operation and rich reporting provides the business intelligence necessary to effectively run your contact center.

Ideal for Companies That Need these Features

Cisco Unified Contact Center Enterprise	• Single contact center solution to support agents located in multiple locations, including formal contact centers, branch offices, and home agents • Single contact center solution to support inbound, outbound, e-mail, and Web collaboration channels • A fully redundant solution

Key Features and Benefits

- Cisco Unified Contact Center Enterprise offers full scalability from less than a hundred to thousands of seats; it supports multisite contact centers and customer-relationship-management (CRM) integration.
- Carrier-class, distributed fault tolerance helps ensure uninterrupted operation.
- Multichannel interaction is possible, including Web collaboration with chat and callback, e-mail, voicemail, and fax routing.
- Universal queue coordinates enables agents to work on multiple tasks from various channels while allowing the agent to be interrupted with high-priority tasks as required.
- The solution provides continuous-contact call detail records.
- The solution provides common agent and supervisor desktops across all Cisco customer-interaction-management products.

- Provides real-time and historical data necessary for mission-critical contact center reporting across all media types. Standard reporting is offered by the Cisco Unified Intelligence Center, and with the availability of the underlying data model and schema, custom reports can easily be developed.
- Support for custom call treatment for calls in queue includes support for music in queue and custom messaging; a standard screen pop allows any caller-entered information to be forwarded to the agent.
- Cisco Unified Contact Center Enterprise supports agent-supervisor interaction through chat; agent-supervisor messages are predefined.
- The solution offers enterprise presence integration through Cisco Unified Expert Advisor and Cisco Agent Desktop to tie in or extend intelligently routed calls to knowledge workers or informal agents.
- Provides integration into a broader Unified Communications management infrastructure, Unified Analysis Manager, which helps analyze the condition and health of every component in the solution and assists in call path analysis, trace setting and log collection

Selected Part Numbers and Ordering Information

IPCE-BUNDLE	Requires the purchase of one CCE Server license. This license entitles the user to deploy the following necessary components: (redundant) Router; (redundant) Logger; (redundant) Communications Manager Peripheral Gateway(s); (redundant) IVR Peripheral Gateway(s) for connection to Cisco Self-Service and Queuing (IVR) systems. CVP and IP-IVR (non-Cisco IVRs require third-party IVR port licenses); Administrative workstation(s); Historical database server(s); WebView Reporting server and reporting user connections; Internet Script Editor (ISE) server and ISE user connections; application gateways; (redundant) CTI server for third-party CTI connections (only for non-agent desktop application)
IPCE-SVR	Contact Center Enterprise server license

For More Information

http://www.cisco.com/go/ipcc

Cisco Unified Contact Center Express

Cisco Unified Contact Center Express provides easy-to-deploy, easy-to-use, highly available, and sophisticated customer interaction management for 1 to 300 agents by supporting a highly available virtual contact center with integrated self-service applications across multiple sites secured with Cisco Security Agent. All Cisco Unified Contact Center Express solutions are tightly integrated with Cisco Unified Communications Manager.

Ideal for Companies That Need these Features

Cisco Unified Contact Center Express

- Contact center-in-a-box that delivers intelligent routing, call treatment, network-to-desktop and computer telephony integration (CTI), and integrated self-service for customer contact management over an IP infrastructure
- Ability to handle e-mail-based contacts and provide outbound dialing support
- Sophisticated workforce management, quality management, and compliance recording
- Ability to integrate multiple Cisco Unified Contact Center Express systems in the cloud under the control of Cisco Unified Intelligent Contact Management, including pre- and postrouting and centralized reporting
- Redundancy with high availability

Cisco Unified Contact Center Express is a virtual contact center that is easy to deploy, configure, and manage. It is available in three different packages [Standard, Enhanced, and Premium] to help ensure the right match with your business requirements. This interactive-voice-response [IVR] self-service solution is fully integrated with contact center operations, including the ability to deploy advanced self-service technologies such as Automatic Speech Recognition (ASR) and Text to Speech (TTS).

Key Features and Benefits

- Cisco Unified Contact Center Express reduces business costs while improving customer response by providing sophisticated and distributed automatic call distributor (ACD), interactive voice response (IVR), computer telephony integration (CTI), and agent and desktop services.
- The solution offers numerous sophisticated options traditionally associated with enterprise contact centers, including the ability to handle e-mail -based contacts, presence integration, outbound preview dialing, and a complete workforce-management solution.
- Administration is browser-based, integrating with Cisco Unified Communications Manager browser-based administration.
- The solution provides ongoing contact call detail records.
- The standard screen allows any caller-entered information to be forwarded (through a screen pop) to the agent.
- The solution provides predefined or custom historical reports; real-time reports are provided within the agent and supervisor desktops.
- Offers high-availability redundancy for dual server cluster deployments, including support for automatic failover of inbound voice ACD, IVR, and desktop services, as well as database replication and failover and load-balanced redundancy for historical reporting and on-demand recording.
- Supports high availability over the WAN (HAoWAN). It also supports switching between Cisco Unified Contact Center Express 8.0 HAoWAN and high availability over the LAN (HAoLAN).

- This complete, enterprise-wide, scalable unified contact center solution works in the Cisco Customer Interaction Network.
- Cisco Unified Contact Center Express 8.0 supports deployment in an appliance model on Linux-based operating systems. The appliance model is a secure, resilient, and robust model that is less complex and provides for faster installs, easier upgrades, and less-frequent patching.
- Cisco Unified Contact Center Express fully supports agent-supervisor interaction through chat and predefined messages.
- The solution offers full IP call queue points and prompts; it collects voice interaction capabilities.
- Optional Automatic Speech Recognition (ASR) and Text-to-Speech (TTS) capabilities are available.
- The solution supports custom call treatment such as music for calls in queue.
- Offers Cisco Mobile Supervisor feature enabling supervisors to receive real-time reports on the go on their Apple iPhone or iPod Touch.

Selected Part Numbers and Ordering Information

CCX-85-SRVRS-MEDIA	CCX 8.5 NEW Deployment-Appliances, Servers, Media Kits
L-CCX-85-NEW	CCX 8.5 NEW Deployment-Product, UCSS eDelivery LICENSES ONLY
L-CCX-85-ADDON	CCX 8.5 ADDON Deployment-Product, UCSS eDelivery LICENSES ONLY

For More Information

http://www.cisco.com/go/ipccexpress

Cisco Unified Intelligence Center

Cisco Unified Intelligence Center is a web-based GUI that provides real-time and historical reporting in an easy-to-use, wizard-based application for Cisco Unified Contact Center Enterprise. It allows contact center supervisors and business users to report on the details of every contact across all channels in the contact center from a single interface.

Built on a robust and extensible Web 2.0 framework, Cisco Unified Intelligence Center allows customers to extend the boundaries of traditional contact center reporting to an information portal where data can be easily integrated and shared throughout the organization.

Two versions of Cisco Unified Intelligence Center are available: Cisco Unified Intelligence Center Standard and Premium. Cisco Unified Intelligence Center Standard software is included as part of the Cisco Unified Contact Center Enterprise software kit. Cisco Unified Intelligence Center Premium includes advanced features and the ability to create new reporting queries and access other external databases and data sources.

Ideal for Companies That Need these Features

Cisco Unified Intelligence Suite	• Powerful web-based reporting platform that is as flexible as it is intuitive • The ability to report on the details of every contact across all channels from a single interface, regardless of the resources involved

Key Features and Benefits

- Cisco Unified Intelligence Center offers real-time and historical reporting in an easy-to-use, wizard-based interface.
- The solution offers a variety of presentation formats such as interactive grids, charts, web pages, and RSS feeds.
- Administrators can control access to features, reports, and data by granting privileges to individual users or groups of users.
- The solution offers integrated reporting for any data source, including third-party automatic call distributors (ACDs), Cisco Unified Workforce Management, customer relationship management (CRM), and QM products.
- The solution offers the ability to move between reports through hyperlinks providing drill-up, drill-down, and drill-across capabilities.
- Advanced drill-down capabilities allow customers to link multiple reports, including the ability to drill across data sources for maximum flexibility.

Selected Part Numbers and Ordering Information

IPCE-SVR-ADDON CCEH-CUIC8-PREM CCEH-CUIC8-STD	Cisco Unified Intelligence Center Standard and Premium licenses

For More Information

http://www.cisco.com/go/ccreports

Cisco and salesforce.com Customer Interaction Cloud

The Cisco and salesforce.com Customer Interaction Cloud is a multichannel contact center solution that is designed for organizations with 30 to 300 knowledge workers or agents. This solution allows customers to use the salesforce.com Service Cloud as their primary agent desktop while having Cisco Unified Contact Center capabilities to operate a customer care or support center in any industry, as well as inbound and outbound

telesales, from anywhere in North America. Contact centers can be operational in a matter of weeks and completely hosted in the cloud.

It features pre-integrated Cisco Unified Contact Center with salesforce.com's Service Cloud and agent desktop, along with standard configurations, so self-service administration is easier to manage and agents are immediately more productive.

TeleTech hosts the service, allowing customers to quickly respond to changes in the market at their own discretion.

Ideal for Companies That Need these Features

Cisco and salesforce.com Customer Interaction Cloud

- Faster deployment of their contact center by following a cloud computing or Software-as-a-Service model
- Completely hosted and managed infrastructure of their contact center
- Multichannel contact capabilities, incorporating social media such as Facebook and Twitter
- Flexible scalability to meet the demands of the growing business
- Tightly integrated routing and reporting capabilities
- Simplification of provisioning and day-to-day management

Key Features and Benefits

- Customer service and support functions—With systematic case tracking and management, customers can automatically capture, route, and escalate cases from all channels based on business rules for faster and better customer service.
- Reporting—Supervisors access historical and real-time reports with a click of the mouse.
- Routing functions—Agents can work on multiple tasks from various channels, and the solution facilitates interruptions for high-priority tasks as required.
- Supervisory features—Supervisors can view agent states and call information, and silently monitor agent calls.
- Single user interface—To streamline the customer interaction process and create operational efficiencies, agents, supervisors, and administrators use the same web portal with a consistent user interface to access all applications and call center tools.
- Self-provisioning—Administrators can manage all configurations in a graphical web portal, greatly simplifying provisioning.
- Multichannel integration—Reach beyond standard inbound telephony channels to include social networks such as Facebook, Twitter, and other web channels.

Selected Part Numbers and Ordering Information

CIC-STD-DURATION	Customer Interaction Cloud Standard Contract Duration
CIC-STD-PERMAGT	Customer Interaction Cloud Standard Permanent Agent
CIC-STD-PERMAGT-1M	Customer Interaction Cloud Standard Permanent Agent 1 Month

For More Information

http//www.customerinteractioncloud.com

Cisco Unified Customer Voice Portal

The Cisco Unified Customer Voice Portal integrates with both traditional time-division multiplexing (TDM) and IP-based networks to provide an unparalleled call-management and call-treatment solution with speech-enabled interactive voice response that can use information available on the corporate web server. With support for ASR and TTS capabilities, callers can obtain personalized answers to complex questions and can conduct business in new and innovative ways–with or without a live agent. The Unified CVP solution offers a unique capability of providing the voice processing on Cisco integrated services routers and access servers, thus allowing the same self-service application to be deployed at a retail office or at large customer call centers, thus significantly reducing customers' bandwidth usage.

Ideal for Companies That Need These Features

Cisco Unified Customer Voice Portal

- Offset high costs associated with assisted-service contact center agents by directing more customer interactions to automated self-service
- Improved effectiveness of automated self-service at lower cost by treating calls at the most effective location
- A consistent customer experience across self-service (web and phone) and assisted-service environments

Key Features and Benefits

- Cisco Unified CVP can play prerecorded announcements and prompts to callers, supporting a wide variety of informational and self-service applications. Streaming audio is also supported (with Real-Time Streaming Protocol [RTSP]), allowing play of live audio sources.
- Cisco Unified CVP supports web services interfaces such as Web Services Description Language (WSDL) and Simple Object Access Protocol (SOAP), enabling real-time integration with web-enabled business applications.

- In addition to its self-service and queuing capabilities, Cisco Unified CVP possesses powerful SIP-based call control to instruct the IP network where to route the call. This control can include call transfer to an agent, IVR, ACD, PBX, or a carrier network, providing a wealth of customer service options.

Selected Part Numbers and Ordering Information

CVP-85-SERVER-SW	CVP 8.5 Server Software
CVP-STU-85=	CVP Studio 8.5
CVP-8X-PTS	CVP 8.X Self-Service Port License

For More Information

http://www.cisco.com/go/cvp

Cisco Customer Care Services

Services, delivered by Cisco and our partners, help you create unique customer experiences. Designed to help transform your customer relationships, our solutions complement your in-house skills and help achieve operational efficiency. Our services help contact centers maximize customer relationships, enable richer collaboration, and accelerate technology innovations, to gain and sustain competitive advantage.

For more information, visit http://www.cisco.com/go/uccservices

Cisco SocialMiner

Consider first the explosion of the social web. From Twitter to Facebook, people worldwide are engaging in an ever-increasing number of online conversations and interactions. Part of that conversation is consumers talking about the companies with which they do business. Sometimes they say good things, and sometimes they complain. The question is: are companies listening? And can enterprises react to both the good and the not-so-good information coming from customers in social media?

Cisco SocialMiner enables all companies to incorporate the ability to listen to and respond to customer conversations originating in the social web. This proactive response can benefit your company in numerous ways, from delighting customers with responses to concerns or questions to managing a complaint or product problem that could potentially damage your brand. In addition, the social media web is full of potential customers asking for advice about a product or service. With Cisco SocialMiner, your company can offer advice and product information to aid in decision making, create brand recognition, and possibly gain a new customer.

Cisco SocialMiner can help your company enhance customer service, improve customer loyalty, add new customers, and protect your brand.

Ideal for Companies That Need These Features

Cisco SocialMiner	• A social media customer care solution that enables your company to proactively respond to customers and prospects communicating through public social media networks such as Twitter and Facebook or other public forum or blogging sites • A solution that provides social media monitoring, queuing, and workflow to organize customer posts on social media networks and deliver them to your customer care team, your company can respond to customers in real time through the same social network they are using to communicate.

Key Features and Benefits

- Social media feeds
  - Feeds are configurable sources to capture public social contacts that contain specific words, terms, or phrases.
  - Feeds enable you to search for information on the public social web about your company's products, services, or area of expertise.
  - Cisco SocialMiner supports the following types of feeds: Really Simple Syndication (RSS); Facebook; Twitter.
- Campaign management
  - Groups feeds into campaigns to organize all posting activity related to a product category or business objective
  - Produces metrics on campaign activity
  - Provides the ability to configure multiple campaigns to search for customer postings on specific products or services
  - Groups social contacts for handling by the social media customer care team
  - Enables filtering of social contacts based on preconfigured campaign filters to focus campaign searches
- Route and queue social contacts
  - Enables routing of social contacts to skilled customer care representatives in the contact center
  - Draws on expertise in the enterprise by allowing multiple people in the enterprise to work together to handle responses to customer postings through shared work queues
  - Enables automated distribution of work to improve efficiency and effectiveness of social media engagement

Selected Part Numbers and Ordering Information

CCEH-CCP-SVR-LIC	SocialMiner Server
CCX-85CCPMEDKITK9=	CCX 8.5 Qty 1 SocialMiner Media Kit - NO LICENCES
CCEH-CCPMEDIA85-K9	Media Kit for SocialMiner 8.5

For More Information

http://www.cisco.com/go/socialminer

Cisco Finesse

The customer service group in your business or organization can handle thousands of inquires from customers and prospects every day. It is up to your customer service representatives to quickly and efficiently respond with the information requested to meet the needs of the person looking for information.

To operate efficiently and effectively, customer service representatives in your organization need to employ numerous different applications and have immediate access to a wealth of information. In the course of responding to your customers, representatives constantly switch between applications when searching for information. This process takes time—time that your customers spend waiting.

Cisco Finesse meets this challenge by creating a personalized desktop work environment using a web-based interface. The Cisco Finesse desktop provides a single, customizable cockpit that enables the customer care representatives to take advantage of multiple assets and information sources to assist customers.

Fast, efficient, accurate service results in happy, satisfied, and loyal customers who will return to do business with you again. And it saves operational costs for your business.

Ideal for Companies That Need These Features

Cisco Finesse	• A next generation agent and supervisor desktop designed to provide a collaborative experience that improves the customer experience by enhancing customer service representative experience. • Smooth integration with the Cisco Collaboration portfolio. It is standards-compliant, and offers low cost of customization of the agent and supervisor desktops.

Key Features and Benefits

- Thin-client desktop
  - Enables desktop development using industry standards, providing an easily customizable desktop user interface for Cisco Unified Contact Center Enterprise agents and supervisors.
  - Offers contact center agents and supervisors access to the functions they need through OpenSocial gadgets, enabling enterprises to implement a completely thin contact center desktop with all the power and customization capabilities of traditional thick-client applications.
- Web 2.0 Software Development Kit
  - Allows customers to create next-generation applications or integrations to Cisco Unified Contact Center Enterprise.
  - Offers a powerful, broadly applicable Web 2.0-based application programming interface (API) for use with gadget-based applications provided by Cisco with the SDK; custom-built gadget-based applications; third-party desktop applications; wallboard and workforce management products.
- Open Web 2.0 APIs
  - Simplify the development and integration of value-add applications by Cisco partners.
  - Open the traditionally closed or proprietary world of desktop applications.
  - Minimize the need for detailed desktop development expertise using APIs that hide the complexity of the underlying architecture and functions.
  - Enable Cisco partners to take advantage of pervasive web developer talent to create new and modify existing desktop gadget applications.

For More Information

http://www.cisco.com/go/finesse

Cisco MediaSense

Contact centers handle thousands of customer conversations a day, but unfortunately much of the enterprise intelligence that could be gleaned from those conversations is never used—either because it is too expensive to capture, or too difficult to mine for useful information. Cisco MediaSense solves these challenges by recording conversations on the network, rather than a device, simplifying the architecture, lowering costs, and providing optimum scalability.

Just as important, MediaSense's network-based recording approach allows the captured media to be quickly available to different applications, regardless of location, through simple application programming interfaces (APIs). These interfaces implement open web standards, enabling a new ecosystem of applications from Cisco technology partners that can gather useful information from conversations, either in real time or afterward. Such information can provide insights into caller concerns, guiding customer service agents toward speedy first-call resolution, thereby improving agent productivity while increasing customer satisfaction.

Ideal for Companies That Need These Features

Cisco MediaSense	• Highly efficient, cost-effective platform to record a variety of media to comply with regulatory requirements • Supports optional third-party analytics applications that analyze conversations and provide guidance to customer care agents in real-time to improve handling of caller issues.

Key Features and Benefits

- Cisco MediaSense performs dual audio stream recording of conversations (that is, it records both sides of the conversation as separate but correlated entities), facilitating speech analytics.
- Audio recording is lossless (that is, no data is thrown out), helping ensure that each recording is of the highest quality.
- APIs simplify the development and integration of value-added applications by Cisco partners.
- APIs are at a high or conceptual level, in effect hiding the complexity of the underlying architecture and functions and minimizing the need for detailed telephony or recording expertise, thereby allowing Cisco partners to take advantage of pervasive web developer talent to create speech and video search, playback, analytics, and live monitoring applications.

Selected Part Numbers and Ordering Information

MCP-SVR-SW-K9	MediaSense Server Software
MCP-BASE-LIC	MediaSense Base License
MCP-CORE-AUD-LIC	MediaSense Audio recording port

For More Information

http://www.cisco.com/go/mediasense

Enterprise Social Software

Services that Support Enterprise Social Software

Deploying an enterprise social software platform across an organization requires unique considerations from multiple perspectives: technology, business process and social technology adoption. Services provides guiding principles to help you improve productivity, and strengthen customer relationships.

For more information, visit http://www.cisco.com/go/collaborationservices

IP Communications

Cisco Unified Communications Manager

Cisco Unified Communications Manager is the powerful call-processing component of the Cisco Unified Communications Solution. It is a scalable, distributable, and highly available enterprise IP telephony call-processing solution that focuses on lowering the total cost of ownership for customers and improving the user experience of end users and system administrators. Major highlights include:

- Improves mobility, through extension mobility cross-cluster, plus HTTPS for encrypted user name and PIN transmission
- Reduces deployment time, realizes quicker ROI, lowers ongoing operational costs, and improves business continuity
- Provides a dynamic, flexible, network-based call admission control engine for voice and video
- Improves cost savings and collaboration by extending Unified Communications capabilities outside the organization

Key Features and Benefits

- Cisco Unified Communications Manager is available on the Cisco Unified Computing System as well as on Cisco 7800 Series Media Convergence Server platforms and selected third-party servers.
- Multiple Cisco Unified Communications Manager servers can be clustered and managed as a single entity. The application offers scalability from 1 to 40,000 IP phones per cluster, with load-balancing and call-processing service redundancy. Interlinking allows system capacity to reach 1 million users in a system of more than 100 sites. The solution aggregates the power of multiple, distributed installations, enhancing the scalability and accessibility of the servers to phones, gateways, and applications, and triple call-processing server redundancy improves overall system availability.
- Call Admission Control (CAC) helps ensure that voice quality of service (QoS) is maintained across constricted WAN links, and automatically diverts calls to alternate public-switched-telephone-network (PSTN) routes when WAN bandwidth is not available.
- Devices can automatically update location information as they move from location to location to improve CAC and emergency service performance.
- This solution effectively supports IP phone activities; Cisco Unified Communications Manager Assistant has been ported to an Extensible Markup Language (XML) service that can be run on the phone, allowing

assistants that handle executive and manager phones to have increased features without having to rely on a PC to provide the user interface.

- Cisco Unified Communications Manager integrates with a Lightweight Directory Access Protocol (LDAP) directory such as Active Directory to provide required security features.
- Cisco Unified Communications Manager provides improved call routing to remote phones connected over a WAN. It allows alternate routing when the WAN is out of bandwidth or out of service. It provides routing to the originally called phone number through the PSTN or can call an alternate phone such as a mobile phone during a WAN failure or an out-of-bandwidth situation.
- Access through a full GUI and a command-line interface facilitates diagnostics. The solution supports all system management activities such as disk-space monitoring, system monitoring, and upgrades, which are either automated or controlled. The solution supports basic systems management features such as starting or stopping services and rebooting the appliance.
- The solution is preloaded with Cisco Security Agent.
- An expanded Session Initiation Protocol (SIP) trunk interface conforms to RFC 3261, allowing support of video calls over the SIP trunk. Cisco Unified Communications Manager supports line-side devices, including IETF RFC 3261-compliant devices available from Cisco and other manufacturers.
- The Resource Reservation Protocol (RSVP) agent on a Cisco router extends CAC capability beyond a hub-and-spoke topology within a cluster.
- Simple Network Management Protocol (SNMP) support allows managers to set and report traps on conditions that could affect service and send them to the remote-monitoring systems.

Specifications

Feature	Cisco Unified Communications Manager[1]
Pre-installed Software	Cisco Unified Communications Manager, configuration database, administrative software, CDR Analysis and Reporting Tool, Bulk Administration Tool (BAT), Real-Time Monitoring Tool (RTMT), Cisco Conference Bridge, Locale Installer, JTAPI, Telephony Service Provider, Cisco Unified Communications Manager Assistant, Cisco Unified Mobility, Cisco Unified IP Phone Address Book Synchronizer, Cisco Dialed Number Analyzer
Platforms	Cisco Unified Computing System, Cisco Media Convergence Server (MCS); Selected third-party servers
New and Enhanced Capabilities	• Video—Continuing the theme of doing for video what Cisco's done for voice, Cisco Unified communications Manager (Unified CM) 8.6 adds native support within Unified CM for many additional video endpoints, including the EX60 and EX90 as well as C20, C40, C60, and C90). Unified CM 8.6 also builds in better interoperability with TelePresence systems (CTS). Native Interoperability among UC, TP and 3rd Party video EP and additional native TAA EP are key advancements here. Also, greater flexibility in wideband audio codecs (G.722.1), SIP based encryption and presentation sharing (BFCP). • Mobility—Greatly simplifying access and administrative overhead, Unified CM 8.6 now has a single client for VoIP and cellular, so there's now a consistent user experience across different networks. • Deployment Flexibility—Unified CM 8.6 includes a couple of key improvements that expand deployment flexibility; one relates to the Cisco Hosted Collaboration Solution (HCS) and the other relates to additional UC server options. • Within HCS, Unified CM 8.6 improves upon the integration with the Service Provider's IMS, which is framework for better service delivery on cellular networks. By having this integration on Unified CM 8.6, it allows for better feature interaction between the mobile network and the enterprise voice network (fixed mobile convergence). With regard to UC server options, Cisco's first entry into supporting virtualized UC server implementations within a data center environment was Cisco's Unified Computing System. Cisco UCS is the industry's only fully unified and virtualization-aware computing platform, and is ideal for deployments of applications such as Cisco Unified Communications. Cisco also understands the importance of customer choice in the modern, heterogeneous data center. Now, with UC system release 8.6, Cisco's strategy for Cisco Unified Communications deployments on virtualized server platforms includes support for additional Cisco UCS server options as well as support for alternate vendor's systems. These new options come via a new spec-based VMware support policy, where tested reference configurations are published and may be used for hardware design guidance. This opens up more Cisco UCS servers that meet UC specifications as well as certain third-party servers, provided they can meet the support policy requirements. • Cisco Unified Communications Manager Session Management Edition—Cisco Unified Communications Manager added Session Management support in Version 7.1(3). Cisco Unified Communications Session Management Edition support is continued and enhanced in Version 8.0 with features such as Cisco Intercompany Media Engine and Resource Reservation Protocol (RSVP). Cisco Unified Communications Manager Session Management Edition allows for centralized SIP trunking and routing to help simplify complex networks and reduce costs by consolidating trunking. Cisco Unified Communications Manager Session Management Edition can also aggregate voice applications and policy control.

1. Additional RAM may be required in Media Convergence Servers to support existing and enhanced services in Cisco Unified Communications Manager.

Selected Part Numbers and Ordering Information

CUCM-USR-LIC	Cisco Unified CM 8.0 Top Level Part Number

For More Information

http://www.cisco.com/go/unifiedcm

Cisco Unified Communications Manager Assistant

Included with Cisco Unified Communications Manager, Cisco Unified Communications Manager Assistant provides the call-routing and call-management capabilities required in a manager or administrative assistant business environment while giving users a choice of phone devices that better fit their needs. By combining a PC-based console application with various softkeys and display panes on Cisco Unified IP Phones, it can present users job-specific tools, such as directories with Click-to-Dial and drag-and-drop functions, to more efficiently manage calls.

Cisco Unified Communications Manager Assistant is configured in either proxy-line mode or shared-line mode. In proxy-line mode, managers and assistants have different directory numbers or lines on their phones, but calls to managers are usually diverted to the assistant's line based on customizable dynamic filters. In shared-line mode, both managers and assistants share the same directory number, but assistants can handle calls without disturbing managers. Either mode can be used in conjunction with the PC-based console application or a new Extensible Markup Language (XML)-based phone service that does not require a PC.

Ideal for Companies That Need These Features

Cisco Unified Communications Manager Assistant	• Administrative assistants who need an efficient way to monitor and manage calls for multiple managers • Managers who regularly have their calls answered by an assistant

For More Information

http://www.cisco.com/go/ipma

Cisco Unified Communications Manager Express

Cisco Unified Communications Manager Express provides call processing for Cisco Unified IP phones in branch-office environments. It enables the large portfolio of Cisco Integrated Services Routers (ISR) to deliver unified communications features that are commonly needed by business users to meet the voice and video communications requirements of the branch office. Cisco Unified Communications Manager Express allows the deployment of a cost-effective, highly reliable communications system in a single device using Cisco IOS software.

Key Features and Benefits

- Low cost —This full-featured call processing solution is integrated into Cisco Integrated Services Routers that deliver a small footprint and are simple to deploy, administer, and maintain
- Comprehensive feature set—Innovative key system and small private branch exchange (PBX) capabilities available within feature-rich Cisco IOS software
- Business process transformation—Integration with existing business process applications, such as Customer Relationship Management (CRM), delivered in combination with Cisco Unified CallConnector applications
- Increased employee productivity—Users have call control, location, and status of other users with Cisco Unified CallConnector for Microsoft Windows, a presence-based Windows application
- User-specified call handling—Users can take advantage of single number reach by extending incoming business calls to mobile or home phones based on rules they specify with Cisco Unified CallConnector Mobility
- Easy installation and changes—An intuitive management interface makes moves, adds and changes easy
- Industry-leading investment protection—The solution designed to support up to 450 users can interoperate with Cisco Unified Communications Manager, and enables planned migration strategies in support of future growth requirements

Specifications

Feature	Cisco Unified Communications Manager Express
Platform	Cisco 1861, 2800, 3800, 2900, 3900, and 3900E Integrated Services Routers. Cisco Unified 500 Series for Small Business as part of Cisco Smart Business Communications System
Maximum total users	450
Phones Supported	All Cisco Unified IP Phones 6900 Series, 7900 Series, Cisco Unified SIP Phones 3900 Series, and Cisco Unified IP Phone 8900 and 9900 Series
IOS Images	Version 3.3 supported with IOS 12.4 mainline; Version 3.4 with IOS 12.4(4)T; Version 4.0 with IOS 12.4(9)T, Version 4.1 with 12.4(15)T; Version 7.0 with 12.4(20)T. Version 7.1 with 12.4(24)T. Version 8.0 with 15.0(1)M. Version 4.0 is the recommended release for most customers.

Selected Part Numbers and Ordering Information

Cisco Integrated Service Routers Unified Communications Bundles that include the Cisco Router, Cisco Unified Communications Manager Express Feature License, Cisco Unity Express hardware and licensing, Cisco Unified IP Phone licensing and Cisco Unified CallConnector for Microsoft Windows licensing.

C3845-35UC-VSEC/K9	UC plus Security with Cisco Unity Express—Cisco 3800 Series Integrated Services Routers: Cisco 3845 base router, 128 MB flash, 512 MB DRAM, DSP-64, NME-CUE, CCME FL for 35 users, CUE FL for 35 users, 35 phone device licenses, Cisco IOS Advanced IP Services, 10 UCC desktop client licenses
C2851-35UC-VSEC/K9	UC plus Security with Cisco Unity Express—Cisco 2800 Series Integrated Services Routers: Cisco 2851 base router, 128 MB flash, 256 MB DRAM, DSP-48, NME-CUE, CCME FL for 35 users, CUE FL for 35 users, 35 phone device licenses, Cisco IOS Advanced IP Services, 10 UCC desktop client licenses
C2801-10UC-VSEC/K9	UC plus Security with Cisco Unity Express—Cisco 2800 Series Integrated Services Routers: Cisco 2801 base router, 128 MB flash, 256 MB DRAM, DSP-32, AIM2-CUE, CCME FL for 10 users, CUE FL for 10 users, 10 phone device licenses, Cisco IOS Advanced IP Services, 2 UCC desktop client licenses
C3845-35UC/K9	UC with Cisco Unity Express—Cisco 3800 Series Integrated Services Routers: Cisco 3845 base router, 128 MB flash, 512 MB DRAM, DSP-64, NME-CUE, CCME FL for 35 users, CUE FL for 35 users, 35 phone device licenses, Cisco IOS SP Services, 10 UCC desktop client licenses
C2851-35UC/K9	UC with Cisco Unity Express—Cisco 2800 Series Integrated Services Routers: Cisco 2851 base router, 128 MB flash, 256 MB DRAM, DSP-48, NME-CUE, CCME FL for 35 users, CUE FL for 35 users, 35 phone device licenses, Cisco IOS SP Services, 10 UCC desktop client licenses
C2801-10UC/K9	UC with Cisco Unity Express—Cisco 2800 Series Integrated Services Routers: Cisco 2801 base router, 128 MB Flash, 256 MB DRAM, DSP-32, AIM-CUE, CCME FL for 10 users, CUE FL for 10 users, 10 phone device licenses, Cisco IOS SP Services 2 UCC desktop client licenses
C1861-UC-4FXO-K9	UC with Cisco Unity Express—Cisco 1800 Series Integrated Services Routers: Cisco 1861, 128 MB flash, 256 MB DRAM, DSP-32, 4 FXS, 4 FXO/2BRI, 8 PoE, ISE-CUE, CCME FL for 8 users, CUE license for 8 users, 10 phone device licenses, Cisco IOS SP Services, 2 UCC desktop client licenses

For More Information

http://www.cisco.com/go/ccme

Cisco Unified Communications Manager Business Edition

Cisco Unified Communications Manager Business Edition (CUCMBE) is designed for medium-sized businesses with up to 500 employees and up to 20 sites (19 remote sites). The Cisco Unified Communications Manager Business Edition integrates the benefits of voice, video, mobility, and messaging on a single platform. Previously, organizations needed one hardware server for each application. Consolidating applications on a single server makes the Cisco Unified Communications Manager Business Edition a cost-effective solution by eliminating the need to have multiple hardware servers to run each application. It also dramatically simplifies the installation, support, upgrade, and ongoing management of the system, thereby reducing the total cost of ownership (TCO).

Key Features and Benefits

The Cisco Unified Communications Manager Business Edition inherits nearly all of the core features and functions of the Cisco Unified Communications Manager and Cisco Unity Connection applications. Some of the core capabilities are summarized here.

- Call control—In addition to standard telephony features such as call coverage, call transfer, call waiting, hold, conference, park, and pickup, Cisco Unified Communications Manager Business Edition delivers a powerful set of telephony features for medium-sized businesses; for instance, intercom with whisper page, do not disturb, hold reversion, immediate divert to voicemail, and hunt groups.
- Lightweight Directory Access Protocol (LDAP) synchronization and authentication
- High availability with support for up to 20 Unified Survivable Remote Site Telephony (SRST) sites using a centralized call-processing model
- Consumes fewer IT resources—Centralized architecture makes it easy to install, upgrade, and manage
- Increases employee productivity—With powerful speech recognition voicemail features and advanced mobility features such as single number reach
- Increases employee collaboration—With an available computer desktop client to provide presence status, instant messaging, click to dial, and a soft phone that turns any laptop into an extension of your desk IP phone
- Provides communications-enabled business processes—With integration via the Cisco Unified Application Environment
- Wide selection of available phones—Supports the full portfolio of Cisco Unified IP Phones

Specifications

Feature	Cisco Unified Communications Manager Business Edition
Platform	The Cisco Unified Communications Manager Business Edition software suite is supported on the Cisco MCS 7828 Unified Communications Manager Business Edition Appliance, a member of the Cisco media convergence server portfolio.
Maximum total users	500

Mailboxes and voicemail ports	500 mailboxes and 24 voicemail ports
Number of remote sites	20 (centralized call processing, with Cisco Unified Survivable Remote Site Telephony [SRST] for redundancy)
Telephony and voicemail feature limitations	Cisco Unified Communications Manager Business Edition supports all the standard telephony features of Cisco Unified Communications Manager and voice-messaging features of Cisco Unity Connection except the following: • Call processing and voicemail redundancy • Distributed call processing—Cisco Unified Communications Manager Business Edition is supported only in the centralized call-processing model with Cisco Unified SRST.
User and Administrator Features	• For a summary of user and administrator features, please refer to the Cisco Unified Communications Manager 8.0 and Cisco Unity Connection 8.0 data sheets. • Supports 14 core languages for user locales, the voicemail telephone user interface, and the GUI. • In addition to the core languages, Cisco Unified Communications Manager supports an additional 13 user localizations.

Selected Part Numbers and Ordering Information

Cisco Unified Communications Manager Business Edition can be ordered in a couple of different ways, either independently (with Cisco User Connect Licensing) or as part of a workspace bundle (with Cisco Unified Workspace Licensing).

Both Cisco Unified Communications Manager Business Edition licenses require purchasing a starter bundle. The starter bundles include all the unified communications server and client software for the applications included under the licenses, the Cisco MCS 7828 server hardware for deploying Cisco Unified Communications Manager Business Edition, and licenses for the first 50 users. To deploy Cisco Unified Presence, customers need to purchase a separate adjunct server.

MCS7828I4-K9-WL	CUCMBE, 7828-I4 appliance, Workspace License 50 Users
MCS7828I4-K9-BE8	Unified CM BE 8.X, 7828-I4 appliance, 50 Enhanced User Connect Licenses

For More Information

http://www.cisco.com/go/cmbe

Cisco Unified Communications Manager Business Edition 3000

Cisco Unified Communications Manager Business Edition 3000 was designed for small and medium-sized businesses with smaller IT staffs, and provides investment protection with the capacity to support up to 300 employees and 10 sites. Cisco Unified Communications Manager Business Edition 3000 is an easy-to-manage solution that integrates essential voice, conferencing, mobility, messaging features, and voice gateway services on a single appliance. Consolidating these applications on a single server creates a cost-effective solution that is simple to set up, manage, and use, providing a smooth transition from older, outdated telephony systems to unified communications.

Key Features and Benefits

- Cisco Unified Communications Manager Business Edition 3000 call-processing and voicemail application
- Cisco MCS 7890-C1 Unified Communications Manager Business Edition 3000 Appliance with two built-in T1/E1 ports preinstalled
- Simple, intuitive administration interface for provisioning and management
- Robust telephony features, including call transfer, call waiting, call park, music on hold (MoH), hunt groups, direct inward dialing, ad hoc and meet-me conferencing, call barge, and conference barge
- Mobility features such as extension mobility and single number reach
- Simplified user web page to customize speed dials, call forwarding, and other features
- Support for the Cisco Unified IP Communicator

Specifications

Feature	Cisco Unified Communications Manager Business Edition 3000
Platform	Cisco Unified Communications Manager Business Edition 3000
Maximum number of users and devices	300 users and 400 devices
Voicemail ports	12
Total number of sites	10
IP endpoints	Cisco Unified IP Phone 6901, 6911, 6921, 6941, 6961, and 3905 models Cisco IP Communicator and Cisco Unified IP Conference Station 7937

Selected Part Numbers and Ordering Information

UNIFIED-CMBE3K	Unified Communications Business Manager 3000—Top Level

For More Information

http://www.cisco.com/go/cmbe

Cisco Unified Communications Manager Session Management Edition

Cisco Unified Communications Manager Session Management Edition is based on the foundation of Cisco Unified Communications Manager to provide unified communications application integration, policy control, and a centralized dial plan. Cisco Session Manager cuts administrative overhead, enables least-cost routing, and supports an easier migration to a full IP communications environment. Its primary capabilities include:

- Providing interconnection among private branch exchanges (PBXs)—Reduce system administrative overhead and ease migration to an all-IP environment. Cisco Unified Communications Manager Session Management Edition integrates disparate PBXs, enabling a single throughput point for IP access with ease of management. Also, SIP headers within various PBXs are normalized and become transparent to the other PBXs, enabling interoperability. Cisco performs testing, certification and uses standards based protocols (such as SIP, QSIG) to drive easier interoperability, integration, and deployment. Cisco Unified Communications Manager Session Management Edition provides an elegant path to evolve legacy or IP-based systems that would otherwise be extremely difficult or expensive to upgrade.
- Simplifying dial-plan management—Cisco Unified Communications Manager Session Management Edition greatly simplifies dial-plan management. Instead of developing complex routing within and among each individual PBX, they can now point to the central Cisco Unified Communications Manager Session Management Edition core, enabling all routing to be managed at the session management layer. With Cisco Service Advertisement Framework (SAF) enterprises can provision at the PBX and at the Cisco Unified Communications Manager Session Management Edition layer, enabling automatic dial-plan configuration to save additional administration costs.
- Extending collaboration applications to every user on the network—These include rich collaborative applications such as unified messaging, mobility, TelePresence, social networking, and web applications (using Web 2.0 interfaces). Unified applications are deployed at the network core, so users on multivendor PBXs can use centrally deployed applications.
- Enabling centralized Session Initiation Protocol (SIP) trunking—Cisco Unified Communications Manager Session Management Edition with Cisco Unified Border Element, Cisco's session border controller, helps provide additional cost savings through reduced Primary Rate Interface (PRI) circuits, potential toll savings, lower maintenance costs, and lower equipment costs. Existing Cisco PSTN gateways can be repurposed to be used as a Cisco Unified Border Element (through a software upgrade) to serve as IP gateways.
- Enabling the Cisco Intercompany Media Engine—Delivers communications between business partners without boundaries to provide additional cost savings. Connections to business partners are made by leveraging SIP connections over the internet.

Selected Part Numbers and Ordering Information

SME-SESSION-LIC	Cisco Unified CM SME 8.0 Top Level Part Number

For More Information

http://www.cisco.com/go/unifiedcmsme

Cisco IP Communicator

Cisco IP Communicator—a software-based application that delivers enhanced telephony support through the PC—is designed to meet diverse customer needs by serving as a supplemental telephone when traveling, a telecommuting device, or as a primary desktop telephone. With Cisco IP Communicator, remote users don't just take their office extension with them; they also enjoy access to the same familiar phone services that they have in the office. This advantage boosts business collaboration and responsiveness and helps organizations keep pace with today's mobile business environment.

Ideal for Companies That Need These Features

Cisco IP Communicator	• A softphone that provides high-quality voice calls and extensive telephony features • A supplemental telephone that provides access to phone extensions and services outside the office

Key Features and Benefits

- Works with Cisco Unified Video Advantage: Cisco IP Communicator brings video telephony to the telecommuter's and mobile worker's communication experience. Available video is automatically displayed.
- Easy to use: Cisco IP Communicator 7x offers many of the features supported with Cisco Unified IP phones, including support for support for (Extensible Markup Language [XML]) applications, and call recording & silent monitoring capabilities for efficient recording of calls and monitoring of contact center agents. The application provides auto-detection of Cisco VPN Clients.
- Offers premium voice quality: Cisco IP Communicator has an Audio Tuning wizard for setting audio levels properly, advanced-jitter-buffer and packet-loss-concealment algorithms, and echo suppression and noise cancellation.
- Easy to manage: Administration is unified with Cisco Unified IP Phones and automatic software upgrades; system administrators can provision Cisco IP Communicator as they would any other Cisco Unified IP Phone.

For More Information

http://www.cisco.com/go/ipcommunicator

Cisco Unified IP Phones 6900 Series



The Cisco Unified IP Phones 6900 Series of business communication endpoints deliver an enhanced user experience for customers seeking cost-effective, robust voice communication services, and video communications services on selected models, in a user-and eco-friendly design.

The Cisco Unified IP Phones 6900 Series is an ideal fit for customers with investment in analog or digital communications systems today, who are interested in an IP communications solution, but seek a traditional telephony-like user experience.

The portfolio offers a range of endpoint solutions, ranging from occasional use settings, such as lobbies and hallways with the IP Phone 6901 and schoolrooms with the IP Phone 6911, to moderate communications settings for knowledge workers with the IP Phone 6921, to more active users, such as managers and administrative staff as delivered by the IP Phone 6941 and IP Phone 6961. The portfolio can be deployed in enterprise campuses, enterprise branch offices, satellite offices, and for teleworkers.

Video Communications are supported on the Cisco Unified IP Phones 6900 Series with adoption on Cisco Unified Video Advantage 2.2 and the VT Camera III. The Cisco Unified IP Phones 6900 Series delivers the high-quality audio communications while an adjoining PC monitor support the VT Camera III and Unified Video Advantage application for video communication services in this solution architecture. Video Communications is available on selected Cisco Unified IP Phones 6900 Series endpoints.

The Cisco Unified IP Phones 6900 Series also brings earth-friendly enhancements to reduce power consumption and increase energy savings for customers. These endpoints take advantage of recyclable and reground plastics and in those models with displays, offer a deep-sleep mode option, which reduces power consumption in off-work hours making them a great fit for customers with green initiatives.

The Cisco Unified IP Phones 6900 Series comes in the choice of two colors, charcoal and arctic white, and two handset styles for increased comfort and flexibility.

Key Features and Benefits

- Backlit, antiglare, pixel-based, graphical monochrome displays offer readability and scrollable access to calling features and text-based XML applications on selected models.
- Tri-color illuminated line and feature keys provide quick call status indication.
- Four dynamic soft-label keys and a scroll toggle-bar present calling and navigation options on selected models.
- Fixed keys for common telephony functions such as mute, hold, conference, transfer, messaging, directories, redial and call waiting (fixed keys vary by endpoint model).
- Rounded ergonomic keys increase tactile feel and accuracy.
- Integrated 10/100 Ethernet switch to collocate a multimedia PC and reduce cabling infrastructure costs.
- Full-duplex speakerphone and integrated headset ports (selected models).
- Deep-sleep power option for savings in power consumption during off-work hours (on endpoint models with displays).
- Support Cisco Skinny Client Control Protocol (SCCP).
- G.711a, G.711, G.729a, G.729b, and G.729ab audio-compression codecs.
- Software upgrade support (IP Phone firmware) is provided through a Trivial File Transfer Protocol (TFTP) server.

Specifications

Feature	Cisco 6901	Cisco 6911	Cisco 6921
Integral Switch	Not applicable	10/100	10/100
Display	Not applicable	Not applicable	396 x 81 pixel backlit anti-glare monochrome
Programmable (line) keys	1	1	2
Programmable (soft) keys	Not applicable	Not applicable	4
Speakerphone	Full-duplex	Full-duplex	Full-duplex
Headset port	No	No	Yes
Unified Video Advantage	No	Yes	Yes
Wideband audio	No	No	No
iLBC support	Yes (9.1(1) IP Phone firmware required)	Yes (9.1(1) IP Phone firmware required)	Yes (9.1(1) IP Phone firmware required)
2-way Rocker with Select Key	No	No	Yes
XML application	No	Yes - limited	Yes - limited
MIDlet-enabled applications	No	No	No

Extension mobility	Yes	Yes	Yes
Signaling protocol	SCCP/SIP	SCCP/SIP	SCCP/SIP

Feature	**Cisco 6941**	**Cisco 6961**
Integral Switch	10/100	10/100
Display	396 x 162 pixel backlit anti-glare monochrome	396 x 81 pixel backlit anti-glare monochrome
Programmable (line) keys	4	12
Programmable (soft) keys	4	4
Speakerphone	Full-duplex	Full-duplex
Headset port	Yes	Yes
Wideband audio	No	No
Unified Video Advantage	Yes	Yes
iLBC support	Yes (9.1(1) firmware required	Yes (9.1(1) firmware required
2-way Rocker with Select Key	Yes	Yes
XML application	Yes - limited	Yes - limited
MIDlet-enabled applications	No	No
Extension mobility	Yes	Yes
Signaling protocol	SCCP/SIP	SCCP/SIP

Selected Part Numbers and Ordering Information

CP-6901-C-K9=	Cisco Unified IP Phone 6901, Charcoal, Standard Handset
CP-6901-W-K9=	Cisco Unified IP Phone 6901, Arctic White, Standard Handset
CP-6901-CL-K9=	Cisco Unified IP Phone 6901, Charcoal, Slimline Handset
CP-6911-WL-K9=	Cisco Unified IP Phone 6901, Arctic White, Slimline Handset
CP-6911-C-K9=	Cisco Unified IP Phone 6911, Charcoal, Standard Handset
CP-6911-W-K9=	Cisco Unified IP Phone 6911, Arctic White, Standard Handset
CP-6911-CL-K9=	Cisco Unified IP Phone 6911, Charcoal, Slimline Handset
CP-6911-WL-K9=	Cisco Unified IP Phone 6911, Arctic White, Slimline Handset
CP-6921-C-K9=	Cisco Unified IP Phone 6921, Charcoal, Standard Handset
CP-6921-W-K9=	Cisco Unified IP Phone 6921, Arctic White, Standard Handset
CP-6921-CL-K9=	Cisco Unified IP Phone 6921, Charcoal, Slimline Handset
CP-6921-WL-K9=	Cisco Unified IP Phone 6921, Arctic White, Slimline Handset
CP-6941-C-K9=	Cisco Unified IP Phone 6941, Charcoal, Standard Handset
CP-6941-W-K9=	Cisco Unified IP Phone 6941, Arctic White, Standard Handset
CP-6941-CL-K9=	Cisco Unified IP Phone 6941, Charcoal, Slimline Handset
CP-6941-WL-K9=	Cisco Unified IP Phone 6941, Arctic White, Slimline Handset
CP-6961-C-K9=	Cisco Unified IP Phone 6961, Charcoal, Standard Handset
CP-6961-W-K9=	Cisco Unified IP Phone 6961, Arctic White, Standard Handset
CP-6961-CL-K9=	Cisco Unified IP Phone 6961, Charcoal, Slimline Handset
CP-6961-WL-K9=	Cisco Unified IP Phone 6961, Arctic White, Slimline Handset

For More Information

http://www.cisco.com/go/ipphones/6900

Cisco Unified IP Phones 7900 Series



The Cisco Unified IP Phones 7900 Series is a portfolio of advanced business communications endpoints that enable organizations to increase their employee productivity by taking full advantage of collaborative services, including support for voice, video, and data applications.

The IP Phones 7900 Series portfolio offers a wide range of solutions to meet the varying needs of users within an organization. From the corporate campus to the branch office to remote teleworkers, the portfolio supports wired, wireless, and small-to-medium conference room solutions. The Cisco Unified IP Phone 7906G and 7911G endpoints address the communication needs for low-to-medium communications environments. The Cisco Unified IP Phone 7942G and 7945G endpoints address the communication needs for moderate levels of communication requirements. The Cisco Unified IP Phone 7962G, 7965G and 7975G endpoints are designed to address the communication needs for more active communication requirements.

The Cisco Unified Wireless IP Phone 7921G, 7925G, and 7925G-EX are 802.11a/b/g Wireless-Fidelity (Wi-Fi) IP Phones that are designed for mobile communications within a campus or when at home with VPN network access.

The IP Phones 7900 Series portfolio supports multiple call appearance per line. This empowers users to have multiple call sessions, navigated through the use of the rocker or navigation cluster on a single line appearance on the 7900 Series phone.

Key Features and Benefits

- Touchscreen support on Cisco Unified IP Phone 7975G
- Dynamic softkeys for call features and functions
- Support for endpoint applications including XML, MIDlets, Cisco Unified Communications Widgets, and Cisco Unified Application Environment on selected models
- Video communications supported on selected models with Cisco Unified Video Advantage (CUVA) and the VT Camera III.
- Automatic phone discovery, VLAN configuration, and registration
- Quality of service (QoS) through support of 802.1Q/p, in addition to configurable Differentiated Services (DiffServ) and type of service (ToS)
- Voice Activity Detection (VAD), silence suppression, comfort-noise generation, and error concealment
- G.711a, G.711u, and G.729ab audio-compression codec support; selected models also support the G.722 wideband codec and the Internet Low Bit-Rate Codec (iLBC)
- IP Phone software (firmware) upgrade support through a Trivial File Transfer Protocol (TFTP) server
- Integrated inline power support, which allows the phone to receive power over the LAN

Specifications

Feature	Cisco 7911G	Cisco 7931G	Cisco Conf. Station 7937G
Integral Switch	10/100	10/100	No
Display	192x64 monochrome	192x64 graphical, monochrome, backlit	Pixel-based
Programmable (line) keys	0	24	0
Programmable (soft) keys	4	4	4
Speakerphone	Yes (listen only)	Yes	Yes
Headset port	No	Yes	No
Wideband audio	Limited	Limited	Yes
iLBC support	Yes	Yes	No
"5-way" navigation cluster	No	No	No
XML applications	Yes	Yes	Yes
MIDlet applications	No	No	No
Extension mobility	Yes	Yes	Yes
Unified Video Advantage	Yes	Yes	No
Signaling protocol	SCCP/SIP	SCCP/SIP	SCCP
Feature	**Cisco 7942G**	**Cisco 7945G**	**Cisco 7962G**
Integral Switch	10/100	10/100/1000	10/100

Display	4-bit grayscale, 5"	Digital, 16-bit graphical backlit TFT Color, 5"	4-bit grayscale, 5"
Programmable (line) keys	2-lighted	2-lighted	6-lighted
Programmable (soft) keys	4	4	4
Speakerphone	Yes	Yes	Yes
Headset port	Yes, wideband support	Yes, wideband support	Yes, wideband support
Wideband audio	Yes	Yes	Yes
iLBC support	Yes	Yes	Yes
"5-way" navigation cluster	No	Yes	No
XML applications	Yes	Yes	Yes
MIDlet applications	Yes	Yes	Yes
Extension mobility	Yes	Yes	Yes
Unified Video Advantage	Yes	Yes	Yes
Signaling protocol	SCCP/SIP	SCCP/SIP	SCCP/SIP
Feature	**Cisco 7965G**	**Cisco 7975G**	**Cisco 7921G/7925G/ 7925G-EX**
Integral Switch	10/100/1000	10/100/1000	N/A
Display	Digital, 16-bit graphical backlit TFT Color, 5"	Digital, 16-bit graphical backlit TFT Color, 5.6"	Digital, 16-bit graphical backlit TFT Color, 2"
Programmable (line) keys	6-lighted	8-lighted	N/A
Programmable (soft) keys	4	5	2
Speakerphone	Yes	Yes	Yes
Headset port	Yes, wideband support	Yes, wideband support	Yes
Wideband audio	Yes	Yes	Yes
iLBC support	Yes	Yes	Yes
"5-way" navigation cluster	Yes	Yes	Yes
XML applications	Yes	Yes	Yes
MIDlet applications	Yes	Yes	No
Extension mobility	Yes	Yes	Yes
Unified Video Advantage	Yes	Yes	No
Signaling protocol	SCCP/SIP	SCCP/SIP	SCCP

Selected Part Numbers and Ordering Information

CP-7971G	Cisco Unified IP Phone 7975G
CP-7965G	Cisco Unified IP Phone 7965G
CP-7962G	Cisco Unified IP Phone 7962G

For More Information

http://www.cisco.com/go/ipphones/7900

Cisco Unified IP Phones 8900 Series

If you are looking for ways to encourage collaboration and improve company efficiency and productivity, while reducing operating costs, the Cisco Unified IP Phones 8900 Series can help you do it all. These advanced professional media endpoints are ideal for knowledge professionals, managers, and executives who seek a superior multimedia experience.



The Cisco Unified IP Phones 8900 Series accelerates business success by delivering a high-performance, rich multimedia communications

experience. This series also offers a broad portfolio of XML and MIDlet applications, on selected models, that can help your company transform its business processes, reduce operating and administration costs, and boost productivity.

Key Features and Benefits

- High-quality multimedia communications—Two selected models support integrated VGA-quality video cameras and a third model offers support for video communications with Cisco Unified Video Advantage and the Cisco VT Camera III application, which displays VGA quality video on an adjacent LCD monitor. Thus, with the IP Phones 8900 Series, you have the choice to deploy video immediately or selectively add video when and where you need it.
- Energy cost savings—In off hours, a deep-sleep power option reduces power consumption compared to the endpoint in active state during the work day. Selected models are also IEEE PoE Power Class 1 devices. These features reduce power consumption, benefitting your profitability and the planet .
- Clean, uncluttered communications—An elegant user-friendly design includes rounded ergonomic keys for an enhanced tactile feel, resulting in easier navigation and improved accuracy in interaction.
- Bluetooth communications—Selected models support the Bluetooth hands-free profile for Bluetooth headsets, such as the Jawbone ICON for Cisco Bluetooth Headset, along with speakerphones, keyboards and mice, so you can untether workers and enhance their productivity.
- Support for multiple sessions per line—Tri-color illuminated LED line, feature, and session keys provide at-a-glance indication of caller session status, increasing productivity (IP Phone 8961 only).
- Enhanced viewing—A large, backlit, vibrant high-resolution, fully adjustable color display enhances the user experience for easy viewing at a variety of angles and under a variety of lighting conditions

Selected Part Numbers and Ordering Information

CP-8961-C-K9=	Cisco Unified IP Phone 8961, Charcoal, Standard Handset
CP-8961-W-K9=	Cisco Unified IP Phone 8961, Arctic White, Standard Handset
CP-8961-CL-K9=	Cisco Unified IP Phone 8961, Charcoal, Slimline Handset
CP-8961-WL-K9=	Cisco Unified IP Phone 8961, Arctic White, Slimline Handset
CP-8945-K9=	Cisco Unified IP Phone 8941, Slimline Handset

For More Information

http://www.cisco.com/go/ipphones/8900

Cisco Unified IP Phones 9900 Series



With 20 hours of new content uploaded to YouTube every minute and enterprise employees watching 4.6 hours of enterprise video each month, it's not a matter of **if** video will make its way into your organization, but **when**. Video is personal and efficient, and with the Cisco Unified IP Phones 9900 Series, an advanced collaborative media endpoint portfolio, your employees can take advantage of a full-suite of multimedia features and capabilities, including video delivered directly to/from your IP Phone, in a design that is elegant, user-and-eco-friendly.

The Cisco Unified IP Phones 9900 Series supports interactive, high-performance business video with a USB powered Cisco Unified Video Camera that provides full-screen, two- and multiparty H.264 standard video (up to 30 frames per second).

The Cisco Unified IP Phones 9900 Series' advanced multimedia communications capabilities are an ideal solution for knowledge professionals, managers, and executives. With the Cisco Unified IP Phones 9900 Series, you can

- Elevate and personalize communications, improving the quality and speed of decisions
- Enhance collaboration between geographically dispersed teams and workgroups to accelerate team performance
- Deliver personalized training on-demand, condensing sales cycles
- Enable busy executives to meet "face-to-face" without ever leaving their offices
- Scale compelling, integrated collaboration experiences across your organization, quickly and cost-effectively
- Collaborate securely within and between businesses.

The Cisco Unified IP Phones 9900 Series introduces the Cisco Unified IP Phone 9971 and the Cisco Unified IP Phone 9951 endpoints to the Cisco Unified IP Phone portfolio. Both endpoints deliver a high-performance multimedia communications experience, with support for High-definition voice (HD voice), high-resolution graphical, backlit color displays, Bluetooth 2.0 profiles for added convenience and flexibility. A broad portfolio of XML and MIDlet applications that deliver business value by helping transform business processes, reduce costs, and boost employee productivity are also supported. Standard USB 2.0 ports on both models enhance the user experience by supporting off-the-shelf 2.0 USB peripherals, such as USB wired headsets.

The Cisco Unified IP Phone 9971 adds full touchscreen capability for advanced user interaction along with 802.11a/b/g Wireless Fidelity (Wi-Fi) integration, which delivers greater return on investment for customers who have a Cisco Unified Wireless Network.

Both 9900 Series endpoints support multiple call appearances per line. The Cisco Unified IP Phone 9971 supports six line keys with tri-color LED's, the Cisco Unified IP Phone 9951 supports five line keys with tri-color

LED's. Session keys provide call details about each session in progress and assist users in navigating between sessions. Administrators have the option to assign which row of keys are designated as line keys and the row designated as session keys.

With the Cisco Unified IP Phones 9900 Series, Cisco continues its ongoing commitment to green solutions. Reground and recyclable plastics are used in manufacture of the Cisco Unified IP Phones 9900 Series endpoints and the portfolio reduces power consumption in off-hours vs. active use during the workday with a deep-sleep administrative option.

The Cisco Unified IP Phones 9900 Series come with the choice of two colors, charcoal and arctic white and two handset styles that increase comfort.

Key Features and Benefits

- Large, backlit, vibrant high-resolution, graphical, fully backlit, and adjustable color displays enhance viewing under a variety of lighting conditions.
- Supports the Cisco Unified Video Camera, a USB-powered peripheral that provides H.264 two-way and multi-party video communications up to 30 frames-per-second (multi-party video requires support from a Multipoint Control Unit).
- USB 2.0 ports support USB peripherals, including the Cisco Unified Video Camera and USB headsets for greater choice and convenience.
- Bluetooth 2.0 profiles supports standard Bluetooth headsets for added convenience and flexibility at the workspace.
- 802.11a/b/g wireless-fidelity integration (Wi-Fi) for greater return on investment and reduced cabling infrastructure in Cisco Unified Wireless Networks (IP Phone 9971 only).
- Crisper, clearer audio performance—High-definition voice (HD voice) delivers superior audio performance with HD voice headset, handset, and speaker support.
- Support of up to three IP Color Key Expansion Modules, offering additional scalability and cost-effectiveness with an additional 36 line/feature key appearances per module (actual number of modules is endpoint model dependent).
- An elegant user-friendly design makes feature access easy.
- Support for multiple sessions per line—Tri-color illuminated LED line, feature, and session keys provide at-a-glance indication of caller session status, increasing productivity.
- Energy cost savings—In off-hours, a deep-sleep power option reduces power consumption compared to the endpoint in active state during the work day.
- Reduced infrastructure costs—Integrated switch ports support a IEEE 10/100/1000 high-speed network connection and co-location of a multimedia PC, so PC traffic can run through the switch port of the phone and only one cable drop is required back to the wiring closet.
- Rounded keys deliver an enhanced tactile feel that improves accuracy in interaction.
- Streamlined user experience—The phone has fixed keys for commonly used telephony functions such as conference, transfer, and hold.

Specifications

Feature	Cisco 9971	Cisco 9951
Integral Switch	10/100/1000	10/100/1000
Display	5.6" diagonal, 640 x 480, VGA, graphical, anti-glare, backlit, high-resolution touchscreen color display	5" diagonal, 640 x 480, VGA, graphical, anti-glare, backlit, high-resolution color display
Programmable (line) keys	6	5
Session keys	6	5
Programmable (soft) keys	4 (touchscreen based)	4
Video Communications	Yes with Cisco Unified Video Camera (H.264 standard, 24fps VGA, 30fps CIF, SIF formats)	Yes with Cisco Unified Video Camera (H.264 standard, 24fps VGA, 30fps CIF, SIF formats)
Speakerphone	Yes (full duplex)	Yes (full duplex)
USB 2.0 ports	2 (supports wired and wireless headsets, Unified Video Camera)	2 (supports wired and wireless headsets, Unified Video Camera)
Bluetooth 2.0	Yes (standard headset profiles)	Yes (standard headset profiles)
Headset port	Yes	Yes
High-definition audio	Yes (Speaker, handset and headset)	Yes (Speaker, handset and headset)
802.11a/b/g radio	Yes	No
iLBC support	Yes	Yes
"5-way" navigation cluster	Yes	Yes
XML applications	Yes	Yes
MIDlet applications	Yes	Yes

Extension mobility	Yes	Yes
Signaling protocol	SIP	SIP

Selected Part Numbers and Ordering Information

CP-9971-C-CAM-K9=	Cisco Unified IP Phone 9971, Cisco Unified Video Camera, Charcoal, Standard Handset
CP-9971-W-CAM-K9=	Cisco Unified IP Phone 9971, Cisco Unified Video Camera, Arctic White, Standard Handset
CP-9951-C-CAM-K9=	Cisco Unified IP Phone 9951, Cisco Unified Video Camera, Charcoal, Standard Handset
CP-9951-W-CAM-K9=	Cisco Unified IP Phone 9951, Cisco Unified Video Camera, Arctic White Standard Handset
CP-9971-CL-CAM-K9=	Cisco Unified IP Phone 9971, Cisco Unified Video Camera, Charcoal, Slimline Handset
CP-9971-WL-CAM-K9=	Cisco Unified IP Phone 9971, Cisco Unified Video Camera, Arctic White, Slimline Handset
CP-9951-CL-CAM-K9=	Cisco Unified IP Phone 9951, Cisco Unified Video Camera, Charcoal, Slimline Handset
CP-9951-WL-CAM-K9=	Cisco Unified IP Phone 9951, Cisco Unified Video Camera, Arctic White Slimline Handset

For More Information

http://www.cisco.com/go/ipphones/9900

Cisco SPA 500 Series IP Phones

The Cisco SPA 500 Series IP Phones are a complete portfolio of IP phones for small business with robust features that support the Cisco Unified Communications 500 Series, Cisco SPA9000 Voice System, and hosted IP telephony. The phones provide an intuitive, rich user experience with wideband audio to connect employees and offices, support for applications that enhance productivity, and encryption for enhanced security.



Key Features

- Full-featured business-class IP phone supporting Power over Ethernet (PoE)
- Monochrome or color* backlit display for ease of use, aesthetics, and onscreen applications
- Connects directly to a hosted IP telephony service or an IP private branch exchange (PBX)
- Wideband audio for unsurpassed voice clarity and enhanced speaker quality
- Easy installation and highly secure remote provisioning, as well as menu-based and web-based configuration
- Supports up to two Cisco SPA 500S 32-Button Attendant Consoles, adding up to 64 additional buttons
- Supports both Session Initiation Protocol (SIP) for Cisco SPA 9000, open source, and hosted telephony solutions and Smart Phone Control Protocol (SPCP) for Cisco Unified Communications 500 Series for Small Business
- Support for Bluetooth and WiFi*
- Play back and view personal MP3 files and photos through on-phone application (supported on the SPA 525G model only)

Specifications

Feature	Cisco SPA501G 8-line	Cisco SPA502G 1-line	Cisco SPA504G 4-line	Cisco SPA508G 8-line	Cisco SPA509G 12-line	Cisco SPA525G2
Lines	8	1	4	8	12	5
Programmable Buttons	8	0	4	8	12	5
Connection for Computer on IP Phone	Yes	Yes	Yes	Yes	Yes	Yes
PoE	Yes	Yes	Yes	Yes	Yes	Yes
Display	Paper insert	Backlit monochrome	Backlit monochrome	Backlit monochrome	Backlit monochrome	High resolution color display
Bluetooth Capable	No	No	No	No	No	Yes

Selected Part Numbers and Ordering Information

SPA501G	Cisco SPA 501G-8-line IP Phone
SPA502G	Cisco SPA 502G 1-line IP Phone
SPA504G	Cisco SPA 504G-4-line IP Phone
SPA508G	Cisco SPA 508G-8-line IP Phone

SPA509G	Cisco SPA 509G-12-line IP Phone
SPA525G2	Cisco SPA 525G2 IP Phone

For More Information

http://www.cisco.com/go/500phones

Cisco Unified Attendant Console Portfolio

The Cisco Unified Attendant Console Portfolio comprises three full-featured software-based solutions, associated with a Cisco Unified IP Phone, which are designed to enable attendant operators to accept calls, easily look up busy status and dispatch incoming calls either through blind or consultative transfers to users. The applications support the ability to prioritize call queues, such that operator attendants can address the most important queues to the business (i.e., sales, service, etc). The Cisco Unified Department Attendant Console supports up to 150 Cisco Unified IP Phones and up to two operator clients per department. The Cisco Unified Business Attendant Console supports up to 500 Cisco Unified IP Phones and up to six operator clients. The Cisco Unified Enterprise Attendant Console supports up to 100,000 Cisco Unified IP Phones and up to 25 operator clients per attendant console system.

Key Features and Benefits

Cisco Unified Department Attendant Console

- Maximum of 150 Cisco Unified IP Phones and two operator clients per department.
- Call queuing engine, busy status, as well as directory search capabilities that are integrated into the Cisco Unified Communications Manager directory.
- One call queue and three directory search options allow the department attendant to quickly find call destinations and effectively dispatch calls. These search options include last name, first name, and extension.
- Music in Queue (i.e., ability to play music to callers before they are greeted by the attendant.
- Cisco Unified IP Phones 6900 (multi-line mode only), 8900, and 9900 Series as operator endpoints.
- Cisco Unified Department Attendant Console server running in a VMware server environment.
- Windows 7 support for Cisco Unified Department Attendant Console client.
- Integrates with Cisco Unified Presence Server to provide rules-based presence in support of multiple devices and weighting per device (i.e., desk-based workers can weight their desk phone high and their mobile phone low)
- Microsoft OCS 2007 presence status support from the Cisco Unified Department Attendant Console client
- Accessibility support with third-party applications JAWS and ZoomText.
- Wait time overflow—Boosts service levels with calls being directed to a defined number after the call has been in queue for a specified period of time.
- For the operator who needs in-depth presence information, Cisco Unified Presence can be integrated with the Cisco Unified Department Attendant Console.
- Emergency mode enables redirection of calls in event of an emergency.

Cisco Unified Business Attendant Console

- Maximum of 500 Cisco Unified IP Phones and up to six operator clients per attendant console system.
- Four directory search options allow the operator to quickly find call destinations and quickly dispatch calls.
- Four directory search fields allow the operator to quickly find call destinations and quickly dispatch calls.
- Music in Queue (i.e., ability to play music to callers before they are greeted by the attendant.
- Cisco Unified IP Phones 6900 (multi-line mode), 8900 and 9900 Series as operator endpoints.
- Cisco Unified Business Attendant Console server running in a VMware environment.
- Integrates with Cisco Unified Presence Server to provide rules-based presence in support of multiple devices and weighting per device (i.e., desk-based workers can weight their desk phone high and their mobile phone low)
- Microsoft OCS 2007 presence status support from the Cisco Unified Business Attendant Console client.
- Windows 7 support for Cisco Unified Business Attendant Console client.
- Accessibility support with third-party applications JAWS and ZoomText.
- Emergency mode enables redirection of calls in event of an emergency.
- Wait time overflow—Boosts service levels with calls being directed to a defined number after the call has been in queue for a specified period of time.
- For the operator who needs in-depth presence information, Cisco Unified Presence can be integrated with the Cisco Unified Business Attendant Console.

Cisco Unified Enterprise Attendant Console

- Maximum of 100,000 Cisco Unified IP Phones and up to 25 operator clients per attendant console system
- Six directory search fields allow the operator to quickly find call destinations and quickly dispatch calls
- Utilities for installing, configuring and synchronizing the directory database simplify administration
- Music in Queue (i.e., ability to play music to callers before they are greeted by the attendant.
- Cisco Unified IP Phones 6900 (multi-line mode), 8900 and 9900 Series as operator endpoints.
- Cisco Unified Business Attendant Console server running in a VMware environment.
- Microsoft OCS 2007 presence status support from the Cisco Unified Business Attendant Console client.
- Windows 7 support for Cisco Unified Business Attendant Console client.

- Accessibility support with third-party applications JAWS and ZoomText.
- Emergency mode enables redirection of calls in event of an emergency.
- Wait time overflow—Boosts service levels with calls being directed to a defined number after the call has been in queue for a specified period of time.
- Integrates with Cisco Unified Presence Server to provide rules-based presence in support of multiple devices and weighting per device (i.e., desk-based workers can weight their desk phone high and their mobile phone low)
- Emergency mode switch enables redirection of calls in an emergency
- Night mode service based on time and day
- Supports both zoom text and JAWS screen reader for enhanced accessibility

Selected Part Numbers and Ordering Information

CUB-ATT-CON	The Cisco Unified Business Attendant Console is ordered on a per-operator client basis. Ordering the Cisco Unified Business Attendant Consoles requires the use of the Cisco Dynamic Configuration Tool. Input "CUB-ATT-CON=" on the Dynamic Configuration Tool to begin the configuration, and then select from 1 to 6 Cisco Unified Business Attendant Consoles.
CUE-ATT-CON	The Cisco Unified Enterprise Attendant Console is ordered on a per-operator client basis. Ordering the Cisco Unified Enterprise Attendant Console requires the use of the Cisco Dynamic Configuration Tool. Input 'CUE-ATT-CON=' on the Dynamic Configuration Tool to begin the configuration and then select from 1 to 25 Cisco Unified Enterprise Attendant Consoles.
CUD-ATT-CON	The Cisco Unified Department Attendant Console is ordered on a per-department administrator (operator client) basis. A maximum of two department administrators are supported per department with 150 IP phones. When ordering, the first client includes the software license for the Cisco Unified Department Attendant Console server. Ordering the Cisco Unified Department Attendant Consoles requires the use of the Cisco Dynamic Configuration Tool. Input "CUD-ATT-CON=" on the Dynamic Configuration Tool to begin the configuration, and then select from 1 to 10 Cisco Unified Department Attendant Consoles.

For More Information

http://www.cisco.com/go/ac

Cisco Emergency Responder

Cisco Emergency Responder enhances emergency calling from Cisco Unified Communications Manager. It helps ensure that Cisco Unified Communications Manager sends emergency calls to the appropriate Public Safety Answering Point (PSAP) and then helps the PSAP identify the caller's location and, if necessary, return the call.

Key Features and Benefits

- Automatically tracks IP phone locations by their MAC or IP addresses, eliminating the need for administrators to update location when an IP phone is relocated.
- Provides instructions to Cisco Unified Communications Manager to route emergency calls to a public-switched-telephone-network (PSTN) gateway capable of reaching the responsible Public Safety Answering Point (PSAP) for the caller's location.
- Identifies the caller's location to local exchange carriers (LECs) and PSAPs, replacing the calling-party number associated with an emergency call with one that corresponds to the caller's location, eliminating the need to update the Automatic Location Information (ALI) database when an IP phone is relocated.
- Keeps track of IP phones powered down by EnergyWise. Even when phones are powered down by EnergyWise, EMR can track them. EMR won't lose track of phones discovered while powered up, but EMR cannot discover them for the first time while powered down.
- Locates IP phones connected to latest model LAN access and compact switches
- Integrates with Intrado V9-1-1 service, centralizing and automating the initial administration of Emergency Location Identification Numbers (ELINs) and Emergency Response Locations (ERLs) for on-premises users, and facilitating emergency call completion with user-entered location information for off-premises users.
- Facilitates PSAP callback to reach the most recent callers from each location, including callers from stations without direct-inward-dialing (DID) numbers.
- Provides voice, web and email alerts to customer security personnel, enabling them to assist emergency callers immediately, and to direct fire, police, or ambulance services when they arrive.
- Simplifies software installation and upgrade and enhances system security and stability.

Specifications

Feature	Cisco Emergency Responder
Supported Platform	Cisco 7800 Series Media Convergence Servers
Software Compatibility	Cisco Unified Communications Manager Cisco Unified Operations Manager More information about specific models and releases supported is available at: http://www.cisco.com/en/US/products/sw/voicesw/ps842/prod_release_notes_list.html.

Product Compatibility	Cisco Unified IP Phones 7902G, 7905G, 7910G, 7910G+SW, 7911G, 7912G, 7940G, 7941G, 7941G-GE, 7942G, 7945G, 7960G, 7961G, 7961G-GE, 7962G, 7965G, 7970G, 7971G-GE, 7975G, 7985G; Cisco Unified Wireless IP Phones 7920, 7921 (IP-subnet-based tracking only); Cisco Unified IP Conference Stations 7935, 7936; Cisco Unified SIP Phone 3911, Cisco Unified Personal Communicator; Cisco IP Communicator; Cisco IP Softphone (IP-subnet-based tracking only); Cisco ATA 180 Series analog telephone adaptors (manual configuration only); Cisco VG 200 Series analog phone gateways (manual configuration only); Cisco Catalyst Express 500, Express 520, 2900 XL, 2940, 2950, 2960, 2970, 3500XL, 3550, 3560, 3560-E, 4000, 4500, 4500-E, 4900, 5000, 5500, 6000, 6500 and 6500-E Series LAN switches; Cisco Ethernet Switching Network Modules in Cisco 3700 Series Multiservice Access Routers, 2800 and 3800 Series Integrated Services Routers. More information about specific models and releases supported is available at: http://www.cisco.com/en/US/products/sw/voicesw/ps842/prod_release_notes_list.html.

System Capacity	Cisco MCS 7816	Cisco MCS 7825	Cisco MCS 7835	Cisco MCS 7845
Automatically Tracked Phones	6000	12,000	20,000	30,000
Manually Configured Phones	1000	2500	5000	10,000
Roaming Phones (per Cisco Emergency Responder Cluster)	600	1200	2000	3000
Switches	200	500	1000	2000
Switch Ports	12,000	30,000	60,000	120,000

For More Information

http://www.cisco.com/go/cer

Cisco Intercompany Media Engine

Cisco Intercompany Media Engine is a revolutionary product that enables true boundaryless communications among business partners and customers. The idea is to make communications among separate companies and organizations as effortless and smooth as it is within an individual company. So, whether you and your customer or partner are located within the same company or in separate companies, the ease, efficiency, and overall experience of communicating with each other will be exactly the same. Our approach works with the phones you are already using, the numbers you are already dialing, the contact lists you have already entered, and the speed dials you are used to.

One of the most exciting capabilities available immediately is communication through rich media. High-definition audio, video, and high-definition video have proven to greatly enhance the effectiveness of human collaboration, and Cisco has been on the forefront of delivering solutions for these media. Yet today, it can be extremely cumbersome, or impossible, for companies to communicate outside of their organizations through high-definition audio or video. Now, with Cisco IME, these experiences can be shared among business partners across company lines, all with security, quality, reliability, and ease of use.

With respect to ease of use, Cisco Intercompany Media Engine was developed with the dual objective of requiring minimal effort to administer as well as zero effort to use. The self-learning feature is a good example. You learn new routes simply by calling your business partner who has Cisco Intercompany Media Engine. Neither the administrator nor you must enter this route. You simply dial your business partners as you normally would. And, from that point on, you dial your partner as you would normally dial a co-worker at your own company. No administrator help is required, and you are not required to do anything more than your usual process. And, from the first call and after, the process is easier, because Cisco Intercompany Media Engine has learned the route and has now integrated the partner into the Cisco Intercompany Media Engine Network, where everyone is connected and interaction is transparent and consistent, as though everyone is in the same company.

Although easily collaborating with customers and partners through rich media is compelling, it is just the start. The possibilities for using Cisco Intercompany Media Engine to best advantage to deliver innovative capabilities, experiences, and applications to be shared among partners are limitless. Intercompany capabilities such as directory access; one-click collaboration through Cisco WebEx meeting applications; instant availability status; instant virtual business card exchange; and application interactive prompts, such as interactive voice response (IVR)-delivered softkeys, are just a few of the array of Cisco Intercompany Media Engine capabilities to come.

To ensure an enterprise-grade solution, Cisco Intercompany Media Engine has security, efficiency, and quality built in. The security plus spam blocking of Cisco Intercompany Media Engine address multiple security concerns, whereas Cisco IME uses both SIP and PSTN to provide network efficiencies and cost savings, as well call-quality assurance.

Key Features and Benefits

- Lets partners use calling features that are available between clusters (except extension mobility)
- Learns new routes, through calls to any business partner who participates in the Cisco Intercompany Media Network
- Offers encrypted signaling and media for all Cisco Intercompany Media Engine calls between partners
- Provides a high level of security, plus spam blocking, to help prevent mining for callable numbers belonging to your enterprise

- Reduces gateways and overhead, by moving calls from PSTN to direct SIP trunks over the Internet or an extranet

Selected Part Numbers and Ordering Information

IME-7825-80	Cisco Intercompany Media Engine 8.0 7825 Part Number
IME-7845-80	Cisco Intercompany Media Engine 8.0 7845 Part Number

For More Information

http://www.cisco.com/go/b2buc

Cisco Unified Survivable Remote Site Telephony and Cisco Unified Enhanced Survivable Remote Site Telephony

Providing reliable communications to branch offices and teleworkers is important to help ensure business continuity and customer satisfaction. Cisco Unified Survivable Remote Site Telephony and its enhanced version, Cisco Unified Enhanced Survivable Remote Site Telephony, are designed to meet this need.

Both products take advantage of the remote office's existing network to provide multi-feature redundancy for centralized Cisco call-processing deployments during WAN link failures. Cisco Unified Survivable Remote Site Telephony works in conjunction with Cisco Unified Communications Manager and Cisco Unified Communications Manager Business Edition. The enhanced version works with Cisco Unified Communications Manager.

Cisco Unified Survivable Remote Site Telephony provides:

- Business resiliency through redundant, localized call processing
- Intelligent and automatic failover configuration without manual IT or telecom intervention
- Cost-effective operations through a converged voice and data network
- Centralized IP telephony configuration and management
- Investment protection and ease of migration

The enhanced version provides all the functionality of Cisco Unified Survivable Remote Site Telephony and also delivers:

- Enhanced user experience in failover mode by maintaining phone displays and providing full call-control features
- Easy-to-use GUI to help you provision, monitor, report, and troubleshoot remote sites
- Automatic synchronization with Cisco Unified Communications Manager for additions, deletions, and modifications of users and phones
- Preserves access control & billing restrictions even in failover mode

For Cisco Unified Survivable Remote Site Telephony, no additional hardware is required. The enhanced version is enabled through Cisco Unified Survivable Remote Site Telephony and the Cisco Unified Messaging Gateway.

Selected Part Numbers and Ordering Information

Cisco Unified SRST and Unified E-SRST ISR Platform Density and Feature License Part Numbers

Platform	SRST Number of Phones Supported[1]	E-SRST Number of Phones Supported	Part Number (Spare)
Cisco 800 Integrated Services Router	Up to 4 phones	Up to 4 phones	-
Cisco 1861 Integrated Services Router	Up to 15 phones	Up to 15 phones	-
Cisco 2801 Integrated Services Router	Up to 25 phones	Up to 25 phones	FL-SRST-25=
Cisco 2811 Integrated Services Router	Up to 35 phones	Up to 35 phones	FL-SRST-35=
Cisco 2821 Integrated Services Router	Up to 50 phones	Up to 50 phones	FL-SRST-50=
Cisco 2851 Integrated Services Router	Up to 100 phones	Up to 100 phones	FL-SRST-100=
Cisco 3825 Integrated Services Router	Up to 350 phones[1]	Up to 175 phones	FL-SRST-175=
Cisco 3845 Integrated Services Router	Up to 730 phones[2]	Up to 250 phones	FL-SRST-250=
Cisco 2901 Integrated Services Router	Up to 35 phones	Up to 35 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=
Cisco 2911 Integrated Services Router	Up to 50 phones	Up to 50 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=

Cisco 2921 Integrated Services Router	Up to 100 phones	Up to 100 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=
Cisco 2951 Integrated Services Router	Up to 250 phones	Up to 150 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=
Cisco 3925 Integrated Services Router	Up to 730 phones	Up to 250 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=
Cisco 3945 Integrated Services Router	Up to 1200 phones	Up to 350 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=
Cisco 3925E Integrated Services Router	Up to 1350 phones	Up to 400 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=
Cisco 3945E Integrated Services Router	Up to 1500 phones	Up to 450 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=

1. The numbers of phones supported by SRST have been changed to multiples of 5 starting with Cisco IOS Software Release 12.4(15)T3.
2. There are no corresponding part numbers, but you can purchase multiple parts to reach the desired phone count.

The table below lists the Cisco Unified E-SRST solution hardware support. Cisco Unified E-SRST software is supported on the Cisco Unified Messaging Gateway (NME-UMG and NME-UMG-EC) on the Cisco ISR and on the Cisco UMG (NME-UMG, NME-UMG-EC with the SM-NM-ADPTR card, SM-SRE-700-K9, and SM-SRE-900-K9) on the Cisco ISR G2. Table 3 lists the maximum number of branch-office sites supported per module.

Product Limits for Cisco Unified Messaging Gateway for Cisco Unified E-SRST Deployments

Product	Maximum Number of Branch-Office Sites Supported per Module	License Part Number Spare[1]
Cisco Unified Messaging Gateway Network Module (NME-UMG)	250	· FL-E-SRST-25= (UMG license for 25 E-SRST Nodes/Sites) · L-FL-E-SRST-25= (UMG license for 25 E-SRST Nodes/Sites E-delivery)
Enhanced-capacity Cisco Unified Messaging Gateway Network Module (NME-UMG-EC)	1000	· FL-E-SRST-25= (UMG license for 25 E-SRST Nodes/Sites) · L-FL-E-SRST-25= (UMG license for 25 E-SRST Nodes/Sites E-delivery) FL
Cisco Unified Messaging Gateway on Services-Ready Engine (SM-SRE-700-K9)	1000	· FL-E-SRST-25= (UMG license for 25 E-SRST Nodes/Sites) · L-FL-E-SRST-25= (UMG license for 25 E-SRST Nodes/Sites E-delivery)
Cisco Unified Messaging Gateway on Services-Ready Engine (SM-SRE-900-K9)	1000	· FL-E-SRST-25= (UMG license for 25 E-SRST Nodes/Sites) · L-FL-E-SRST-25= (UMG license for 25 E-SRST Nodes/Sites E-delivery)

1. Use multiple counts of each part number to reach appropriate numbers required

For More Information

http://www.cisco.com/go/srst

Cisco Unified Communications Services

Services delivered by Cisco and our partners, offers a comprehensive portfolio of services to help prepare, maintain, and optimize your Cisco Unified Communications solution.

Cisco SMARTnet support is available for all your hardware products. Cisco Essential Operate Service (ESW) is available for all your software Cisco products. The combination of hardware and software services is critical to optimizing product performance.

For more information about Cisco Unified Communications Services, visit http://www.cisco.com/go/ucservices.

Messaging

Cisco Jabber for Mac

Collaborate more securely and effectively from anywhere with colleagues, business partners, and customers using Cisco Jabber for Mac. Empower employees to work together efficiently from anywhere by bringing together presence, instant messaging (IM), audio and web conferencing, enterprise voice, and visual voicemail into one client on your desktop.

Ideal for Companies That Need These Features

Cisco Jabber for Mac	• A unified client that transparently integrates presence, voice, video, instant messaging, and Web conferencing • Communications capabilities integrated with the personal computer, including integrated contact lists, click-to-call, voicemail playback, inbound call notification, and media escalation

Key Features and Benefits

Cisco Jabber for Mac offers best-in-class unified communications and is built on open standards. With an intuitive interface built for the Mac platform, you can:

- Make faster, more informed decisions by using presence information to access experts as soon as they are available
- Accelerate team performance by sharing documents and collaborating with audio and web conferencing
- Maximize your reach by communicating with business contacts faster, more often, and with greater impact
- Limit the costs of business travel and phone charges by using a single tool for all modes of electronic communications
- Choose the best provisioning model for your business by deploying Cisco Jabber for Mac either on-premises or on demand as a cloud-based service

For More Information

http://www.cisco.com/go/jabber

Cisco WebEx Connect

Cisco WebEx Connect is an on-demand unified communications solution that delivers enterprise instant messaging, rich presence, audio, video, and web conferencing and enterprise telephony though a single client on your desktop. WebEx Connect delivers this through software-as-a-service, meaning no hardware to deploy, no capital expenditures and a much lower cost of maintenance and administration.

Ideal for Companies That Need These Features

Cisco WebEx Connect	• Unified communications and collaboration • Rich presence and enterprise instant messaging • Softphone capabilities

Key Features and Benefits

- One unified interface for business collaboration—WebEx Connect integrates the key collaboration capabilities of presence, enterprise instant messaging, audio and video conferencing, VoIP, softphone capabilities, and visual voicemail into a single client on your desktop.
- Dynamic end-user collaboration without giving up control—Administrators can add, update, or deactivate users easily with batch functions and manage enterprise usage by creating any number of domains and subdomains.
- Avoidance of added infrastructure—Speed deployment and reduce maintenance costs by taking advantage of the Cisco WebEx Collaboration Cloud, a private global network that provides security, reliability, and scalability on demand. There is no hardware to purchase, maintenance or upgrade costs, and no long software deployment cycles.
- Security and accreditation—The Cisco WebEx Collaboration Cloud delivers data content security and uses Secure Sockets Layer (SSL) and Advanced Encryption Standard (AES) encryption; the application is audited against Sas 70-Type II.

For More Information

http://www.cisco.com/go/webexconnect

Cisco Unified Personal Communicator

An integral component of the Cisco Unified Communications Family of products, Cisco Unified Personal Communicator integrates your most frequently used communications applications and services into a single, unified client. From an easy-to-use interface on a PC or Mac, it provides quick and easy access to powerful communications tools—softphone, presence, instant messaging, visual voicemail, click-to-call, employee directory, communication history, multi-party video and audio conferencing, and web conferencing—to help you communicate effectively and work more productively.

Ideal for Companies That Need These Features

Cisco Unified Personal Communicator	• A unified client that transparently integrates presence, voice, video, instant messaging, and Web conferencing • Communications capabilities integrated with the personal computer, including integrated contact lists, click-to-call, voicemail playback, inbound call notification, and media escalation • A supplemental telephone that provides access to phone extensions and services outside the office

Key Features and Benefits

- Communication integration—Take advantage of a single, intuitive interface for voice and video calls, instant messaging, voicemail playback, web conferencing, and integrated directories.

- Presence—View real-time availability of co-workers and colleagues within and outside the enterprise network. Exchange and display presence availability information with desktop users of Cisco WebEx Connect, Jabber XCP clients, Cisco Unified IP Phones, Microsoft Office Communicator and Lync, IBM Lotus Sametime, AOL, GoogleTalk, and many other XMPP-compatible clients.
- Microsoft Office application and browser integration—See user availability and click to initiate voice and video calls and chat sessions, or launch web collaboration sessions directly from Microsoft Office applications.
- Contact list—Search your corporate directory from one easy-to-use interface to locate contacts quickly and simply click to call. Add your most frequently contacted personal contacts, co-workers, and federated business contacts.
- Integrated voice and video telephony—Exchange ideas face-to-face with a coordinated video display on the PC screen and voice conversation with a soft phone or Cisco Unified IP Phone desk phone. Business-quality communication is supported in a variety of video resolutions up to and including high-definition (720p) and high-fidelity wideband audio.
- Instant messaging—Chat in real time to save time and reduce phone tag. Also support group chat and persistent chat rooms.
- Conferencing—Create voice or video conferencing sessions by simply merging conversation sessions. There is no need to call into a separate conference bridge.
- Web conferencing—Launch a Cisco Unified MeetingPlace or WebEx web conferencing session at a moment's notice to share content, such as a presentation, with others.
- Voice messages—Access secure Cisco Unity or Cisco Unity Connection encrypted voicemail messages—view, play back, sort, and delete messages—all from within the application.

For More Information

http://www.cisco.com/go/unifiedpersonalcom

Cisco Unified Presence

Cisco Unified Presence lays the foundation to deliver enterprise instant messaging- and presence-enabled collaboration capabilities. View the presence status or availability of the people with which they want to communicate, exchange instant messages with these individuals, and escalate to a voice call or rich collaborative session.

Ideal for Companies That Need These Features

Cisco Unified Presence	• Looking to increase productivity by providing the ability to connect with colleagues on the first try by knowing their availability in advance on either Cisco Unified Personal Communicator or Cisco Unified IP Phone • Seeking to enhance collaboration by sharing availability information and instant messages with co-workers within your business or between businesses with Cisco Unified Personal Communicator • Exposing presence information and user communications capabilities in corporate web directories, point-of-sales applications, or customer-relationship-management systems through Cisco Unified Application Environment and standards-based application programming interfaces (APIs) on Cisco Unified Presence • Allowing subject matter experts anywhere in your enterprise to handle incoming customer calls with presence capabilities delivered with Cisco Unified Expert Advisor, Cisco Unified Presence, and Cisco Unified Personal Communicator

Key Features and Benefits

- Cisco Unified Presence provides enterprise-class scalability, redundancy, and high availability desired by large businesses and organizations.
- Cisco Unified Presence natively supports standards-based XMPP and SIP for instant messaging and presence leveraging extensions (SIP/SIMPLE). With this dual protocol capability, Cisco Unified Presence offers customers a choice of either rich featured Cisco Unified Communications clients or any third-party XMPP-compliant instant messaging and presence client.
- Cisco Unified Presence supports business-to-business and business-to-consumer federation between organizations that are both running Cisco Unified Presence, or when one organization is using a third-party XMPP or SIP/SIMPLE platform. Visit Cisco.com for a listing of currently supported third-party federations.
- Cisco Unified Presence provides personal chat, group chat, and persistent chat capabilities so you can quickly connect with individuals and groups and conduct ongoing conversations.
- Cisco Unified Presence provides the SIP proxy services needed to support large Cisco Customer Voice Portal 4.0 (and later) deployments.

For More Information

http://www.cisco.com/en/US/products/ps6837/index.html

Cisco Unity Connection

Cisco Unity Connection provides voicemail and unified messaging with speech recognition and call routing rules on an easy-to-manage Linux platform.

Key Features and Benefits

- Access voice messages anytime from a variety of clients and devices: e-mail inbox, web browser, desk phone, instant messaging client, and mobile phones, including natural language-based speech access on phones.
- The flexible platform allows for configuration as voicemail or unified messaging on a Linux appliance.
- The system is scalable to 250 ports and 20,000 users per server, 500 ports when using active-active redundancy.
- Speech Recognition allows you to use voice commands to navigate phone menus and to manage messages, Cisco SpeechView allows you to read voicemail transcripts in your e-mail inbox, and Speech Connect for Cisco Unity Connection allows you to dial colleagues by saying their name.
- The solution supports Voice Profile for Internet Mail (VPIM) to facilitate interoperability with older voicemail systems.
- The solution offers robust Automated-Attendant functions that include intelligent routing and easily customizable call-screening and message-notification options.

Specifications

Feature	Cisco Unity Connection 8.0
Unity Voice Mail (VM) and Unified Messaging (UM) possible configurations	• 20,000 users and 250 ports maximum, 100,000 VPIM networked users with 20 nodes • Configured for Cisco Unified Communications Manager or configured for legacy PBX/dual integration
Options	Voicemail, IMAP client messaging, single inbox unified messaging, text-to-speech, Cisco Unity Connection Web Inbox, voice commands, speech-to-text

For More Information

http://www.cisco.com/go/unityconnection

Speech Connect for Cisco Unity Connection

Speech Connect for Cisco Unity Connection is a speech-enabled automated attendant for the enterprise. Internal or external callers can say the name of an employee into the phone and instantly be connected to that employee.

Key Features and Benefits

- Advanced speech attendant for the numberless enterprise.
- Industry-leading speech recognition performance combined with the powerful Cisco Unity Connection messaging solution.
- Speech Connect for Cisco Unity Connection is included in the base user license for Cisco Unity Connection.

For More Information

http://www.cisco.com/en/US/products/ps10670/index.html

Cisco SpeechView

Cisco SpeechView converts voice messages to text and delivers them to you via e-mail, allowing you to read your voice messages and take immediate action. Cisco SpeechView is a feature of the Cisco Unity Connection voice and unified messaging solution, so the original audio version of each voice message remains available to you anywhere, anytime with Unity Connection.

Key Features and Benefits

- Speech-to-text transcription is usually delivered in 5 minutes or less
- Approximately the first 30 seconds of the voice message are transcribed
- No limit on the number of messages transcribed

For More Information

http://www.cisco.com/go/speechview

Cisco Unity Express

Cisco Unity Express provides integrated messaging, voicemail, Automated Attendant services, and optional interactive voice response (IVR) and time card services specifically for the small- and medium-sized office or branch office. The application is delivered on either a network module or advanced integration module, both of which are supported on a variety of voice-enabled integrated services routers.

Ideal for Companies That Need these Features

Cisco Unity Express	• Integrated messaging, voicemail, Automated Attendant, or interactive-voice-response (IVR) or time card services at the branch or small office to support local users • Up to 500 users per site

Key Features and Benefits

- The solution offers affordable messaging and greeting services for increased customer service and rich employee communications.
- Intuitive telephone prompts and a web-based interface provide fast, convenient voicemail and Automated Attendant administration.
- Cisco Unity Express can view, sort, search, and play back voice messages using the display of a Cisco Unified IP Phone or your e-mail client.
- The TimeCard View solution is a time and attendance application that allows employees, supervisors, and payroll specialists to enter and manage time-card data.
- The solution offers scalability up to 32 ports and 500 mailboxes.
- The solution is deployable with Cisco Unified Communications Manager Express, Cisco Unified Communications Manager, Cisco Unity, and Cisco Unity Connection systems.

Specifications

Feature	Cisco Unity Express
Hardware	NME-CUE, AIM-CUE, AIM2-CUE-K9, ISM-SRE-300-K9, or SM-SRE-700-K9, fully self-contained modules with onboard storage, memory, and processing supporting a variety of mailbox densities, storage capacities, and concurrent sessions to meet the needs of every small-to-medium office or branch
Platform Supported	Cisco 1861, 2800 Series, 2900 Series, 3800 Series, 3900 Series, and 3900E Series Integrated Services Routers

For More Information

http://www.cisco.com/go/cue

Cisco Unified Survivable Remote Site Voicemail

Cisco Unified Survivable Remote Site Voicemail (SRSV) provides a cost-effective solution for supporting redundant voicemail service for your organization's remote sites, such as branch offices or small sites.

When a remote site does not have access to your central voicemail system, for example during a network service interruption, Cisco Unified SRSV provides voicemail backup services to help ensure your remote site continues to have voicemail service. This solution also provides Automated-Attendant or call-handler services while in survivability mode. The key components include:

- Cisco Unified Communications Manager—Advanced call processing at the central site
- Cisco Unity Connection—Powerful integrated and voice messaging at the central site
- Cisco Unity Express—Voicemail redundancy at the remote site
- Cisco Unified Messaging Gateway—Voicemail provisioning between the central and remote sites as well as voicemail upload from the remote site to the central location after the network service is restored

Specifications

Hardware	NME-CUE or AIM2-CUE-K9 for Cisco Unity Express; NME-UMG or NMG-UMG-EC for Cisco Unified Messaging Gateway
Software	Cisco Unity Express version 8.0 or higher, Cisco Unity Connection version 8.0 or higher, Cisco Unified Communications Manager version 8.0 or higher
Platform Supported	Cisco 2800 Series, 2900 Series, 3800 Series, 3900 Series, and 3900E Series Integrated Services Routers

For More Information

http://www.cisco.com/go/srsv

Cisco Unified Messaging Gateway

The Cisco Unified Messaging Gateway provides an open and secure method of intelligently routing messages and exchanging subscriber and directory information within a unified messaging network. It acts as the central hub in a network of Cisco unified messaging solutions and third-party gateways that interface with older voicemail systems.

Ideal for Companies That Need these Features

Cisco Unified Messaging Gateway	• Scale the unified messaging network as required for branch-office customers and larger distributed enterprises • Simplify configuration tasks and centralize voicemail system management • Transparently integrate Cisco Unified Communications solutions into existing voicemail installations

Key Features and Benefits

- Integrate small to large-scale unified messaging deployments that consist of more than five Cisco Unity Express systems.
- Integrate up to 10,000 mixed Cisco Unity Express, Cisco Unity, and Cisco Unity Connection systems.

Specifications

Feature	Cisco Unified Messaging Gateway
Hardware	NME-UMG or NME-UMG-EC
Platform Supported	Cisco 2800 and 3800 Series Integrated Services Routers Cisco 2900, 3900, and 3900E Series Integrated Services Routers (with NM-SM-ADPTR)

For More Information

http://www.cisco.com/go/umg

Cisco Unity Unified Messaging

Cisco Unity unified messaging is a reliable, secure, scalable, and full-featured unified messaging platform.

Key Features and Benefits

- Access voice messages anytime from a variety of clients and devices: Email inbox, web browser, desk phone, instant messaging client, and mobile phones, including speech access on phones.
- The flexible platform allows for configuration as voicemail or unified messaging, with a single message store on a Microsoft Exchange or Lotus Domino email server or a separate message store for voice messages.
- The system is scalable to 200 ports and 15,000 users per server; it offers server options with multiple processors, redundant fans, redundant power supplies, and Redundant Array of Independent Disks (RAID) hard disk drives.
- The solution supports Audio Messaging Interchange Specification analog (AMIS-A), Voice Profile for Internet Mail (VPIM), and Cisco Unity Bridge for Octel to facilitate interoperability with older voicemail systems.
- Integration with the Cisco Fax Server allows you to send and receive fax messages from your email inbox.

Specifications

Feature	Cisco Unity Unified Messaging
Unity Voice Mail (VM) and Unified Messaging (UM) Possible Configurations	15,000 users and 200 ports maximum, 250,000 networked users Configured for Cisco Unified Communications Manager or configured for legacy PBX/dual integration
Options	Voice Mail; Unified Messaging; Microsoft Exchange or Lotus Domino message store; Failover for Exchange; Cisco Unity Bridge for Exchange

For More Information

http://www.cisco.com/go/unity

Speech Connect for Cisco Unity

Speech Connect for Cisco Unity is a speech-enabled Automated Attendant for the enterprise. Internal or external callers can speak the name of an employee into the phone and instantly be connected to that employee. Enhanced software fine-tunes pronunciation, improving accuracy over time for superior voice-recognition performance.

Key Features and Benefits

- Speech Connect for Cisco Unity offers unmatched performance in speech recognition because of advanced disambiguation, the names-tuning service, and a dynamic names dictionary.

For More Information

http://www.cisco.com/en/US/products/ps9676/index.html

Mobile Applications

Cisco Jabber and Cisco Mobile

The Cisco Jabber and Cisco Mobile family of smartphone applications lets you place, receive, and manage calls over a Wi-Fi network. Sometimes referred to as dual-mode, Cisco Jabber turns your smartphone into an IP Phone, while also providing corporate directory lookup and enterprise telephony calling features. The Cisco Mobile family of smartphone apps will be renamed Cisco Jabber in the future for naming consistency under the Jabber brand.

The Cisco Jabber IM application, available on Cisco Cius and BlackBerry smartphones, lets you stay connected on the go. A single click lets you instant message, call, e-mail, or text any of your contacts. You can also join an instant WebEx meeting. The app securely connects your mobile device to Cisco Unified Presence or WebEx Connect.

Key Features and Benefits

Cisco Jabber for Android

- Turn your Android device into a full-featured Cisco Unified IP Phone. Cisco Jabber for Android lets you place, receive, and manage calls over your corporate Wi-Fi network.
- Free download from the Android Market.
- Search your corporate directory (Microsoft Active Directory) and personal contacts from one, easy-to-use interface to locate contacts quickly.
- Single number reach makes it easier for you to be reached and gives you the flexibility to answer the call that is most important for you at a given time.
- Move calls from a Wi-Fi network to a cellular network when leaving an area with Wi-Fi coverage.

Cisco Mobile for iPhone

- Turn your iPhone into a full-featured Cisco Unified IP Phone. Cisco Mobile for iPhone lets you place, receive, and manage calls over your corporate Wi-Fi network.
- Free download from the Apple iTunes App Store.
- Search your corporate directory (Microsoft Active Directory) and personal contacts (Microsoft Outlook) from one, easy-to-use interface to locate contacts quickly.
- Single number reach makes it easier for you to be reached and gives you the flexibility to answer the call that is most important for you at a given time.
- You have visual access to Cisco Unity Connection voicemail messages. Select, view, play back, and delete messages in any order.
- View a list of recent calls on your iPhone and learn what calls were missed, placed, and received from your mobile device and your Cisco Unified IP Phone.

Cisco Mobile for Nokia

- Turn your Nokia smartphone into a full-featured Cisco Unified IP Phone. Cisco Mobile for Nokia, in conjunction with Cisco Nokia Call Connect, lets you place, receive, and manage calls over your corporate Wi-Fi network.
- Free download from cisco.com.
- View real-time presence information for your contacts, then click-to-chat or send instant messages using standards-based XMPP messaging.
- Search your corporate directory (Microsoft Active Directory) and personal contacts from one, easy-to-use interface to locate contacts quickly.
- Single number reach makes it easier for you to be reached and gives you the flexibility to answer the call that is most important for you at a given time.

Cisco Jabber IM for Cius and Cisco Jabber IM for BlackBerry

- Stay connected on the go with basic 1:1 IM.
- Take immediate action from your contact list with click to call, click to e-mail, click to SMS, and join an instant WebEx meeting.
- Flexible, secure deployment with single sign-on, secure, proxyless architecture, and a single app for on-premises or cloud deployment.
- Free to current Cisco customers using Cisco Unified Presence or Cisco WebEx Connect.

For More Information

http://www.cisco.com/go/jabber

Cisco Unified Mobile Communicator

Cisco Unified Mobile Communicator is a software application that enables collaboration by securely extending Cisco Unified Communications to mobile smartphones. With Cisco Unified Mobile Communicator, you can place and receive calls, access company directory contacts, check presence information, and review voice-mail messages, as well as receive Cisco Unified MeetingPlace notifications and other vital information, all from a single, intuitive interface. The application requires the use of the Cisco Unified Mobility Advantage server.

Key Features and Benefits

- Search your corporate directory (Microsoft Active Directory) and personal contacts (Microsoft Outlook) from one, easy-to-use interface to locate contacts quickly.
- View a person's availability status (presence) from the directory on your mobile handset.
- Single number reach makes it easier for you to be reached and gives you the flexibility to answer the call that is most important for you at a given time.
- Dial via Office is a feature that allows you to place calls over the cellular network through Cisco Unified Communications Manager to reduce toll charges and meet regulatory requirements.
- Send and receive secure text messages from colleagues when they are unavailable to talk.
- You have visual access to Cisco Unity and Cisco Unity Connection voicemail messages. Select, view, play back, and delete messages in any order.
- Receive Cisco Unified MeetingPlace conference notifications on your smartphone. With a simple press of a button, you can access the conference bridge.
- View a list of recent calls on your mobile device and learn what calls were missed, placed, and received from your mobile device and your Cisco Unified IP Phone.
- Cisco Unified Mobility Advantage server is deployed securely behind the enterprise firewall. It uses industry-standard Secure Sockets Layer (SSL) and Transport Layer Security (TLS) encryption to protect transmission of data between handsets and your corporate infrastructure.

For More Information

http://www.cisco.com/go/mobilecommunicator

Cisco Unified Mobility

Cisco Unified Mobility is a native application to Cisco Unified Communications Manager that streamlines communications and optimizes the communications experience with single number reach.

Key Features and Benefits

- Single Number Reach—Publish one number for multiple devices to simplify communications and preserve your office identity.
- Transparently move active phone calls between your mobile phone and your Cisco Unified IP Phone without interrupting a call to optimize the communications experience.
- Answer calls on the device that is most suitable to you at any given time with the ability to ring up to four devices simultaneously.
- Anchor calls in Cisco Unified Communications Manager to apply policy.

For More Information

http://www.cisco.com/en/US/products/ps6567/index.html

Nokia Call Connect for Cisco

Enables select Nokia dual-mode handsets to operate on Wi-Fi networks and access advanced features of Cisco Unified Communications Manager to reduce cellular costs and improve communications.

Key Features and Benefits

- Access mid-call features, including call pick-up, group pick-up, call park, shared line appearance and conferencing
- Extension dialing
- Enterprise voice mail messaging waiting indicator
- Enhance in-building mobility experience with pervasive Cisco Unified Wireless Network coverage

For More Information

http://www.cisco.com/go/nokia

Cisco WebEx Meetings on Mobile Devices

A free downloadable application available for Cisco WebEx Meeting Center on Android, Apple iPhone and iPad, and RIM BlackBerry mobile devices. Also available pre-loaded on the Cisco Cius.

Key Features and Benefits

- Schedule WebEx Meeting Center meetings and invite attendees
- Start or cancel a scheduled WebEx meeting
- Give presentation control to other meeting participants
- Attend scheduled meetings with integrated audio and data integrated WebEx VoIP
- View shared presentations, applications and desktops with live annotations
- Two-way multiparty video conferencing from Apple iPad
- View the meeting attendee list and chat with meeting participants
- Transfer a live meeting from the iPhone to a PC.

For More Information

http://www.webex.com/overview/mobile-meetings.html

Cisco WebEx Meeting Center on SmartPhone Browsers

Using the mobile browser on a smartphones, users can attend fully participate in Cisco WebEx Meeting Center meetings, view presentations applications and desktops with live annotations.

Key Features and Benefits

- Attend pre-scheduled meetings from your smartphone with integrated audio and data
- View shared presentations, applications and desktops with live annotations
- View the meeting attendee list

For More Information

http://www.webex.com/overview/mobile-meetings.html

Cisco Mobile Supervisor

Cisco Mobile Supervisor for is a free application available from Apple Inc's App Store that extends the Cisco Supervisor Desktop (CSD) of Cisco Unified Contact Center Express to the iPhone 3G and iPod Touch.

Key Features and Benefits

- A list of Contact Service Queues (CSQs) belonging to a selected team
  - The Voice CSQ Summary report for a selected CSQ
  - The list of agents (along with their states) belonging to the selected CSQ
- A list of agents (along with their states) belonging to a selected team
- Color-coded indicators to identify whether a CSQ's Calls in a Queue or Oldest Call in a Queue fields have exceeded user-configured thresholds. You can specify/change these threshold values at any time.

For More Information

http://www.cisco.com/en/US/prod/collateral/voicesw/custcosw/ps5693/ps1846/ciscomobile_vds.html

TelePresence

Welcome to your future at work, in class, on the road, in your community and at home. As a key part of Cisco Collaboration, Cisco TelePresence™ technology powers the new way of working, where everyone, everywhere can be more productive through face-to-face collaboration. Cisco TelePresence solutions meet your needs-from team to personal use, to specific applications for your business, and even public access, allowing you to:

- Connect face-to-face with customers, partners, and co-workers, building trust, understanding, and relationships
- Scale executives and subject-matter experts like never before, transforming your business model and creating competitive differentiation
- Increase productivity through more interactions and less travel
- Speed time to market and make decisions faster with the right resource available at the right time
- Free IT resources with ease of use and operational simplicity to focus on strategic projects instead of operational maintenance

Cisco TelePresence endpoints deliver an unmatched experience in quality and simplicity. We can help you find the right Cisco TelePresence endpoint for every individual and team for natural and effective communication. Our innovative portfolio includes:

- Immersive—Optimized or adaptive Cisco TelePresence rooms for the best quality face-to-face communications and collaboration
- Multipurpose—Cisco TelePresence media and collaboration solutions for the widest range of multipurpose rooms and collaboration environments
- Personal—Streamlined products fit for private offices, at home for telecommuting or remote locations for workers on the go
- Solution Platforms—Core Cisco TelePresence components for customized applications from partners for your business

With a range of applications including meetings, high-definition video recordings and broadcasting, intimate customer experiences, and remote professional services such as healthcare, the Cisco TelePresence portfolio takes interaction, communications, and collaboration to a new level.

Cisco TelePresence Infrastructure

The Cisco TelePresence portfolio offers the most comprehensive infrastructure centered around an integrated architecture, unified communications, and any-to-any interoperability between Cisco and third-party video products and collaboration technologies. Cisco TelePresence delivers a networked multipoint transcoding and switching architecture for scalability and adaptive, on-demand media services—and integration with digital media and collaboration solutions from Cisco and other companies. Key components of the Cisco TelePresence infrastructure portfolio include:

- Management—Comprehensive management software with integrated scheduling, network management, and reporting capabilities, including usage measurement and return-on-investment (ROI) tools
- Conferencing—Industry-leading transcoding and switching capabilities for large, high-performance, and scalable multipoint meetings
- Media services—Any-to-any interoperability with virtually all video technologies and on-demand media services such as recording, streaming, transcoding, and translation (Figure 1)
- Call and session control—Robust Cisco TelePresence session control through a comprehensive set of signaling and call-control capabilities

Cisco TelePresence as a Service

Cisco TelePresence cloud based solutions and services enable telepresence-as-a-service options for conferencing, secure intercompany collaboration, advanced media services and flexible access plans for any size organizations. Businesses look to scalable cloud-based. Cisco TelePresence capabilities so they can effortlessly and securely communicate face to face with their colleagues, customers, and partners in other Cisco TelePresence locations, including options to leverage more than 40 public Cisco TelePresence Suite available globally.

Endpoints

Immersive Endpoints

Cisco TelePresence System 3010



To deliver an immersive collaborative environment with an in-person experience, the Cisco TelePresence System 3010 allows 6 people to connect with up to 48 locations.

The Cisco TelePresence System 3010 is ideal for customer engagements with small or large groups, supply-chain optimizations, press and media briefings, or regular team meetings.

The Cisco TelePresence System 3010 system includes:

- Three 65-inch plasma screens and a specially designed physical table that seats 6 participants on each side of the virtual table
- Additional LCD display for sharing rich media content and other data using simple auto-collaborate functionality
- Integrated cameras, lights, microphones, and speakers that optimize the experience and use less power than a Cisco TelePresence System 3000
- Seamless integration with all Cisco TelePresence products and solutions to lower total cost of ownership, increase return on investment, and ease deployment

Specifications

Specification	Description
Video standards	H.264
Audio standards	G711 and AAC-LD (22kHz)
Protocols	Cisco Discovery Protocol, SIP, IP, Dynamic Host Configuration Protocol (DHCP), Secure Shell (SSH) Protocol, 802.1p/q, and Real-Time Transport Protocol (RTP)

Selected Part Numbers and Ordering Information

For a full list of current part numbers, view the datasheet: http://www.cisco.com/en/US/products/ps10753/index.html.

For More Information

http://www.cisco.com/en/US/products/ps10753/index.html

Cisco TelePresence System 1300 Series



The Cisco TelePresence System 1300 Series (1300 Series) extends the experience pioneered by Cisco's fully immersive three-screen solutions to smaller multipurpose conferencing spaces. The 1300 Series delivers an immersive experience that enhances team collaboration across the table and around the globe.

With crisp 1080p30 video, premium audio quality, and the convenience of features such as "one-button-to-push" calling, the 1300 Series delivers the high-quality experience expected of Cisco immersive telepresence rooms. With an innovative combination of triple-camera cluster and voice-activated switching technology, the 1300 Series enables up to six participants to have a face-forward seat at the virtual table through a single video stream. Integrated audio conferencing and presentation-sharing capabilities make this solution a powerful team telepresence solution that enhances collaboration in many ways. Cisco TelePresence System 1300-65 (1300-65) and 1300-47 (1300-47) fit small and medium-sized conference rooms using the existing table in the room. The 1300-65 is designed for medium and large-size conference rooms. The 1300-47 is ideal for small conference rooms,

supporting a wide variety of table configurations and sizes commonly deployed such as bullet, round, and square tables.

Specifications

Specification	Description
Video standards	H.264, Telepresence Interoperability Protocol (TIP)
Audio standards	G.711, G.722, and AAC-LD (22 kHz)
Protocols	Cisco Discovery Protocol, Session Initiation Protocol (SIP), IP, Dynamic Host Configuration Protocol (DHCP), Secure Shell (SSH) Protocol, 802.1p/q, and Real-Time Transport Protocol (RTP)

Selected Part Numbers and Ordering Information

For a full list of current part numbers, view the datasheet—http://www.cisco.com/en/US/products/ps10340/index.html

For More Information

http://www.cisco.com/en/US/products/ps10340/index.html

Multipurpose Endpoints

Cisco TelePresence Profile Series



The Cisco TelePresence Profile Series offers a lifelike HD video collaboration experience for teams of all sizes. This integrated telepresence solution brings you an easy-to-use and consistent video experience.

The Cisco TelePresence Profile Series has several options powered by the C Series Codec depending on the size of your meeting room and your requirements for collaboration and content sharing:

- Cisco TelePresence Profile 42-inch
- Cisco TelePresence Profile 52-inch and 52-inch Dual
- Cisco TelePresence Profile 65-inch and 65-inch Dual

In addition, the Cisco TelePresence Profile 52-inch with 6000 MXP Codec is ideal when applications require multiple network interfaces directly from the codec, and users want definition up to 720p.

Specifications

Specification	Description
Video standards	H.261, H.263, H.263+, H.264
Audio standards	G.711, G.722, G.722.1, 64 bit & 128 bit MPEG4 AAC-LD, AAC-LD Stereo
Protocols	• H.323 • SIP

Selected Part Numbers and Ordering Information

For a full list of current part numbers, view the datasheet—http://www.cisco.com/en/US/products/ps11326/index.html

For More Information

http://www.cisco.com/en/US/products/ps10753/index.html

Cisco TelePresence MX200



In about 15 minutes, you can turn a conference room into a telepresence room and call team members to a meeting on a brilliant 42-inch screen. The Cisco TelePresence MX200 brings colleagues from around the world face to face as if they were in the same room—in a simple, cost-effective way.

The MX200 is designed and priced to bring the benefits of telepresence to more teams and meeting rooms. It's an ideal way to broadly deploy the Cisco TelePresence experience throughout your organization or make your first move into life-like video communications.

Auto-provisioning and the system's intelligent self-configuration help your IT department set up the MX200 on the network. It's as easy to install as a TV set: place it where you want it, plug it in, type in user credentials, and make your video call.

An intuitive interface simplifies the user experience. And users can initiate calls with the push of a single button.

Cisco manages service globally to provide a reliable experience and consistent support in more than 120 countries -- and to make large-scale global deployment of the MX200 a practical reality.

The MX200 puts meetings in a high-quality environment, offering:

- Support for up to vivid 1080p30 and 720p60 video resolution and HD content sharing
- Clear 1920 x 1080 resolution in a high-quality 42-inch display
- Integrated design provides a consistent high-quality video experience, regardless of room environment
- Optimal preset framing and video clarity from a PrecisionHD camera
- HD sound system with two front speakers deliver superior audio performance

Specifications

Specification	Description
Video standards	H.261, H.263, H.263+, H.264
Audio standards	G.711, G.722, G.722.1, 64/128 kbps MPEG4 AAC-LD, AAC-LD stereo
Protocols	• H.323 • SIP

Selected Part Numbers and Ordering Information

For a full list of current part numbers, view the datasheet—http://www.cisco.com/en/US/products/ps11776/index.html

For More Information

http://www.cisco.com/en/US/products/ps11776/index.html

Personal Endpoints

Cisco TelePresence EX Series



The Cisco TelePresence EX Series offers the new Cisco TelePresence EX60 and ever popular Cisco TelePresence EX90. This family of personal telepresence for the desktop lets you and your colleagues instantly collaborate face-to-face, whether you're separated by a hallway, a street, or several time zones. Access the features you need right from your desktop, with the touch of a finger.

The EX Series includes the Cisco TelePresence touch-screen interface, so you can make and manage telepresence calls with a simple glide of the finger. New enhancements bring even greater usability and simplicity to connecting and sharing content over telepresence.

The Cisco TelePresence EX Series offers a full high-definition 24-inch or 21.5-inch screen. You can use it as both a PC monitor and a telepresence system, giving you more flexibility at your desk.

Other features include:

- Simple touch-screen control that makes calling and sharing easy and intuitive
- 1080p30 and 720p60 video resolution for an optimal telepresence experience at the desk
- H.323 and Session Initiation Protocol (SIP) with bandwidth up to 6 Mbps point-to-point
- Natural, transparent collaboration with one-touch sharing of high-definition (HD) content, and a built-in document camera feature
- An included wideband handset, with an option to add a headset input for privacy

No matter what your role, the Cisco TelePresence EX Series will become an integral part of your workflow. It helps to enable faster decision making, enhances relationships, and improves efficiency.

Connect face-to-face whenever you need to, at a moment's notice, with Cisco TelePresence EX Series.

Specifications

Specification	Description
Video standards	H.261, H.263, H.263+, H.264
Audio standards	G.711, G.722, G.722.1, 64/128 kbps MPEG4 AAC-LD, AAC-LD stereo
Protocols	• H.323 • SIP

Selected Part Numbers and Ordering Information

For a full list of current part numbers, view the datasheet—http://www.cisco.com/en/US/products/ps11327/index.html

For More Information

http://www.cisco.com/en/US/products/ps11327/index.html

Cisco TelePresence Movi



Cisco TelePresence Movi extends the benefits of face-to-face video collaboration to remote workers.

Using an existing PC or Mac and a USB camera, team members at every level of an organization can stay visually connected in a highly secure and reliable, enterprisewide telepresence solution. At a moment's notice, workers can connect from home or on the road, whenever they need to collaborate.

Specifications

Specification	Description
Video standards	H.263, H.263+, H.264
Audio standards	G.711 A-law, G.711 ì-lawG, 722.1 24 kbps, G.722.1 32 kbps, MPEG4 AAC-LD 48 kHz
Protocols	· SIP · H.323 (via VCS interworking) · TCP/IP · TLS · RTP/RTCP · DTMF (in-band and out-of-band) · BFCP · H.239 (VCS H.323 Interworking) · H.281 (FECC) · ICE Support

Selected Part Numbers and Ordering Information

For a full list of current part numbers, view the datasheet—http://www.cisco.com/en/US/products/ps11327/index.html

For More Information

http://www.cisco.com/en/US/products/ps11327/index.html

Cisco TelePresence System 500 Series



Now you have more choices for extending the virtual in-person experience provided by Cisco TelePresence to the office of executives and team leaders. The Cisco TelePresence System 500 32-inch joins a 37-inch version to form the Cisco TelePresence System 500 Series.

Cisco TelePresence System 500 Series offers the same experience of three-screen meeting room solutions, but with a smaller footprint. This gives individuals the flexibility to join large, multilocation group meetings, or host intimate, remote one-on-one meetings from the personal office.

Specific features of Cisco TelePresence 500 Series systems include:

- Streamlined design that fits private offices for easy installation, requiring little-to-no room remediation and construction cost
- 1080p and 720p resolution on a premium 32-inch or 37-inch display with camera, microphone, speakers, and lighting fully integrated in an elegant design
- Capability of one or two users to join meetings, appearing life-size on Cisco TelePresence 3000, Cisco TelePresence T3, and other immersive endpoints, with full Cisco TelePresence audio and video quality
- Multipoint meetings with up to 48 screens supported in any combination of Cisco TelePresence endpoints
- Simple "one-button-to-push" calling that integrates with common enterprise calendaring programs

With the Cisco TelePresence System 500 Series, sharing content such as data or graphics is easy with presentation-in-picture. Add a second monitor that can be dedicated to viewing content.

The system also offers any-to-any interoperability with standard- and high-definition video conferencing endpoints and collaboration with desktop video applications. These include Cisco WebEx meeting applications and the Cisco Digital Media System.

- Off-call functions give you the flexibility to use it as secondary computer monitor, or to show video for digital signage
- Integration with the network helps ensure reliability with high availability, highly secure, and Quality of Service (QoS) for an optimal experience

Specifications

Specification	Description
Video standards	H.264, TelePresence Interoperability Protocol (TIP)

Audio standards	G.711 and AAC-LD (22 kHz)
Protocols	· Cisco Discovery Protocol · Session Initiation Protocol (SIP) · IP · Dynamic Host Configuration Protocol (DHCP), · Secure Shell (SSH) Protocol · IEEE 802.1p/q · Real-Time Transport Protocol (RTP)

Solutions Platform

Cisco TelePresence System Integrator C Series



Designed for integrators who specialize in telepresence installations, the Cisco TelePresence System Integrator C Series delivers a total telepresence engine. With an excellent level of video and audio across the product range, these codecs offer advanced APIs and industry-standard connectors for exceptional integration flexibility.

Products include:

- Cisco TelePresence Codec C40
- Cisco TelePresence Codec C60
- Cisco TelePresence Codec C90

Specifications

Specification	Description
Video standards	H.261, H.263, H.263+, H.264
Audio standards	G.711, G.722, G.722.1, 64 kbps & 128 kbps MPEG4 AAC-LD, AAC-LD Stereo
Protocols	· H.323 · SIP

Selected Part Numbers and Ordering Information

For a full list of current part numbers, view the datasheets—http://www.cisco.com/en/US/products/ps11422/index.html

For More Information

http://www.cisco.com/en/US/products/ps11422/index.html

Infrastructure

Call Control

Cisco TelePresence Video Communication Server



The Cisco TelePresence Video Communication Server extends the benefits of face-to-face video collaboration across networks and organizations by supporting any-to-any video and telepresence communications. This simple and scalable solution works with unified communications and voice-over-IP solutions, providing an optimal experience to users regardless of the devices they use.

The solution includes tools for large-scale installations and video network management, making deployment and management easier and cost-efficient. As organizations adopt telepresence for desktops and enable mobile workers with video, the Cisco TelePresence Video Communication Server supports highly scalable deployments.

Cisco TelePresence Video Communication Server Control (Cisco VCS Control) provides advanced telepresence applications and session management to all standards-compliant telepresence endpoints, infrastructure, and management solutions. Cisco VCS Control provides Session Initiation Protocol (SIP) proxy and H.323 gatekeeper services, enabling any-to-any interoperability between SIP and H.323 telepresence devices. Cisco VCS Control is a critical part of Cisco's unified call-control solution and is also critical for interoperability with third-party unified communications and IP telephony networks and voice-over-IP (VoIP) solutions.

Cisco TelePresence Video Communication Server Expressway (Cisco VCS Expressway) opens the world outside the firewall to organizations using video communications. Cisco VCS Expressway enables business-to-business communications, empowers remote and home-based workers, and allows service providers to provide video communications to customers. Cisco VCS Expressway provides standards-based and secure firewall traversal for SIP and H.323 devices and enables communication with the outside world regardless of SIP or H.323 protocol.

Selected Part Numbers and Ordering Information

For a full list of current part numbers, view the datasheet—http://www.cisco.com/en/US/products/ps11337/index.html

For More Information

http://www.cisco.com/en/US/products/ps11337/index.html

Conferencing

Cisco TelePresence MSE 8000 Series



Meet the mission-critical collaboration needs of large enterprises with the Cisco TelePresence MSE 8000 Series, an all-in-one multipoint control unit, ISDN and IP gateway, and recording solution. This highly scalable chassis-based platform is well suited for service providers seeking to offer their clients HD videoconferencing services.

The Cisco MSE 8000 Series is a high-density, high-capacity video bridge that supports large video conferences.

Optional feature blades:

- Cisco TelePresence Server MSE 8710: Up to 16 screens of HD telepresence conferencing
- Cisco TelePresence MCU MSE 8510: Up to 20 ports of HD video plus 20 ports of voice multipoint conferencing, or up to 80 ports of SD video multipoint conferencing
- Cisco TelePresence MCU MSE 8420: Up to 40 ports of SD video plus 40 ports of voice multipoint conferencing
- Cisco TelePresence IP GW MSE 8350: Up to 20 transcoding and 20 nontranscoding video calls
- Cisco TelePresence ISDN GW MSE 8321: Up to 8 E1 or T1 ISDN primary rate interfaces
- Cisco TelePresence VCR MSE 8220: Up to 10 ports of video recording with streaming server

Selected Part Numbers and Ordering Information

For a full list of current part numbers, view the datasheet—http://www.cisco.com/en/US/products/ps11340/index.html

For More Information

http://www.cisco.com/en/US/products/ps11340/index.html

Cisco TelePresence Server 7010



Bring together participants with high-definition (HD), standard-definition (SD), and telepresence endpoints with the Cisco TelePresence Server 7010. To facilitate the best possible user experience, the server intelligently recognizes system types. You can connect to up to nine screens or upgrade the system to support 16 screens. Increase the large-scale telepresence experience with a full-screen, immersive view of the primary speakers and an overlay of the other participants.

Features include:

- Multivendor telepresence interoperability
- Compatibility with major vendors´ video conferencing endpoints
- Versatile, easy-to-use management interface
- Compact size: 19-inch rack-mountable with two-rack-unit (2RU) height
- Cisco TelePresence Universal Port technology

Capabilities that help ensure a superior user experience:

- Supports single and multi-screen Cisco TelePresence systems
- Supports Polycom RPX and TPX telepresence systems
- Provides resolution enhancement
- Helps ensure an uninterrupted telepresence experience
- Supports OneTable and Room-Switched configurations.
- Integrates with Cisco TelePresence Management Suite

Features that facilitate high-quality telepresence:

- High-definition transcoding for participants
- ActivePresence support that allows the most active speakers to be seen continuously
- Consistent high capacity
- Additional wideband audio ports
- Up to 4 Mbps bandwidth per screen
- Advanced Encryption Standard (AES) encryption

Selected Part Numbers and Ordering Information

For a full list of current part numbers, view the datasheet—http://www.cisco.com/en/US/products/ps11397/index.html

For More Information

http://www.cisco.com/en/US/products/ps11397/index.html

Cisco TelePresence MCU 4500 Series



The Cisco TelePresence MCU 4500 Series is the industry's leading full high-definition multimedia conferencing bridge. It delivers superior video and voice with an easy-to-use, versatile management interface.

Compatible with all major vendors' endpoints, each model maintains its capacity and performance in every configuration, providing an optimal experience for each participant, every time.

The Cisco TelePresence MCU 4500 Series offers:

- Up to 1080p at 30 frames per second
- Full continuous presence for all conferences
- Full transcoding
- An ideal solution for mixed-vendor HD endpoint environments

Specifications

Specification	Description
Video standards	H.261, H.263, H.263+, H.263++, and H.264
Audio standards	G.711, G.722, G.722.1, G.723.1, G.728, G.729, MPEG-4 AAC-LC, MPEG-4 AAC-LD, and Polycom Siren14/G.722.1 Annex C
Protocols	H.323, SIP, H.235 (Advanced Encryption Standard [AES]), Secure Real-Time Transport Protocol (SRTP), Transport Layer Security (TLS), H.239 (dual video), VNC, Binary Floor Control Protocol (BFCP), H.243 (chair control), FTP, Real-Time Transport Protocol (RTP), (Real-Time Streaming Protocol (RTSP), HTTP, Secure HTTP (HTTPS), Dynamic Host Configuration Protocol (DHCP), Simple Network Management Protocol (SNMP), Network Time Protocol (NTP), NT LAN Manager (NTLM) (authentication), IPv4, and IPv6

Selected Part Numbers and Ordering Information

For a full list of current part numbers, view the datasheet—http://www.cisco.com/en/US/prod/collateral/ps7060/ps11305/ps11317/ps11341/data_sheet_c78-627482.html

For More Information

http://www.cisco.com/en/US/products/ps11341/index.html

Media Services

Cisco TelePresence ISDN Gateway



Organizations that use ISDN can now enjoy the benefits of high-definition video with the Cisco TelePresence ISDN Gateway. The Cisco TelePresence ISDN GW 3201 Series is a high-capacity and scalable gateway that grows with your business demands. It provides seamless integration between IP and ISDN networks with complete feature transparency, including high definition (HD), enabling organizations using ISDN to enjoy the benefits of HD videoconferencing.

This gateway also offers transparent communication with the Cisco TelePresence Video Communication Server for call control and firewall traversal.

Specifications

Specification	Description
Video standards	H.261, H.263, H.263+, and H.264
Audio standards	G.711, G.722, G.728, Polycom® Siren14™/G.722.1 Annex C
Protocols	H.323, H.320, H.233, H.234, H.235 (AES), H.239 (dual video), H.221, FTP, RTP, HTTP, HTTPS, DHCP, SNMP, NTP

Selected Part Numbers and Ordering Information

For a full list of current part numbers, view the datasheet—http://www.cisco.com/en/US/prod/collateral/ps7060/ps11305/ps11318/ps11344/data_sheet_c78-626475.html

For More Information

http://www.cisco.com/en/US/products/ps11448/index.html

Cisco TelePresence Advanced Media Gateway



Your organization can now use familiar business tools to collaborate in high definition across the enterprise with the Cisco TelePresence Advanced Media Gateway Series. These unified communications products help increase the value of your existing video and collaboration infrastructure. They connect to all standards-based video devices, including:

- Endpoints
- Multipoint control units
- Recording and streaming servers
- Telepresence servers

Combined with the Cisco TelePresence Video Communication Server, this series provides an innovative unified communications solution. This combination is the first network-centric solution to facilitate true high-definition communication between Microsoft Office Communications Server 2007 R2 users and standards-based telepresence and video-conferencing devices.

Specifications

Specification	Description
Video standards	RT Video, H.261, H.263, H.263+, and H.264
Audio standards	G.711, G.722, G.723.1, G.728, G.729, MPEG-4 AAC-LC, MPEG-4 AAC-LD, Polycom Siren7/G722.1, Polycom Siren14, and G.722.1 Annex C
Protocols	SIP, FTP, Real-Time Transport Protocol (RTP), HTTP, Dynamic Host Configuration Protocol (DHCP), Simple Network Management Protocol (SNMP), and Network Time Protocol (NTP)

Selected Part Numbers and Ordering Information

For a full list of current part numbers, view the datasheet—http://www.cisco.com/en/US/prod/collateral/ps7060/ps11305/ps11318/ps11345/data_sheet_c78-625364_ps11449_Products_Data_Sheet.html

For More Information

http://www.cisco.com/en/US/products/ps11449/index.html

Management

Cisco TelePresence Management Suite



Cisco TelePresence Management Suite is a scalable, easy-to-use, and reliable system that provides complete visibility and control for administrators while providing a simplified telepresence experience for end users. The Cisco TelePresence Management Suite provides one management platform for all your visual communication needs. Making the system easier to use results in greater adoption of telepresence and better collaboration throughout your organization. Cisco TelePresence Management Suite improves the return on investment for your entire telepresence deployment.

The Cisco TelePresence Management Suite provides:

- Asset Management tools that scale and centralize device management and upkeep
- Monitoring and diagnostics tools for raising alarms, reducing response times, and improving reliability
- Easy-to-use telepresence scheduling with multiple choices of interface
- The Conference Control Center offering real-time operator controls and conference management
- Centralized directories for provisioning, authentication, and phone books
- Advanced reporting for tracking usage

The Cisco TelePresence Management Suite is available as a software package for large-scale deployment and as an appliance server for small-to-midsize installations.

Selected Part Numbers and Ordering Information

For a full list of current part numbers, view the datasheet—http://www.cisco.com/en/US/prod/collateral/ps7060/ps11305/ps11316/ps11338/data_sheet_c78-628598.html

For More Information

http://www.cisco.com/en/US/products/ps11338/index.html

Cisco TelePresence Manager



Interact and collaborate across remote locations using high-definition video, advanced audio, and a finely tuned environment. Cisco TelePresence delivers life-size, immersive face-to-face experiences over the Internet. It's also simple to use and manage.

Cisco TelePresence Manager software makes it easy to schedule, initiate, and manage Cisco TelePresence experiences. As an integral part of the Cisco TelePresence solution, this software facilitates call scheduling and setup from common enterprise groupware such as Microsoft Exchange and Lotus Notes so that starting meetings is as simple as pushing a single button.

Cisco TelePresence Manager helps extend the full value of Cisco TelePresence by:

- Managing conference resources for the various Cisco TelePresence meeting types: point-to-point, multipoint, interoperability, Cisco TelePresence WebEx OneTouch, and intercompany
- Providing administrators and help desk staff with system connectivity and management dashboards for reporting
- Delivering usage, productivity, and return on investment (ROI) reporting to give IT managers data that helps them justify their Cisco TelePresence investment
- Helping reduce total cost of ownership by integrating with existing infrastructure

In addition to making it easy to schedule calls, which minimizes both training and support, Cisco TelePresence Manager also offers:

- Ability to launch calls by pushing a single button
- Integration with Cisco WebEx Meeting Center for integrated scheduling and call initiation
- Flexibility to integrate more enterprise resource scheduling interfaces into Cisco TelePresence Manager using an API
- Tools for concierge and help desk staff to troubleshoot Cisco TelePresence meetings

Compatible with common groupware applications including Microsoft Exchange and Lotus Notes Domino, Cisco TelePresence Manager provides a web-based user interface that simplifies system administration. It also:

- Optimizes resource allocation for multipoint calls
- Consolidates views of scheduled meetings with an API for ROI reporting
- Integrates with Cisco Unified Communications Manager (UCM) or Cisco TelePresence Video Communication Server (VCS) for call control

Specifications

Specification	Description
Protocols	HTTP and Secure HTTP (HTTPS) for administrative, XML (AXL), or Simple Object Access Protocol (SOAP), Simple Network Management Protocol (SNMP), WebDev, Enterprise Web Services (EWS), and a scheduling and reporting API

Selected Part Numbers and Ordering Information

For a full list of current part numbers, please view the datasheet—http://www.cisco.com/en/US/prod/collateral/ps7060/ps8329/ps8331/ps7074/product_data_sheet0900aecd805455ff.html

For More Information

http://www.cisco.com/en/US/products/ps7074/index.html

Cloud Services

Cisco TelePresence Exchange System



The Cisco TelePresence Exchange System is an integrated telepresence and video service-creation platform that can help service providers and strategic partners create and manage secure, cloud-based, hosted and managed video collaboration services.

The Cisco TelePresence Exchange System is a feature-rich platform that offers the following features and benefits:

- System management and scalability
  - Multitenancy—Service providers can support multiple business customer organizations from a single Cisco TelePresence Exchange System deployment. The system segments organization information and policy control for business-to-business communication and conferencing services.
  - Optimized call routing—The system optimizes call routing for endpoints and network bandwidth to improve network economics and user experience across geographies and across service provider networks. The meeting-scheduling APIs also allow third-party applications to intelligently instruct the system to host meetings using the resources closest to the majority of the session participants.
  - Resource management and pooling—The Cisco TelePresence Exchange System manages the allocation of media resources for scheduled and reservationless conferencing services. By clearly separating the service-control components from the media-processing components, the system can

consistently implement a pooling resource-management strategy for all media resources, including Cisco TelePresence Multipoint Switches, multipoint control units (MCUs), and interactive-voice-response (IVR) systems. The net result is a fully redundant solution where the system always selects the most available resource to handle a session in real time, so that even when a media resource failure affects existing sessions and meetings, as long as additional media resources are available the affected parties will be able to redial and continue from where their conversation was terminated.

In addition, the health of every resource is continuously monitored. The Cisco TelePresence Exchange System proactively takes a faulty resource out of service to avoid possible effects on service availability. The system exposes these fault conditions through its administration and Simple Network Management Protocol (SNMP) interfaces so that service providers can capture these events and produce appropriate alarms.

- Multiregion support—Service providers can distribute media resources into different geographical regions. They can segregate customers and endpoints based on the region they are in. In addition, they can schedule meetings based on the region where most customers reside to optimize resource usage.
- Exchange management—The Cisco TelePresence Exchange System offers service providers a comprehensive management solution. Solution-management interfaces include SNMP, a web-based management and provisioning administrator portal, and flow-through provisioning options for some media elements such as the Cisco TelePresence MCU MSE 8510 and Cisco TelePresence Server MCUs. Over time the flow-through provisioning capabilities of the product will expand to other network and media elements in order to support the service scale.
- Call detail records (CDRs)—The Cisco TelePresence Exchange System is a centralized control point for management, billing, and administration. The system provides real-time CDRs for all calls traversing the exchange solution. With a single point of collection for call information, service providers can easily aggregate and correlate call information from multiple sources to facilitate the billing and revenue settlement process with their customers and other service provider partners.
- Open APIs—The Cisco TelePresence Exchange System enables further integration of third-party and internally developed applications to deliver customized meeting experiences and industry applications for Cisco TelePresence collaboration systems. For example, the scheduling API enables a third-party scheduling application to schedule, modify, or cancel point-to-point and multipoint meetings. Depending on the types of endpoints joining a meeting, the appropriate media resources are selected from the media resource infrastructure, optimizing performance, minimizing conferencing port costs, and simplifying the user experience.

- Services and customer experience
  - One-button-to-push experience—The Cisco TelePresence Exchange System preserves ease-of-use features such as one-button-to-push session initiation. The system automatically provisions endpoints hosted in the service provider cloud with the one-button-to-push information necessary to either directly dial another endpoint or authenticate and join a prescheduled multipoint conference without any need for additional user interaction.
  - Conferencing—The system offers a prepackaged multimedia meet-me conferencing service enabler that uses instances of Cisco TelePresence Multipoint Switches and Cisco TelePresence MSE 8000 MCUs to deliver full endpoint interoperability while minimizing total cost per port. It supports a scheduled and impromptu paradigm with a dial-in and dial-out model to allow service providers to properly tailor the service based on their customers' needs. It also takes advantage of the internal VoiceXML engine of the system to create a pool of IVR instances in the scenarios where it is necessary to interact with the end user for authentication and user notification.
  - Business-to-business communication—The system is designed to securely support multipoint and point-to-point calls across enterprise and service provider boundaries. It can route scheduled and impromptu point-to-point calls between different organizations through the service provider cloud using an internal number routing database.
  - Interoperability services—The system supports network-based Cisco TelePresence interoperability with traditional video systems or other telepresence solutions using the Cisco TelePresence MSE 8000 Series in a multitenant architecture for optimum service scalability and reach.
  - Interprovider communication—The system conforms to a policy and resource-management framework for interprovider connectivity. It facilitates the process by which service providers can peer with other service provider partners' networks with the intent of increasing the service reach for their business customers while maintaining a consistent user experience across enterprise and service provider boundaries.

Specifications

Specifications	Description
System management	Cisco TelePresence Exchange Administrator user interface Secure Shell (SSH) Protocol command-line interface (CLI)
Performance and scalability	• Up to 2400 concurrent telepresence sessions • Up to 40 telepresence sessions per second in sustained mode • Up to 10 scheduling or billing API requests per second in sustained mode
Reliability and availability	Fully redundant multitiered system with every tier in either an active-active or active-standby configuration
Alarms and reporting	• Resource MIBs support to enable easy monitoring of solution components • Platform MIBs support to enable hardware-level monitoring • Event reporting on the Cisco TelePresence Exchange user interface to enable easy troubleshooting

Supported Cisco and third-party endpoints	Cisco TelePresence System 3010, System 3200, System 1100, System 1300, and System 500; Cisco TelePresence System Profile 42-inch and System Profile 52-inch; Cisco TelePresence System EX90 and System EX60; Cisco TelePresence System Codec C20, System Codec C40, and System Codec C60; and Cisco IP Video Phone E20 Standards-based SIP, H.323 telepresence standard, and standard- and high-definition (SD and HD, respectively) video endpoints
Protocol Family	
SIP	Support for SIP RFCs 2543 and 3261
Simple Object Access Protocol (SOAP) and HTTP	Support for SOAP- and HTTP-based Web Services API for integration with scheduling and billing systems
H.323	H.323 support, achieved using Cisco Unified Border Element (SP Edition) (CUBE-SP) for interop dialout
SNMP	SNMPv2c, SNMPv3, and SNMP Traps
Cisco Discovery Protocol	Full support, including neighbor discovery (and SNMP support) and Cisco Discovery Protocol advertisement
MIBs	CISCO-CDP-MIB; CISCO-SYSLOG-MIB; IF-MIB; IP-MIB(v2); RFC1213-MIB; SNMPv2-MIB; TCP-MIB; UDP-MIB; SNMP-FRAMEWORK-MIB; SNMP-MPD-MIB; SNMP-VACM-MIB (SNMP-VIEW-BASED-ACM-MIB); SNMP-NOTIFICATION-MIB; SNMP-TARGET-MIB; SNMP-USER-BASED-SM-MIB; HOST-RESOURCE-MIB; IBM-SYSTEM-AGENT-MIB; IBM-SYSTEM-ASSETID-MIB; IBM-SYSTEM-HEALTH-MIB; IBM-SYSTEM-LMSENSOR-MIB; IBM-SYSTEM-MEMORY-MIB; IBM-SYSTEM-MIB; IBM-SYSTEM-NETWORK-MIB; IBM-SYSTEM-POWER-MIB; IBM-SYSTEM-PROCESSOR-MIB; IBM-SYSTEM-RAID-MIB; IBM-SYSTEM-TRAP-MIB
Cisco TelePresence Exchange System Hardware and Environmental Specifications	
Components	Six Cisco TelePresence Exchange System servers (based on IBM x3650m2 architecture)
Connectivity	Two Gigabit Ethernet RJ-45 ports
Memory	8 GB on each server
Physical dimensions (H x W x D)	Six servers, each 2 rack units (2RU): 1.7 x 17.3 x 28.0 in. (711.4 x 43 x 440 mm)
Power	Rated six servers, each 675W Total rated: 4050W
Temperature range	50 to 95°F (10 to 35°C)
Approvals and compliance	U.S.: Safety: UL60950-1 2nd edition 21CFR1040 EMC: FCC Part 15/CISPR22 Class A

For More Information

http://www.cisco.com/go/ctx

Cisco TelePresence Callway



Cisco TelePresence Callway is a hosted, subscription based high-definition telepresence and voice collaboration service to enable small and midsized business to get started with Cisco TelePresence. The service was designed to address challenges that growing businesses in the face in managing the cost and complexity of deploying Cisco TelePresence infrastructure for small deployments.

Cisco TelePresence Callway allows smaller businesses to purchase Cisco TelePresence endpoints and subscribe to hosted infrastructure service for point to point and multipoint calling for intracompany and secure intercompany calling over an existing broadband internet connection.

Cisco TelePresence Callway is sold as a subscription service through a select set of qualified Cisco Callway resellers targeting the commercial space.

Service Specification	
Service Capabilities	· Unlimited video calling to all Cisco TelePresence Callway and standards-based endpoints (SIP, H.323, IP addresses) · Unlimited inbound voice calls · Unlimited outbound domestic (US) voice calls (optional feature) · Hosted multipoint calls with Cisco TelePresence Callway provided 'MeetMe' conferencing service (optional feature) · Unique local phone number for both video and voice use

Service Options	· Cisco TelePresence Callway Movi subscription · Cisco TelePresence Callway Basic subscription · Cisco TelePresence Callway Premium subscription · Cisco TelePresence Callway MeetMe option · Cisco TelePresence Callway VOIP option
Subscriber Endpoint Options	· Desktop and Personal endpoints · Cisco TelePresence Movi · Cisco IP Video Phone – E20 · Cisco TelePresence System EX Series · Multipurpose endpoints · Cisco TelePresence System Profile · Cisco TelePresence System Quick Set C20 or Codec C40
Geographic Availability	US

For More Information

http://www.callway.com

Peripherals

Cisco TelePresence Touch

Experience the innovative unified user interface that enables you to access Cisco TelePresence intuitively. Make and manage video calls, share content, and access advanced features--all with the simple touch of a finger.

The interface comes in three models, optimally designed for Cisco endpoints. The models come in 8-inch, 12-inch, or 23-inch sizes.


Cisco TelePresence Touch 8-Inch


Cisco TelePresence Touch 12-Inch


Cisco TelePresence Touch 23-Inch

You'll quickly see how easy and effortless the Cisco TelePresence Touch Series is to use:

- Simple setup—Connect to the network with just one cable
- Short learning curve—Clear, context-based interaction
- Ease of connection—Select from list of video endpoints
- Transparent collaboration—Select the device or content you want to share
- Consistent experience—Standard user interface, no matter what model you are using

Selected Part Numbers and Ordering Information

For a full list of current part numbers, view the Touch datasheet—http://www.cisco.com/en/US/prod/collateral/ps7060/ps11307/ps11336/data_sheet_c78-646041.html

For More Information

http://www.cisco.com/en/US/products/ps11336/index.html

Industry Solutions—Healthcare

Cisco TelePresence System Clinical Presence

Designed by medical professionals, the Cisco TelePresence System Clinical Presence is a telemedicine solution that is ideal for a variety of clinical video applications. Clinical Presence connects clinicians with patients, staff, and each other using powerful telepresence technology integrated with features and functionality optimized for a healthcare setting.



Clinical Presence helps maximize quality, mobility, and ease of use for a telemedicine environment. You can customize it to your requirements with a wide variety of choices:

- AC or rechargeable battery power
- Single or dual-monitor configuration
- Additional options including:
  - 802.11B/G Wireless Ethernet
  - Storage modules for medical devices, laptops, PCs, keyboards, and light sources
  - Adjustable scope holders
  - Ancillary storage pods
  - Disposable splash guard

Clinical Presence, powered by the C40 Codec, features 1080p30 high-definition video, full duplex audio, multi-site with individual transcoding, and HD collaboration content sharing. The system includes a 24-inch 1080P LCD display and a PrecisionHD optical

zoom camera with full pan-tilt-zoom capabilities that can be controlled remotely. The Clinical Presence is fully certified and compliant to IEC 60601-1-2 standards for equipment used in a medical setting.

Several features help enable you to adapt the system to any clinical situation:

- Precise electronic height adjustment to quickly and easily adjust the platform, monitor, and camera to the desired height
- Rotating camera and display assembly to accommodate viewing at different angles and enhance ease of transport
- Dedicated high-output audio amplifier and speakers for environments where there is a high-level of ambient noise
- Four hospital-grade AC outlets to power peripheral devices
- Multiple audio, video, and high-resolution inputs and outputs

Clinical Presence is easily controlled with an intuitive, tactile membrane user interface on the front panel or with the standard remote control.

For more information, visit http://www.cisco.com/en/US/products/ps11417/index.html

Cisco TelePresence System Intern MXP



The Cisco TelePresence System Intern MXP provides interactive video communication that you can move to wherever it's needed. It is ideal for applications such as healthcare, emergency response, homeland security, and manufacturing.

The Intern MXP comes with a 24-inch LCD display and is powered by the Cisco TelePresence Edge MXP communication system and Cisco TelePresence.

The compact IV-stand unit includes a shelf and a basket that make it easy to connect a laptop, medical imaging equipment, and other peripherals.

With the Intern MXP, you can:

- Join up to four video and three audio sites with embedded multisite functionality
- Share records or images live through a one-step PC plug-in (PC Presenter) or LAN connection (PC Soft Presenter)
- View records or images and an offsite expert or audience simultaneously with H.239 Dual Stream
- Take advantage of Expressway technology for firewall traversal

Performance features include:

- Choice of network: Up to 512 kbps ISDN or external network (H.320) / 2 Mbps IP (H.323 or SIP)
- Superior video quality incorporating the H.264 standard
- Standards-based embedded encryption to meet HIPAA compliance for patient confidentiality regardless of network type
- Tested and listed to UL 2601-1 and CSA 601.1 regulatory standards for approval in patient contact environments
- PC card slot for wireless LAN connection

For more information, visit http://www.cisco.com/en/US/products/ps11414/index.html

Industry Solutions—Education

Cisco TelePresence Synch



Expand educational opportunities and maximize your investment in telepresence and whiteboard technologies with Cisco TelePresence Synch.

This revolutionary technology transparently integrates supported interactive whiteboards with speakers and Cisco TelePresence C Series or MXP endpoints. Synch effectively converts a standard interactive whiteboard into a powerful multifunction collaboration tool that brings together live and remote experts and classrooms.

Interactive whiteboards increase learner participation and allow students to interact with dynamic content. But in the past, adding a video call was difficult and cumbersome.

Now with Cisco TelePresence Synch, you can add a video call with no loss of functionality on the whiteboard. And you can easily bring in an expert, a remote location, or even another class to the learning experience through telepresence.

Educators and presenters can integrate live telepresence sessions with any collaboration application such as WebEx, running on the presenter or teacher's computer.

With a touch of a finger, Cisco TelePresence Synch automatically calibrates changes in the application windows running on a computer with the whiteboard and the telepresence content. As a result, the entire whiteboard can be used as an integrated display as well as a new way to collaborate.

For more information, visit http://www.cisco.com/en/US/products/ps11653/index.html

Cisco TelePresence System Educator MXP



If your room includes monitors, carts, and peripherals, the Cisco TelePresence System Educator MXP is an ideal solution that can integrate with your existing configuration

Instructors can use the intuitive 12-inch color video touch panel to control video calls and multiple peripherals such as cameras, PCs, and DVDs. The Cisco TelePresence Educator MXP includes:

- Applications Module MXP that includes the Cisco TelePresence System Codec 6000 MXP, NPP software, and a controller
- High bandwidth—Up to 4 Mbps on IP, 4 Mbps on SIP, 2 Mbps on H.320, and 6 Mbps total with MultiSite functionality
- An industry-leading wide-angle camera with extensive zoom, pan, and tilt

Multiple options are available, including instructor podiums, locator mats, and a variety of microphone products.

Cisco TelePresence System Educator MXP features:

- Simultaneous views of presentations and presenters with optional DuoVideo or H.239 on single or dual monitors
- Expressway technology
- Superior video quality incorporating the H.264 standard
- True CD-quality audio
- Standards-based embedded encryption (AES and DES
- Automatic downspeeding and IPLR

For more information, visit http://www.cisco.com/en/US/products/ps11416/index.html

Cisco TelePresence Services

Services from Cisco and our partners enable you to realize the full business value of your TelePresence technology investments by harnessing the network as a powerful business platform—a platform enabled by smart, personalized services that solve your toughest business challenges.

For more information on Cisco TelePresence Services, visit http://www.cisco.com/go/services/telepresence

Infrastructure and Other

Cisco Unified Application Environment

Cisco Unified Application Environment offers an increasingly rich portfolio of ready-to-use packaged applications that deliver immediate out-of-box value and custom development tools that allow clients to transform their business by integrating unified communications into other business applications as well as build their own custom applications.

Key Features and Benefits

- A rich portfolio of packaged applications available today, with more being added each month. These applications span a wide variety of markets; some are designed for specific industries such as retail and healthcare, whereas others are applicable to all industries.
- These automated test tools perform functional, load, system, and regression tests to reduce test cycles and increase the success rate of project completion.
- This set of application lifecycle management tools standardizes, centralizes, and automates management of all unified communications applications.
- A standard applications container facilitates development, quality assurance, and operations to collaboratively manage scalability, performance, and reliability of all unified communications applications.
- The solution summarizes implementation differences across products and versions to minimize interoperability challenges, so customers can upgrade their unified communications infrastructure without breaking their applications.
- Increased support for integrated development environments including Eclipse and Microsoft Visual Studio, allows web and enterprise developers who lack telephony skills to easily and rapidly develop feature-rich applications.

Specifications

Components	Cisco Unified Application Environment
Cisco Unified Application Designer	The Cisco Unified Application Designer is a visual integrated development environment (IDE). Without learning the complex details of telephony protocols, developers with little or no Unified Communications development expertise can use the Cisco Unified Application Designer to easily and rapidly develop rich applications that converge voice and video with enterprise applications and data.

Cisco Unified Application Server	The Cisco Unified Application Server is an application server for converged voice, video and data applications. It abstracts the complexity of telephony protocols, protects the reliability of the IP call processing system from the applications, and provides a standard way to manage applications.
Cisco Unified Media Engine	The Cisco Unified Media Engine is a software-only media server. It provides ready-to-use and sophisticated media processing capabilities for all applications built using the Cisco Unified Application Designer.

Selected Part Number and Ordering Information

Configuration and ordering of Cisco Unified Application Environment products can be complicated because of the arbitrary and highly variable nature of the application developed. Please consult your Cisco account team or channel partner if you have any configuration, ordering and pricing questions.

For More Information

http://www.cisco.com/en/US/netsol/ns738/networking_solutions_package.html

Cisco UC Integration for Microsoft Office Communicator

Instantly access enhanced Cisco Unified Communications directly from Microsoft Lync and Microsoft Office Communicator on your PC. With this easy-to-deploy desktop integration, extend proven Cisco unified communications services to your workspace and benefit from the investment protection and reduced complexity delivered by a single call control solution. The solution extends the presence and instant messaging (IM) capabilities of Microsoft Lync and Microsoft Office Communicator (MOC) by providing access to a broad set of Cisco Unified Communications capabilities, including softphone standards-based video, unified messaging, audio, video and web conferencing, desk-phone control, and phone presence.

Ideal for Companies That Need these Features

Cisco UC Integration for Microsoft Office Communicator	• Existing or prospective Cisco Unified Communications Manager customers with existing investments in Microsoft Office Communications Server (OCS) seeking to enable real-time UC experience from existing Microsoft Office Communicator presence & IM client.

Key Features and Benefits

- Integrated Cisco IP softphone—Click to call directly from your desktop to have a business-class communication experience with embedded Cisco IP softphone.
- Cisco IP phone quality & rich mid-call control—Have a business-class desktop communications experience with the quality and reliability that you experience with your Cisco IP deskphone in the office.
- Deskphone control—Simply click to make or answer business calls through your desk phone using its calling features & resources to have a rich communications experience.
- Phone presence—Adds telephony presence to your contact list - providing additional information on when the contact might be available.
- One click voice messages & communications history access—With a mouse click, access your corporate voice messages and communications history and rapidly respond to voice messages or missed calls.
- Impromptu multiparty conferencing—If you need to initiate an impromptu collaboration session with multiple contacts on your contact list, you can also initiate multiparty conference calls from your desktop and quickly add additional participants.

For More Information

Cisco UC Integration for Microsoft Lync—http://www.cisco.com/en/US/products/ps11390/index.html

Cisco UC Integration for Microsoft Office Communicator—http://www.cisco.com/en/US/products/ps10317/index.html

Cisco Unified Communications 500 Series

The Cisco Unified Communications 500 Series for Small Business is an affordable unified communications appliance that provides voice, data, voicemail, automated attendant, video, security, and wireless capabilities while integrating with existing desktop applications such as calendar, email, and CRM programs. This easy-to-manage platform supports up to 104 IP phones and voice mailboxes and provides flexible deployment options based on your needs, with a wide array of IP phones, PSTN interfaces, and Internet connectivity options.

Key Features and Benefits

- Robust legacy telephony features, including directory, paging, intercom, call coverage, call park, music on hold (MoH), night bell, hunt groups, direct inward dialing, and ad hoc and meet-me conferencing
- Support for Cisco Smart Business Productivity Applications (Cisco TimeCardView, Cisco WebEx® PhoneConnect, and Single Number Reach)
- Support for multisite deployments
- System monitoring through third-party partner monitoring software and services
- Support for the Cisco Unified IP Phones 7900 Series and Cisco SPA 500 Series IP Phones
- Cisco MonitorView, enabling employees to speak to and see someone in an unattended lobby from a Cisco SPA 525G phone

Specifications

Cisco Unified Communications 520						
Part Number	**IP Phones**	**IP Phones Upgradable to**	**FXO/FXS**	**T1/E1 Support**	**BRI Support**	**Integrated Wireless**
UC520-8U-4FXO-K9	8	16	4/4	No	No	No
UC520W-8U-4FXO-K9	8	16	4/4	No	No	Yes
UC520-8U-2BRI-K9	8	16	0/4	No	2	No
UC520W-8U-2BRI-K9	8	16	0/4	No	2	Yes
UC520-16U-4FXO-K9	16	24	4/4	No	No	No
UC520W-16U-4FXO-K9	16	24	4/4	No	No	Yes
UC520-16U-2BRI-K9	16	24	0/4	No	2	No
UC520W-16U-2BRI-K9	16	24	0/4	No	2	Yes
UC520-24U-8FXO-K9	24	32/48	8/4	No	No	No
UC520-24U-4BRI-K9	24	32/48	0/4	No	4	No
UC520-32U-8FXO-K9	32	48	8/4	No	No	No
UC520-32U-4BRI-K9	32	48	0/4	No	4	No
UC520-48U-8FXO-K9	48	64	12/4	No	No	No
UC520-48U-6BRI-K9	48	64	0/4	No	6	No
UC520-48U-T/E/F-K9	48	64	4/4	1	No	No
UC520-48U-T/E/B-K9	48	64	0/4	1	2	No
Cisco Unified Communications 540 and 560						
UC560-FXO-K9	16	104	4/4	No	No	No
UC560-BRI-K9	16	104	0/4	No	2	No
UC560-T1E1-K9	16	104	4/4	1	No	No
UC540W-FXO-K9	8	32	4/4	No	No	Yes
UC540W-BRI-K9	8	32	0/4	No	2	Yes

Selected Part Numbers and Ordering Information

UC520-8U-FXO/BRI or UC520W-8U-FXO/BRI	Unified Communications (UC) 500 Series Model 520 with 8 User Licenses for UC and integrated messaging, 4 Foreign Exchange Office (FXO) or 2 Basic Rate Interface (BRI) ports, 8 Power over Ethernet (PoE) 10/100 Ethernet ports, 1 VIC slot. Optional integrated wireless.
UC520-16U-FXO/BRI or UC520W-16U-FXO/BRI	UC 500 Series Model 520 with 16 User Licenses for UC and integrated messaging, 4 FXO or 2 BRI ports, 8 PoE 10/100 Ethernet ports, 1 VIC slot. Optional integrated wireless. Up to 16 employees.
UC520-24U-FXO or UC520-24U-BRI	UC 500 Series Model 520 with 24 User Licenses for UC and integrated messaging, 8 FXO or 4 BRI ports, 8 PoE 10/100 Ethernet ports, 1 VIC slot. Up to 64 employees.
UC520-32U-FXO or UC520-32U-BRI	UC 500 Series Model 520 with 32 User Licenses for UC and integrated messaging, 8 FXO or 4 BRI ports, 8 PoE 10/100 Ethernet ports, 1 VIC slot. Up to 64 employees.
UC520-48U-FXO or UC520-48U-BRI	UC 500 Series Model 520 with 32 User Licenses for UC and integrated messaging, 12 FXO or 6 BRI ports, 8 PoE 10/100 Ethernet ports, 1 VIC slot. Up to 64 employees.
UC520-48U-T/E/F or UC520-48U-T/E/B	UC 500 Series Model 520 with 32 User Licenses for UC and integrated messaging, T1, 8 PoE 10/100 ports, 1 VIC slot. Up to 64 employees.
UC540W-FXO-K9	UC 500 Series Model 540 with 8 User Licenses for UC and integrated messaging, 4 FXO ports, 8 PoE 10/100 Ethernet ports, integrated wireless, and 1 voice interface card (VIC) slot. Up to 32 employees.
UC540W-BRI-K9	UC 500 Series Model 540 with 8 User Licenses for UC and integrated messaging, 2 BRI ports, 8 PoE 10/100 Ethernet ports, integrated wireless, and 1 VIC slot. Up to 32 employees.
UC560-FXO-K9	UC 500 Series Model 560 with 4 FXO, 4 Foreign Exchange Service (FXS), and 2 VIC expansion slots. Up to 104 employees.

UC560-BRI-K9	UC 500 Series Model 560 with 2 BRI, 4 FXS, and 2 VIC expansion slots. Up to 104 employees.
UC560-T1E1-K9	UC 500 Series Model 560 system with 4 FXO, 4 FXS, 1 T1/E1 and 1 VIC expansion slot. Up to 104 employees.

For More Information

http://www.cisco.com/go/uc500

Cisco Unified Communications on the Cisco Unified Computing System



The Cisco Unified Computing System is our next-generation integrated data center system designed to streamline data center operations. Optimized to run on the Cisco Unified Computing System, Cisco Unified Communications can provide new levels of performance, lower cost of ownership, and increased operational productivity. Cisco Unified Communications on the Cisco Unified Computing System is composed of Cisco Unified Communications applications running in a virtualized environment, consisting of VMware software, Cisco Unified Computing System servers, and Fibre Channel storage-area-network (SAN) storage.

Primary capabilities include:

- Deployment flexibility for easy adaptation to your business, improving productivity and resource use
- Improved total cost of ownership, with fewer infrastructure components to purchase and fewer elements to manage
- Scalability so that you can add more software and services without increasing cooling, power, space, or cabling costs
- Management tool consolidation, so administrators can use familiar single tools or sets of tools, reducing operating costs
- Simpler installation and upgrades through service profiles, virtual machines, and centralized management

For More Information

http://www.cisco.com/go/uconucs

Cisco Unified Border Element

The Cisco Unified Border Element (CUBE) is Cisco's enterprise-focused session border controller. The Cisco Unified Border Element, in addition to other Cisco IOS Software features, includes session border controller (SBC) functions that enable end-to-end IP-based transport of voice and video traffic between independent unified communications networks in a secure and manageable manner. SBCs are critical components for scaling unified communications networks from being "IP islands" within a single customer network to becoming an end-to-end IP community. One of the most significant uses of the Cisco Unified Border Element is to allow call control elements such as Cisco Unified Communications Manager to connect to service providers for public-switched-telephone-network (PSTN) access offerings over Session Initiation Protocol (SIP) trunks. Today, the Cisco UBE is used as an IP-to-IP gateway by service provider, enterprise, and commercial customers to interconnect SIP and H.323 voice, video and TelePresence networks.

Ideal for Companies That Need These Features

Cisco Unified Border Element	• Session management—Counts and manages the number of sessions flowing through a router • Interworking—Interconnects different signaling methods and variants • Demarcation—Acts as a distinct demarcation point between the two networks • Security—Acts as a Layer 7 device that intelligently allows or disallows traffic between networks

Key Features and Benefits

The Cisco Unified Border Element delivers the following features and benefits:

- Essential voice and video network border security features
- Privacy features for hiding internal network address structure from other administrative domains
- Layer 7 application layer gateway features
- Interworking features for interconnecting different voice-over-IP (VoIP) network types, such as H.323-to-SIP
- Dual tone multifrequency (DTMF) interworking and conversion
- Transcoding from one codec to another to allow interoperability between endpoints without a common codec
- Call admission control to protect the enterprise network from being overwhelmed by external call volume
- Codec negotiation and filtering by restricting codecs advertised on outbound call legs
- Billing and call detail records
- Simultaneous operation with TDM gateways on Cisco integrated service routers, permitting graceful migration from TDM to IP trunking
- Offering protocol conversion between H.323 and SIP
- Providing SIP trunk toll fraud protection

- Secure enterprise interconnect demarcation for a Service Provider SIP trunk
- Simultaneous operation with Survivable Remote Site Telephony to provide failover PSTN access
- Support for Lawful Intercept capabilities
- Configurable Session Initiation Protocol (SIP) trunk header manipulation features
- Available in various licensing configurations to match customer capacity and price-point needs

Selected Part Numbers and Ordering Information

FL-CUBE-25(=)	Feature license applicable to any Cisco 2800 or 3800 IOS platforms for 25 simultaneous calls
FL-CUBEE-1000(=)	Feature license applicable to any Cisco IOS 2900 or 3900 platforms for1000 simultaneous calls
FLASR1-CUBEE-4KP	Feature license applicable to any Cisco IOS ASR 1000 platforms for4000 simultaneous calls
FL-INTVVSRV-5X(=)	Cisco AS5350XM & AS5400XM Integrated Voice Video License: IP-to-IP Gateway

For More Information

http://www.cisco.com/en/US/products/sw/voicesw/ps5640/index.html

Cisco Analog Voice Gateways



Cisco voice gateways support traditional analog devices (analog phones, fax machines, and so on) while taking advantage of the new capabilities of Unified Communications.

Cisco VG200 Series Gateways provide:

- High-density gateways for centralized deployments of analog phones, fax machines, modems, voicemail systems, and speakerphones
- Low-density gateways for distributed deployments of analog phones, fax machines, modems, and speakerphones
- A broad range of features for enterprise voice systems based on Cisco Unified Communications Manager or Cisco Unified Communications Manager Express

Cisco offers the Cisco VG202 and VG204 (low density), the Cisco VG224, and 112-FXS Bundle (high density) dedicated analog voice gateways. The full line of Cisco access and integrated routers can also add analog and digital voice gateway functions through the use of network modules and voice interface cards.

Ideal for Companies That Need These Features

Cisco VG202 2-Port and VG204 4-Port Analog Phone Gateway	• Skinny Client Control Protocol (SCCP), Media Gateway Control Protocol (MGCP), Session Initiation Protocol (SIP), or H.323 support for analog ports • Cost-effective, desktop form factor with a fanless design, FXS interfaces for Cisco Unified Communications Manager Express (CME) or Cisco Unified Communications Manager applications
Cisco VG224 24-Port Analog Phone Gateway	• SCCP, MGCP, SIP, or H.323 support for analog ports • Cost-effective, 1-rack unit (1RU), FXS interfaces for Cisco Unified CME or Cisco Unified Communications Manager applications • High concentration of analog voice ports for basic calls, with supplementary services such as transfer, hold, park, and pickup
Cisco 112-FXS Bundle—112-port Analog Phone Gateway Bundle	• 112 FXS ports, out of which 80 ports have DID capability • Each port supports 5 REN, for a total of 192 REN per chassis • Comprises of 4 EVM analog modules, 4 VIC3 analog interface cards, and one PVDM3-256 DSP card • SCCP, MGCP, H.323 or SIP support for analog ports • 3-rack unit (3RU), FXS interfaces for Cisco Unified CME or Cisco Unified Communications Manager applications • High concentration of analog voice ports for basic calls, with supplementary services such as transfer, hold, park, and pickup • Higher default on-hook voltage • Cisco Configuration Professional (GUI based tool) Support

Key Features and Benefits

- Cisco VG202 and VG204 Analog Phone Gateways
  - 2 and 4 full-featured analog phone lines, respectively, for use as extensions to Cisco Unified Communications Manager or Cisco Unified Communications Manager Express systems in a desktop form factor with a fanless design.
  - Based on a Cisco IOS Software platform, the Cisco VG204 and Cisco VG202 offer identical functions and support similar network topologies as the Cisco VG224.
- Cisco VG224 Analog Phone Gateway
  - High-density, 24-port Cisco IOS Software gateway for analog phones, fax machines, modems, and speakerphones within an enterprise voice system based on Cisco Unified Communications Manager or Cisco Unified Communications Manager Express.
  - Integration with the IP-based phone system increases manageability, scalability, and cost-effectiveness.

- Commercial businesses can use the Cisco VG224 in conjunction with Cisco Unified Communications Manager Express to effectively augment an integrated services router environment.
- With Cisco Unified Communications Manager or Cisco Unified Communications Manager Express, the Cisco VG224 can provide supplementary analog services while using the Cisco IOS Software gateway for reliable fax and modem delivery.

- Cisco 112-FXS Bundle—112-Port Analog Phone Gateway Bundle
  - High-density, 112-port Cisco voice gateway for analog phones, fax machines, modems, and speakerphones within an enterprise voice system based on Cisco Unified Communications Manager or Cisco Unified Communications Manager Express.
  - Any 80 ports can be used for Direct Inward Dialing (DID) facility.
  - Organizations with large numbers of analog phones can deploy IP telephony while maintaining the investment in traditional handsets. The analog lines are full-featured, with caller ID, message waiting lights, and feature codes.
  - Cisco 112-FXS Bundle is built on Cisco Integrated Services Routers Generation 2 (ISR G2) platform powered by high-performance multicore processors.
  - Power redundancy is available by installing an optional integrated RPS, thereby decreasing network downtime and protecting the network from power-supply failures.
  - It supports new generation high-capacity digital signal processors (DSPs).

Selected Part Numbers and Ordering Information

VG202	Cisco VG202 analog phone gateway
VG204	Cisco VG204 analog phone gateway
VG224	Cisco VG224 analog phone gateway
C3945-112FXS/K9	Cisco 112-FXS Bundle

For More Information

http://www.cisco.com/go/vg

Cisco AS5350XM Universal Gateway

The Cisco AS5350XM Universal Gateway is a 1-rack-unit (1RU) gateway supporting 2- to 16-port T1/E1 or 1 CT3 configurations. The Cisco AS5350XM provides voice, fax, data, and session-border-control (SBC) services on any port at any time. This cost-effective platform is ideally suited for service provider and enterprise environments.



Ideal for Companies That Need These Features

Cisco AS5350XM Universal Gateway

- High density in a small footprint (up to 16 CT12/CE1 or 1 CT3, any codec type, fax protocol or modem type)
- High-performance voice, fax, data, and session-border-control (SBC) services
- Concurrent voice gateway and SBC
- High call rates (up to 20 calls per second)
- Enhanced performance for processor-intensive Tool Command Language (TCL) or VoiceXML scripting for complex voice services
- T.38 real-time fax relay, T.37 fax store and forward, fax detection, and unified communications

Key Features and Benefits

- Ideally suited for service provider and enterprise environments that require innovative voice, fax, and data services.
- 1-rack unit (1RU), CT3-capable universal gateway with hot-swappable cards and internal redundant power supply.
- Voice, fax, remote access, and session-border-control (SBC) services.
- Concurrent gateway and SBC operation.
- Includes the following feature cards: 4 or 8 T1/E1/Primary Rate Interface (PRI) feature cards (ISDN calls terminated on the card); CT3 feature card; 60- or 108-channel universal port feature card; and 384-channel voice feature card.
- Offers two 10/100/1000 autosensing Gigabit Ethernet LAN ports.
- Redundant 8-Mbps serial backhaul ports for Frame Relay, High-Level Data Link Control (HDLC) or Point-to-Point Protocol (PPP) WAN backhaul.
- Provides one fast console port for local administrative access and one auxiliary port for remote administrative access, as well as redundant LAN and WAN backhaul ports.
- European Telecommunications Standards Institute/Network Equipment Building Standards (ETSI/NEBS) Level 3 compliant, and has a redundant AC or DC power supply with dual fans.
- Interoperable with the Cisco Signaling System 7 (SS7) Interconnect for Voice Gateway (signaling gateway).

Specifications

Feature	Cisco AS5350XM
Processor	750 MHz RISC processor

SDRAM	512 MB (default), 1 GB (maximum)
System Flash	128 MB (default), 1 GB (maximum)
Feature Card Slots	3 slots
Trunk Feature Cards	2 T1/E1/PRI, 4 T1/E1/PRI, 8 T1/E1/PRI, 1 CT3
DSP Feature Cards	60 Universal port card, 108 Universal port card 384 port voice/fax card
Egress Ports	2 10/100/1000 autosensing Gigabit Ethernet LAN ports 2 8-Mbps serial ports T1/E1 DS1 and CT3 trunk feature cards
LAN Protocols	IP, IPX, AppleTalk, DECnet, ARA, NetBEUI, bridging, HSRP, 802.1Q
WAN Protocols	Frame Relay, PPP, HDLC (leased line)
Routing Protocols	Routing Information Protocol (RIP), RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, AY-EIGRP, IPX-EIGRP, Next Hop Resolution Protocol (NHRP), AppleTalk Update-based Routing Protocol (AURP)
QoS Protocols	IP Precedence, Resource Reservation Protocol (RSVP), Weighted Fair Queuing (WFQ), Weighted Random Early Detection (WRED), Multichassis Multilink PPP (MMP), fragmentation and interleaving, 802.1P
Access Protocols	PPP, Serial Line Internet Protocol (SLIP), TCP Clear, IPXCP, ATCP, ARA, NBFCP, NetBIOS over TCP/IP, NetBEUI over PPP, protocol translation (PPP, SLIP, ARA, X.25, TCP, local-area transport [LAT], Telnet), and Xremote
Bandwidth Optimization	Multilink PPP (MLPPP), TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP)
Voice Compression	G.711, G.723.1 (5.3K and 6.3K), G.726, G.729ab, G. Clear, GSM-FR, AMR-NB, iLBC
DSP Voice Features	Echo cancellation, programmable up to 128 MB; Voice activity detection, silence suppression, comfort noise generation; Fixed and adaptive jitter buffering; Call progress tone detection and generation—Dial tone, busy, ring-back, congestion, and re-order tones with local country variants; DTMF, Multifrequency (MF); Continuity Testing (COT)
Voice and Fax Signaling Protocols	H.323v2, H.323v3, H.323v4, SIP, MGCP 1.0, TGCP 1.0, Voice XML, Real-Time Streaming Protocol (RTSP), Extended Simple Mail Transfer Protocol (ESMTP); T.38 real-time fax relay; T.37 fax store and forward; Fax detection; Fax and modem passthrough; Open Settlements Protocol (OSP); Media Recording Control Protocol (MRCP); TTS Servers; ASR Servers
SS7	Integrated Signaling Link Terminal (ISLT), MTP1, MTP2, IUA, RUDP backhaul
Network Security	RADIUS or TACACS+, PAP, CHAP, and MSCHAP authentication, local user/password database DNIS, CLID, call-type pre-authentication Inbound/outbound traffic filtering (including IP, IPX, AppleTalk, bridged traffic) Network Address Translation (NAT) and dynamic access lists (ACLs) SNMPv2, SNMPv3, SSHv2 H.235
Virtual Private Networking	IP Security (IPSec) and policy enforcement (RADIUS or TACACS+) L2TP, Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels Firewall security and intrusion detection QoS features (committed access rate [CIR], Random Early Detection [RED], IP Precedence, policy-based routing)
Session Border Control	H.323 to H.323 (including Cisco Unified Communications Manager); H.323 to SIP (including Cisco Unified Communications Manager); SIP to SIP (including Cisco Unified Communications Manager); 1000 concurrent calls with 2000 sessions in flow-through mode
Channelized T1	Robbed-bit signaling; Loop Start; Immediate Start, and Wink Start Protocols
Channelized E1	CAS, PR1, E1 R2, leased line, Frame Relay, G.703, G.704
ISDN Protocols Supported	Sync mode PPP, V.110 at rates up to 38400 bps; Network- and user-side ISDN; NFAS with backup D-channel; QSIG, Feature Group B, Feature Group D; DoVBS
Modem Protocols Supported	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333 bps increments; V.92 Modem on Hold and Quick Connect; V.44 Compression supporting increased throughput by more than 100 percent for Internet browsing; K56Flex at 56000 to 32000 in 2000-bps increments ITU-T V34 Annex 12 at 33600 and 31200 bps; ITU-T V.34 at 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, or 2400 bps; V.32bis 14400, 12000, 9600, 7200, 4800; V.32 9600, 4800; V.22bis 2400, 1200; V.21 300; Bell 103, 300; V.22 1200; V.23 1200/75; ITU-T V.42 (including Microcom Networking Protocol [MNP] 2-4 and Link Access Procedure for Modems [LAPM] error correction; ITU-T V.42bis (1000 nodes) and MNP 5 data compression; Async-mode PPP
Full Cisco IOS Software Support	IP Plus and Enterprise Plus feature sets including 3DES and Lawful Intercept images
Console and Auxiliary Ports	Asynchronous serial (RJ-45)

Chassis	Dimensions (H x W x D): 1.75 x 17.5 x 20.5 in.; Weight (fully loaded): 22 lbs. (10 kg)
Memory Information	• Main SDRAM—2 slots, 512 MB default memory, 1 GB max memory • System Flash—1 slot, 128 MB default memory, 1 GB max memory

For More Information

http://www.cisco.com/en/US/products/hw/iad/index.html.

Cisco AS5400XM Universal Gateway



The Cisco AS5400XM Universal Gateway offers exceptional capacity in only two rack units (2RU) and provides voice, fax, and data services on any port at any time. High-density (up to one CT3 of voice over IP [VoIP] and two CT3 of time-division multiplexing [TDM] switching), low-power consumption (as low as 3.5A at 48 VDC per CT3 of G.711), and universal port digital signal processors (DSPs) make the Cisco AS5400XM Universal Gateways ideal for many network deployment architectures, especially co-location environments and mega points of presence (POPs).

Ideal for Companies That Need These Features

Cisco AS5400XM Universal Gateway	• High density in a small footprint (up to 24 CT1/20CE1 or 1 CT3, any codec type, fax protocol or modem type) • High-performance voice, fax, data, and SBC services • Concurrent voice gateway and SBC • High call rates (up to 20 calls per second) • Enhanced performance for processor-intensive TCL or VoiceXML scripting for complex voice services • T.38 real-time fax relay, T.37 fax store and forward, fax detection, and unified communications

Key Features and Benefits

- Ideally suited for service provider and enterprise environments that require innovative voice, fax, and data services.
- Offers a 2-rack unit (2RU), CT3-capable universal gateway with hot-swappable cards and internal redundant power supply.
- Best-in-class voice, fax, remote access, and session-border-control (SBC) services.
- Provides concurrent gateway and SBC operation.
- Includes the following feature cards: 2, 4, or 8 T1/E1/Primary Rate Interface (PRI) feature cards (ISDN calls terminated on the card); CT3 feature card; 60- or 108-channel universal port feature card; and 384-channel voice feature card.
- Offers two 10/100/1000 autosensing Gigabit Ethernet LAN ports.
- Redundant 8-Mbps serial backhaul ports for Frame Relay, High-Level Data Link Control (HDLC) or Point-to-Point Protocol (PPP) WAN backhaul.
- Provides one fast console port for local administrative access and one auxiliary port for remote administrative access, as well as redundant LAN and WAN backhaul ports.
- European Telecommunications Standards Institute/Network Equipment Building Standards (ETSI/NEBS) Level 3 compliant, and has a redundant AC or DC power supply with dual fans.
- Interoperable with the Cisco Signaling System 7 (SS7) Interconnect for Voice Gateway (signaling gateway).

Specifications

Feature	Cisco AS5400XM
Processor	750 MHz RISC processor
Calls Supported	Voice, fax, and remote access services to 648 concurrent calls (to 1CT3/16E1s)
SDRAM	512 MB (default), 1 GB (maximum)
Boot Flash	N/A
System Flash	128 MB (default), 1 GB (maximum)
Feature Card Slots	7
Trunk Feature Cards	4 T1/E1/PRI, 8 T1/E1/PRI, 1 CT3
DSP Feature Cards	60 Universal port card, 108 Universal port card 384 low complexity, 192 medium complexity or 144 high complexity port voice/fax card
Egress Ports	2 10/100/1000 autosensing Gigabit Ethernet LAN ports 2 8-Mbps serial ports; T1/E1 DS1 and CT3 trunk feature cards
LAN Protocols	IP, IPX, AppleTalk, DECnet, ARA, NetBEUI, bridging, HSRP, 802.1Q
WAN Protocols	Frame Relay, PPP, HDLC (leased line)
Routing Protocols	Routing Information Protocol (RIP), RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, AY-EIGRP, IPX-EIGRP, Next Hop Resolution Protocol (NHRP), AppleTalk Update-based Routing Protocol (AURP)

QoS Protocols	IP Precedence, Resource Reservation Protocol (RSVP), Weighted Fair Queuing (WFQ), Weighted Random Early Detection (WRED), Multichassis Multilink PPP (MMP), fragmentation and interleaving, 802.1P
Access Protocols	PPP, Serial Line Internet Protocol (SLIP), TCP Clear, IPXCP, ATCP, ARA, NBFCP, NetBIOS over TCP/IP, NetBEUI over PPP, protocol translation (PPP, SLIP, ARA, X.25, TCP, local-area transport [LAT], Telnet), and Xremote
Bandwidth Optimization	Multilink PPP (MLPPP), TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP)
Voice Compression	G.711, G.723.1 (5.3K and 6.3K), G.726, G.729ab, G. Clear, GSM-FR, AMR-NB, iLBC
DSP Voice Features	Echo cancellation, programmable up to 128 MB; Voice activity detection, silence suppression, comfort noise generation; Fixed and adaptive jitter buffering; Call progress tone detection and generation—Dial tone, busy, ring-back, congestion, and re-order tones with local country variants; DTMF, Multifrequency (MF); Continuity Testing (COT)
Virtual Private Networking	IP Security (IPSec) and policy enforcement (RADIUS or TACACS+) L2TP, Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels Firewall security and intrusion detection QoS features (committed access rate [CIR], Random Early Detection [RED], IP Precedence, policy-based routing)
Session Border Control	H.323 to H.323 (including Cisco Unified Communications Manager); H.323 to SIP (including Cisco Unified Communications Manager); SIP to SIP (including Cisco Unified Communications Manager) 1000 concurrent calls with 2000 sessions in flow-through mode
Voice and Fax Signaling Protocols	H.323v2, H.323v3, H.323v4, SIP, MGCP 1.0, TGCP 1.0, Voice XML, Real-Time Streaming Protocol (RTSP), Extended Simple Mail Transfer Protocol (ESMTP); T.38 real-time fax relay; T.37 fax store and forward; Fax out (transmission) Group 3, standards EIA 2388 Class 2 and EIA 592 Class 2.0 at modulations V.33, V.17, V.29, V.27ter, V.21; ITU-T T.30, T4; Fax detection; Fax and modem passthrough; Open Settlements Protocol (OSP), Media Recording Control Protocol (MRCP); TTS Servers; ASR Servers
Channelized T1	Robbed-bit signaling; Loop Start; Immediate Start, and Wink Start Protocols
Channelized E1	CAS, PR1, E1 R2, leased line, Frame Relay, G.703, G.704
ISDN Protocols Supported	Sync mode PPP, V.110 at rates up to 38400 bps; Network- and user-side ISDN; NFAS with backup D-channel; QSIG, Feature Group B, Feature Group D; DoVBS
Modem Protocols Supported	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333-bps increments; V.92 Modem on Hold and Quick Connect; V.44 Compression supporting increased throughput by more than 100 percent for Internet browsing; K56Flex at 56000 to 32000 in 2000-bps increments; ITU-T V34 Annex 12 at 33600 and 31200 bps; ITU-T V.34 at 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, or 2400 bps; V.32bis 14400, 12000, 9600, 7200, 4800; V.32 9600, 4800; V.22bis 2400, 1200; V.21 300; Bell 103, 300; V.22 1200; V.23 1200/75; ITU-T V.42 (including Microcom Networking Protocol [MNP] 2-4 and Link Access Procedure for Modems [LAPM] error correction; ITU-T V.42bis (1000 nodes) and MNP 5 data compression; Async-mode PPP
Full Cisco IOS Software Support	IP Plus and Enterprise Plus feature sets including 3DES and Lawful Intercept images
Console and Auxiliary Ports	Asynchronous serial (RJ-45)
Chassis	Dimensions (H x W x D): 3.5 x 17.5 x 18.25 in.; Weight (fully loaded): 35 lbs. maximum (15.8 kg)
Memory Information	• Main SDRAM—2 slots, 512 MB default memory, 1 GB max memory • System Flash—1 slot, 128 MB default memory, 1 GB max memory

For More Information

http://www.cisco.com/en/US/products/hw/iad/index.html

Cisco ATA 187 Analog Telephone Adaptor

The Cisco ATA 187 Analog Telephone Adaptor brings analog telephones into the networked world. The Cisco ATA 187 addresses enterprise, business local services, small-office environments, and the emerging managed hosted services market by enabling analog devices, such as phones and fax machines, to support voice-over-IP (VoIP) services. It is an ideal solution to complement large IP Phone deployments or installation environments where cabling can be difficult (such as in retail and manufacturing facilities) or where customers seek a cost-effective solution to interoperate with Cisco Unified Communications Manager but do not require a high-degree of functionality.



The Cisco ATA 187 Analog Telephone Adaptor will support line-side Session Initiation Protocol (SIP) based on Unified Communications Manager 7.1x. It will not support Cisco Skinny Protocol (SCCP).

Ideal for Companies That Need These Features

Cisco ATA 187 Analog Telephone Adaptor	• Analog devices such as phones and fax machines enabled to support VoIP services by converting the analog signal into an IP signal • Continuing use of existing analog phones with IP network

Key Features and Benefits

- Autoprovisioning with Trivial File Transfer Protocol (TFTP) provisioning servers
- Automatic assignment of IP address, network route IP, and subnet mask through Dynamic Host Configuration Protocol (DHCP)
- Configuration as per Cisco endpoint devices
- Touch-tone telephone keypad configuration with voice prompt
- Administrative password to protect configuration and access
- Remote upgrades through network
- Advanced pre-processing to optimize full duplex voice compression
- High performance line-echo cancellation eliminates noise and echo
- Voice Activity Detection (VAD) and Comfort Noise Generation (CNG) save bandwidth delivering voice, not silence
- Dynamic network buffering to reduce packet loss
- Session Initiation Protocol Line Side for interoperability with Cisco Unified Communications Manager SIP-based systems (7.1x and later)
- T.38 fax support
- sRTP/TLS over SIP for secure media and signaling paths

Specifications

Feature	Cisco ATA 187 Analog Terminal Adapter
Telephone and network interfaces	2 RJ-11 FXS ports 1 Fast Ethernet (FE) LAN port
Dimensions (H x W x D)	1.5 x 6.5 x 5.75 in. (3.8 x 16.5 x 14.6 cm)
Weights	15 oz. (425 gm)
VoIP Protocols	Session Initiation Protocol (SIP) line side based on Unified Communications Manager 7.1x. Cisco Skinny Protocol (SCCP) is not supported.

Selected Part Numbers and Ordering Information

ATA187-I1-A	Cisco ATA 187 Analog Terminal Adaptor

A power supply cable for the ATA 187 Analog Terminal Adaptor is required and is regionally dependent.

For More Information

http://www.cisco.com/en/US/products/hw/gatecont/ps514/index.html

Cisco Unified Workspace Licensing

Cisco Unified Workspace Licensing is an easy and affordable way to provide customers with a broad range of Cisco Collaboration applications and services. All client and server software, licensing, service and support, and software subscription are packaged together, simplifying the way a customer acquires and manages Cisco Collaboration solutions.

With continued focus on enhancing Cisco Unified Workspace Licensing, new and existing customers will automatically benefit from these enhancements. For example, Desktop Video licensing was recently announced as the standard for call control for Unified Workspace Licensing, which includes support for Cisco desktop video devices such as the Cius and the EX60/EX90 offerings. New and existing Cisco Unified Workspace Licensing customers will have access to this benefit and future enhancements as well.

.Cisco Unified Workspace Licensing is available in four versions to meet a variety of customer needs:

- Business Edition— Built on the Cisco Unified Communications Manager Business Edition platform, this edition offers call control, voice messaging, unified clients, mobility, and presence in a package optimized to the need of medium-sized businesses.
- Entry Edition—This edition, available as an add-on only option, provides basic dial tone and mobility features.
- Standard Edition—This edition provides the same benefits as Business Edition, but is optimized for larger businesses.
- Professional Edition—This edition includes all features in Standard Edition plus mobile communicator client, audio, video and web conferencing, including Cisco WebEx Meeting Center and WebEx Node for MCS, and other advanced capabilities.

Ideal for Companies That Need these Features

Cisco Unified Workspace Licensing

- Complete, media-rich collaboration experience for all their users across their workspace
- Flexibly deploy collaboration applications as their evolving business needs dictate
- Timely access to Cisco's latest software updates for major, minor, and maintenance releases, as well as online tools and communities that help solve issues quickly.
- Offer workspace applications at a more affordable initial cost of acquisition
- A simplified way to purchase and manage licensing, service and support

Specifications

Function	Included in Cisco Unified Workspace Licensing	Business Edition[1]	Entry Edition	Standard Edition	Professional Edition
Video conferencing	Cisco Unified MeetingPlace conferencing	No	No	No	Yes
Web conferencing	Cisco WebEx Meeting Center or Cisco Unified MeetingPlace	No	No	No	Yes
Audio conferencing	Cisco Unified MeetingPlace conferencing	No	No	No	Yes
Mobile phone client	Cisco Unified Mobile Communicator Client	No	No	No	Yes
Contact Center	Cisco Unified Contact Center Express (25 Cisco CUWL = 1 Standard Agent)	No	No	No	Yes
Presence	Cisco Unified Presence Profile	Yes	No	Yes	Yes
Mobility (with Sim ring services)	Cisco Unified Mobility Profile	Yes	Yes	Yes	Yes
Soft client	Cisco Unified Personal Communicator, Cisco Unified IP Communicator, or Cisco Unified Communications Integration for Cisco WebEx Connect or Microsoft Office Communicator or CUCILYNC	Yes	Yes, Cisco IP Communicator only	Yes	Yes
Messaging	Cisco Unity or Cisco Unity Connection	Cisco Unity Connection only	No	Yes	Yes
Phone and call control	Cisco Unified Communications Manager Licensing	Desktop video	Enhanced	Desktop video	Desktop video
Endpoints	Licenses for IP endpoints per user (hard or soft phone)	2 for IP endpoint	1 for hard phone; 1 for CIPC	2 for IP endpoint	10 for IP endpoint
Session Management	Cisco Unified Communications Manager Session Management Edition	No	No	No	Yes
User count	Supported user counts	50–500 (100 minimum for BE 6K)	50+	50+	50+

1. BE 5000/BE 6000

Selected Part Numbers and Ordering Information

Product Number	Description	UCSS Product Number	Product Number
LIC-UWL-ENTRY	Unified Workspace Licensing Entry, 1 User	UCSS-UWL-ENTRY	CON-ESW-UWLET1 CON-ESW-UWLET1K CON-ESW-UWLET10K
LIC-UWL-PRO	Unified Workspace Licensing PRO, 1 User	UCSS-UWL-PRO	CON-ESW-PRO1 CON-ESW-PRO1K CON-ESW-PRO10K
LIC-UWL-STD	Unified Workspace Licensing STD, 1 User	UCSS-UWL-STD	CON-ESW-UWLST1 CON-ESW-UWLST1K CON-ESW-UWLST10K

For More Information

http://www.cisco.com/go/cuwl

Cisco Unified Communications Software Subscription

Cisco Unified Communications Software Subscription increases business value by providing an economical and timely approach to upgrading to new Cisco technology, thereby optimizing return on investment (ROI) and reducing total cost of ownership (TCO) for Cisco Unified Communications Solutions. You are able to:

- Stay up-to-date—Get the latest product enhancements whenever there is a Cisco Unified Communications major software release, at no additional charge.
- Stay protected—During the term of your subscription agreement, you have guaranteed access to new software upgrades.
- Stay cost-effective—Whether you purchase a 1-, 2-, 3-, or 5-year subscription plan, Cisco Unified Communications Software Subscription can help you plan for the future while saving you money compared to repeat purchases of new software or individual upgrades.
- Stay productive—The process of planning, buying, deploying, and maintaining your Cisco Unified Communications upgrades is much easier and faster.

When combined with Cisco Unified Communications Essential Operate Service, you have timely access to Cisco's latest software updates for major, minor, and maintenance releases, as well as online tools and communities that help solve issues quickly.

Ideal for Companies That Need these Features

Cisco Unified Communications Software Subscription

- Maximizing return on investment and lower total ownership costs
- Keeping pace with technology advancements and enhance productivity
- Protecting Cisco Unified Communications investment in the future, regardless of what happens
- Predicting and planning IP communications budgets over multiple years or budget only once

Selected Part Numbers and Ordering Information

UCSS High Level SKU	Description
CMBE-WRKSP-BDL	Cisco Unified Workspace Licensing Business Edition
L-UCSS-ATT	Cisco Unified Attendant Console
L-UCSS-CCE	Cisco Unified Contact Center Enterprise
L-UCSS-CCH	Cisco Unified Contact Center Hosted
L-UCSS-CCX	Cisco Unified Contact Center Express
L-UCSS-CUCRTX	Cisco Unified Communication Manager
L-UCSS-CUP	Cisco Unified Presence
L-UCSS-CVP	Cisco Unified Customer Voice Portal
L-UCSS-ER	Cisco Unified Emergency Responder
L-UCSS-ICME	Cisco Unified Intelligent Contact Management Enterprise
L-UCSS-ICMH	Cisco Unified Intelligent Contact Management (ICM) Hosted
L-UCSS-IPIVR	Cisco Unified IP Interactive Voice Response
L-UCSS-MCP	Cisco Unified IP Media Recording
L-UCSS-MSG	Cisco Unity, Unity Connection
L-UCSS-MTNGPLACE	Cisco Unified MeetingPlace 8.0
L-UCSS-MTPLACE	Cisco Unified Meeting Place (Prior to 8.0)
L-UCSS-SME	Cisco Unified Communications Manager Session Management Edition
L-UCSS-UAE	Cisco Unified Application Environment
L-UCSS-UCM	Cisco Unified Communication Manager
L-UCSS-UCMBE	Cisco Call Manager Business Edition
L-UCSS-UPC	Cisco Unified Personal Communicator
L-UCSS-VOIP	Cisco Mobile Voice

For More Information

http://www.cisco.com/go/ucss

Chapter 5: Security

This chapter provides only a subset of Cisco products and part numbers.

Security At-a-Glance

Product	Features	Page
SECURE NETWORK		
Cisco IOS Security	· Delivers firewall, intrusion prevention, VPN, and content filtering · Promotes integrating new network security features on existing routers · Maximizes network security without adding hardware · Decreases ongoing support and manageability costs	5–3
Cisco ASA 5500 Series Adaptive Security Appliances	· Combines firewall, VPN, and optional content security and intrusion prevention · Provides threat defense and secure communications services to stop attacks · Reduces deployment and operational costs · Supports small businesses to large enterprises	5–4
Cisco Intrusion Prevention Systems (IPS)	· Identifies and stops malicious traffic, worms, viruses, and application abuse · Delivers intelligent threat detection and protection · Identifies and blocks Internet based attackers using SES reputation filtering and global correlation inspection · Promotes business continuity and helps meet compliance needs	5–10
Cisco Catalyst 6500 Series ASA Services Module ***NEW PRODUCT***	· High-speed, integrated firewall module for Cisco Catalyst 6500 Switches · 20 Gbps maximum firewall throughput (maximum) · 16 Gbps of maximum firewall throughput (multiprotocol) · 300,000 connections per second · 10 million concurrent connections · 250 security contexts · 1,000 VLANs	5–13
SECURE ACCESS		
Cisco TrustSec	Secure your networks and services with Cisco TrustSec context-based access control for users and devices. Cisco TrustSec technology provides organizations with the ability to enforce compliance, strengthen security, increase operational efficiency, and establish a consistent global access policy while embracing the changing business environment	5–14
Cisco NAC Appliance (Clean Access)	· Enforces network security policies by allowing access only to trusted devices · Blocks access by noncompliant devices and limits damage from emerging threats and risks · Protects existing investments through third-party management application compatibility · Reduces virus, worm, and unwanted access threats by integrating with other Cisco products	5–14
Cisco Identity Services Engine ***NEW PRODUCT***	· Apply policy-based access control · Support greater flexibility to use devices and applications of choice · Provide a single IT interface for policy creation and enforcement · Deploy in active standby mode to help ensure high availability	5–16
Cisco Secure Access Control System	· Controls network access based on dynamic conditions and attributes · Meets evolving access requirements with rule-based policies · Increases compliance with integrated monitoring, reporting, and troubleshooting capabilities · Takes advantage of built-in integration capabilities and distributed deployment	5–18
SECURE E-MAIL AND WEB		
Cisco IronPort E-Mail Solutions: Cloud and Appliance	· Fights spam, viruses, and blended threats for organizations of all sizes · Enforces compliance and protects reputation and brand assets · Reduces downtime and simplifies administration of corporate mail systems · Deployed by more than 40 percent of the world's largest enterprises	5–20
Cisco IronPort Web Security Appliances	· Integrates web-usage controls, data security, reputation and malware filtering · Applies Cisco Security Intelligence Operations and global threat technology · Combats sophisticated web-based threats with layered security technology · Supports built-in management for visibility of threat-related activity	5–21
Cisco IronPort M-Series Security Management Appliance	· M-Series security management appliance complements all of the Cisco IronPort e-mail and web security appliances · Provides one location for you to monitor all corporate policy settings and audit information	5–23
Cisco ScanSafe Cloud Web Security	· Analyzes web requests for malicious, inappropriate, or acceptable content · Offers granular control over open and encrypted web content · Extends real-time protection and policy enforcement to remote employees · Blocks unwanted and malicious emails, while protecting confidential data	5–25

Cisco ScanSafe Web Filtering	Offers granular control over all Web content, including SSL-encrypted communications, using multiple techniques including real-time dynamic Web content classification, an industry-leading URL filtering database, file type filters, and early warning filtering and real-time scanning of search results with SearchAhead	5–25
SECURE MOBILITY		
Cisco AnyConnect Secure Mobility Solution	· Provides an intelligent, smooth, and reliable connectivity experience · Gives users a choice of how, when, and where they access their information · Provides remote-access connectivity that is comprehensive and preemptive · Enforces context-aware policy, and protection from malware	5–26
Cisco Adaptive Wireless IPS Software	· Provides automated wireless vulnerability and performance monitoring · Maintains a constant awareness of the RF environment · Automatically monitors and identifies unauthorized access and RF attacks · Collaborates with Cisco network security products to create a layered security approach	5–27
VPN Services for Cisco ASA Series	· Provides remote access for up to 10,000 SSL or true IPsec connections · Supports functionality unavailable to a clientless, browser-based VPN connection · Connects users to IPv6 resources over IPv4 network tunnels · Facilitates creating user profiles and defining names and addresses of host	5–27
Cisco 3300 Series Mobility Engine	· Deliver mobility services for wireless networks · Scalable, centralized · Open API for easy integration with enterprise and mobile applications · Supports context-aware security and wireless IPS	5–28
Cisco Virtual Office	· Extends highly secure, and manageable network services to remote employees · Cost-effectively scales through standard or express versions · Includes Cisco and approved partner services, remote site aggregation, and head-end systems · Delivers full IP phone, wireless, data, and video services	5–29
SECURITY MANAGEMENT		
Cisco Security Manager	· Helps configure and manage Cisco firewalls, VPNs, IPS sensors, and security services · Controls large or complex deployments of Cisco network and security devices · Supports access control and approval framework for proposing and integrating changes · Delivers flexible device and policy-based management and configuration	5–30
PHYSICAL SECURITY		
Cisco Physical Access Gateway	· Primary means for the Cisco Physical Access Control solution to connect door hardware, such as locks and readers, to your IP network · One gateway can control up to two doors and can scale to thousands of doors at a fixed cost per door	5–31
Cisco Physical Access Manager	· Management application for the Cisco Physical Access Control solution · Easy-to-use interface lets you configure Cisco Physical Access gateways and modules, monitor activity, enroll users, and integrate with IT applications and data stores	5–31
Cisco Video Surveillance 2600 Series IP Cameras—Standard Definition ***NEW PRODUCT***	· Feature-rich, professional digital cameras designed for superior performance in a wide variety of environments · Employs powerful digital imaging technology, allowing it to capture high-quality images in a wide variety of lighting conditions. · H.264 compression reduces network traffic and storage requirements while providing superior image quality.	5–33
Cisco Video Surveillance 4000 Series IP Cameras—High Definition	· True high-definition (HD) video surveillance IP digital cameras designed for superior performance in a wide variety of video surveillance applications · Provide efficient network usage with the highest-quality video · Medianet and video analytics support · Open, standards-based design provides an ideal platform for integration and operation as independent devices or as part of a Cisco Video Surveillance network	5–34
Cisco Video Surveillance 5000 Series HD IP Dome Cameras ***NEW PRODUCT***	· 2.1-megapixel indoor fixed dome cameras designed with industry-leading image quality and high processing power. · Designed to install quickly and easily, all of the post-back-box installation and setup can be done with one hand. · Supports MJPEG and H.264 compression	5–34
Cisco Video Surveillance 2900 Series PTZ IP Dome Cameras ***NEW PRODUCT***	· Easy-to-deploy, multifeature IP standard-definition pan-tilt-zoom (PTZ) cameras · The Cisco Video Surveillance 2900 Series includes indoor and outdoor models, both supporting day and night operation · Support two simultaneous video streams, which can be compressed in MJPEG, MPEG-4, and H.264 formats across several resolution configurations.	5–35
Cisco Physical Security Operations Manager ***NEW PRODUCT***	· Unify video surveillance, access control, and incident response with a command-and-control console · Provide complete view of facilities, sensors, and alarms in a map-enabled GUI · Comprehensive management system with powerful workflow and business logic engine	5–36

Cisco Video Surveillance Media Server Software	· Manages, replicates, distributes, and archives video streams · Core component of the Cisco network-centric video surveillance software portfolio offers the power and flexibility to meet a diverse range of video surveillance requirements	5–37
Cisco Video Surveillance Operations Manager Software	· In conjunction with the Cisco Video Surveillance Media Server, authenticates and manages access to video feeds · Centralized administration tool for management of media servers, cameras, encoders, and viewers · Meets the diverse needs of administrators, systems integrators, and operators	5–38
Cisco Physical Security Multiservices Platform	· Offers innovative choices for deploying and managing physical security services, including video surveillance, access control, and flexible incident response communications · Compact, 1RU or 2RU server includes a wide array of features in a single, easy-to-use, and easy-to-deploy component	5–38
Cisco IPICS Server Software	· Security-enhanced, Linux-based platform installed on select Cisco 7800 Series Media Convergence Servers · Other Cisco IPICS system components include the Cisco IPICS Push-to-Talk Management Center (PMC), Cisco IPICS Phone Client, Cisco IPICS Operational Views (Ops Views), Cisco Land Mobile Radio (LMR) gateways, Router Media Service (RMS), and Session Initiation Protocol (SIP) telephony gateways	5–40
Cisco IPICS Dispatch Console	· End-to-end radio dispatching solution designed for mission-critical radio communications. It is the vital link between dispatchers and field personnel, helping to coordinate field response and ensure personnel safety · Designed and built to take advantage of the newest IP communications technologies, making it easier to dispatch responders and provide them with information that improves their situational awareness · Running on a standard PC platform, it extends existing push-to-talk (PTT) radio channels so that users with a variety of communication devices can participate	5–41
Cisco IPICS Mobile Client	· Smartphone application that allows responders to interact with other incident participants · In conjunction with the Cisco IPICS Dispatch Console, provides an on-demand solution for physical security and emergency first responders who are mobile, enabling them to begin reviewing incident information and addressing an incident even while on the way to the scene	5–41
SERVICES		
Cisco Security Services—Enable an integrated defense system using intelligent, personalized services from Cisco and our partners. Services help you deploy dynamic security controls to protect your infrastructure against ever changing threats and vulnerabilities, while at the same time supporting alignment with evolving security policy and compliance requirements. Using leading practices, our services help you more quickly and cost-effectively deploy an effective yet flexible security solution. Operational and remote management services help maintain network security while optimization services help you identify and address evolving needs.		5–42
FOR MORE INFORMATION		
Product Ordering To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml. **End-of-Life and End-of-Sale** Please visit the end-of-life and end-of-sale website for a complete and up-to-date listing of products that are no longer being sold or supported, what replacement products are available, and information about product support. http://www.cisco.com/en/US/products/prod_end_of_life.html NOTE: This chapter provides only a subset of Cisco products and part numbers. For the most up-to-date and comprehensive information, refer to the Cisco website at http://www.cisco.com, the Cisco ordering website at http://www.cisco.com/en/US/ordering/index.shtml, or reference the URL listed in the "For More Information" section of each product.		

Secure Network

Cisco IOS Security

Cisco IOS Software routers ship with the industry's most comprehensive security services, intelligently embedding data, security, voice, and wireless in the platform portfolio for fast, scalable delivery of mission-critical business applications. The Cisco 800 Series Routers and Cisco 1900, 2900, and 3900 Series Integrated Services Routers are ideal for small businesses and enterprise branch offices, delivering a rich, integrated solution for connecting remote offices, mobile users, and partner extranets or service provider-managed customer premises equipment (CPE). The Cisco 7200 Series and 7301 Routers and the Cisco ASR 1000 Series Aggregation Services Routers are ideal for aggregation of WAN security services in campus and enterprise environments.

Cisco IOS Software routers include security services that address customer concerns regarding threat management, VPN and secure communications, integrated network solutions, and security management. With

the convergence of features such as advanced firewall, VPN services, intrusion prevention system (IPS), Cisco Network Access Control (NAC), and content filtering, the Cisco IOS Security routers give customers flexibility to choose a solution that meets their bandwidth, LAN and WAN density, and multiservice requirements while benefiting from advanced security.

Ideal for Companies That Need These Features

Cisco IOS Software	• An integrated security solution that includes firewall, VPN, remote access, IPS, and content-filtering technologies • Low total cost of ownership by taking advantage of the existing infrastructure for modular and flexible deployment options • An integrated stateful inspection firewall with powerful security and multiprotocol routing all on the same routing platform • Scalability options from the Cisco 800 Series up to the Cisco 7200 Series, the Cisco 7301, and the Cisco ASR 1000 Series Aggregation Services Routers • Integrated, secure network solutions including secure unified communications and secure mobility • Secure extranet and intranet perimeters and Internet connectivity for secure branch and remote offices • Ability to meet compliance regulations such Payment Card Industry (PCI), Health Insurance Portability and Accountability Act (HIPAA), or Sarbanes-Oxley Act of 2002 (SOX) that require firewall or data-encryption services

Key Features and Benefits

- Cisco IOS Security offers an advanced firewall that includes zone-based firewall, which provides secure, stateful, application-based packet inspection to support the latest protocols and advanced applications.
- Cisco IOS Firewall offers a threat--management foundation to deploy secure access policies at all network interfaces.
- Cisco IOS Intrusion Prevention System (IPS) is an inline, deep-packet inspection feature that effectively mitigates a wide range of network attacks. Supporting thousands of attack signatures, it provides the network intelligence to accurately identify, classify, and stop or block malicious traffic in real time.
- Cisco IOS Content Filtering helps your organization protect itself from known and new Internet threats, improve employee productivity, and enforce business policies for regulatory compliance.
- Cisco IOS IP Security (IPsec) and Secure Sockets Layer (SSL) VPN offer services for site-to-site VPN and unified remote-access security. These services include standards-based IPsec VPN, Cisco Group Encrypted Transport VPN, Dynamic Multipoint VPN (DMVPN), Easy VPN, and SSL VPN.
- Dynamic, per-user authentication and authorization for LAN, WAN, and VPN clients.
- Cisco Network Admission Control (NAC) support extends the ability of the network to enforce organizational security policies on devices seeking network access by delivering NAC services on an integrated services module.

Selected Part Numbers and Ordering Information

The Cisco IOS Security router bundles are based on the Cisco 800 Series Routers, Cisco 1900, 2900, and 3900 Series Integrated Services Routers, and Cisco 7200 Series and 7301 routers providing a full range of security features. These bundles include entry security bundles, enhanced security bundles for added performance and scale, and entry voice (Voice Security [VSEC]) and premier voice (H-VSEC) bundles for combined security and unified communications. These bundles are orderable through a single part number at a reduced price compared to ordering each component separately.

Cisco 7600 Series security bundles are based on the Cisco 7600 Series E chassis and the IP Security (IPsec) VPN SPA.

Cisco ASR 1000 Series Aggregation Services Router security bundles are available for the Cisco ASR 1002, ASR 1004, and ASR 1006 chassis and include the respective Cisco IOS XE feature licenses without the need for additional hardware support in the form of security blades or modules.

For More Information

http://www.cisco.com/go/routersecurity

Cisco ASA 5500 Series Adaptive Security Appliances

As a core component of Cisco Borderless Networks, Cisco ASA 5500 Series Adaptive Security Appliances provide:

- Context-aware firewall capabilities
- Proven firewall services
- Comprehensive real-time threat defense
- Effective, always-on, highly secure remote access
- Highly secure communication services

These solutions help reduce deployment and operational costs while delivering comprehensive network security for networks of all sizes.

Deploy Comprehensive, Context-Aware Network Security

Cisco adaptive security appliances integrate industry-leading firewalls, VPN technology, intrusion prevention, content security, and unified communications security, in a unified platform. These applications help:

- Stop attacks before they penetrate the network perimeter
- Control network and application activity by using context-aware security parameters
- Protect resources and data, as well as voice, video, and multimedia traffic
- Reduce deployment and operational costs

Context-aware firewalling capabilities combine:

- In-depth local network context from TrustSec

- Real-time global threat intelligence from Cisco Security Intelligence Operations (SIO)
- Unique mobile client insight from AnyConnect

In addition, these solutions offer an advanced intrusion prevention system (IPS) with Global Correlation, which is twice as effective as a traditional IPS and includes Cisco guaranteed coverage.

The high-performing Cisco ASA 5500 Series Adaptive Security Appliances also provide:

- Fast throughput, high connection setup rates, and capacity for exceptional scalability and investment protection
- Adaptable architecture for rapid and customized security services deployment
- Versatile, always-on remote access integrated with IPS and web security for highly secure mobility and enhanced productivity

Key Features and Benefits

- Market-proven security and VPN capabilities—Full-featured, high-performance firewall, intrusion prevention system (IPS), content security, and SSL/IPsec VPN technologies deliver robust application security, user- and application-based access control, worm and virus mitigation, malware protection, content filtering, and remote user-site connectivity.
- Extensible services architecture—Taking advantage of a modular services processing and policy framework offered by the Cisco ASA 5500 Series Adaptive Security Appliances, businesses can apply specific security and network services on a per-traffic flow basis, delivering highly granular policy controls and a wide range of protective services with streamlined traffic processing. The efficiencies of this policy framework, as well as software and hardware extensibility through user-installable security services modules (SSMs) and security services cards (SSCs), advance the evolution of existing services and the deployment of new services without requiring a platform replacement or performance compromise. With these capabilities, the Cisco ASA 5500 Series provides the foundation for highly customizable security policies and exceptional services extensibility to help protect against the fast-evolving threat environment.
- Reduced deployment and operations costs—The multifunction Cisco ASA 5500 Series allows for platform configuration and management standardization, helping to decrease the costs of deployment and ongoing operations.
- Cisco and our partners offer ASA Migration Services that offer detailed planning and assistance throughout the deployment process.

Specifications

Cisco ASA 5500 Series Model/License	Cisco ASA 5580-20	Cisco ASA 5580-40	Cisco ASA 5585-X with SSP-10	Cisco ASA 5585-X with SSP-20	Cisco ASA 5585-X with SSP-40	Cisco ASA 5585-X with SSP-60
Network Location	Data Center, Campus	Data Center, Campus	Internet Edge, Campus	Data Center, Campus	Data Center, Campus	Data Center, Campus
Performance Summary						
Firewall Throughput[1]	5 Gbps (real-world HTTP), 10 Gbps (max)	10 Gbps (real-world HTTP), 20 Gbps (max)	3 Gbps (multi-protocol), 4 Gbps (max)	7 Gbps (multi-protocol), 10 Gbps (max)	12 Gbps (multi-protocol), 20 Gbps (max)	20 Gbps (multi-protocol), 40 Gbps (max)
Maximum Firewall Connections	2,000,000	4,000,000	1,000,000	2,000,000	4,000,000	10,000,000
Maximum Firewall Connections/Second	90,000	150,000	65,000	140,000	240,000	350,000
Packets per second (64 byte)	2,500,000	4,000,000	1,500,000	3,200,000	6,000,000	10,500,000
Maximum 3DES/AES VPN Throughput[2]	1 Gbps	1 Gbps	1 Gbps	2 Gbps	3 Gbps	5 Gbps
Maximum Site-to-Site and IPsec IKEv1 Client VPN User Sessions	10,000	10,000	5,000	10,000	10,000	10,000
Maximum AnyConnect or Clientless VPN User Sessions	10,000	10,000	5,000	10,000	10,000	10,000
Bundled SSL VPN User Sessions	2	2	2	2	2	2
Technical Summary						
Memory	8 GB	12 GB	6 GB (SSP-10) 12 GB (SSP-10 and IPS SSP-10)	12 GB (SSP-20) 24 GB (SSP-20 and IPS SSP-20)	12 GB (SSP-40) 36 GB (SSP-40 and IPS SSP-40)	24 GB (SSP-60) 72 GB (SSP-60 and IPS SSP-60)
Minimum System Flash	1 GB	1 GB	2 GB	2 GB	2 GB	2 GB

Integrated Ports	2-10/100/1000 management +4-10/100/1000 (with ASA5580-4 GE-CU) +4 GE SR (with ASA5580-4 GE-FI) +2 10 GE SR (with ASA5580-2X10 GE-SR)	2-10/100/1000 management +4-10/100/1000 (with ASA5580-4 GE-CU) +4 GE SR (with ASA5580-4 GE-FI) +2 10 GE SR (with ASA5580-2X10 GE-SR)	8-10/100/1000, 2-10 GE SFP+ (with ASA5585-Sec-PI license), 2-10/100/1000 management + 8-10/100/1000, 2-10 GE SFP+, 2-10/100/1000 management (with IPS SSP-10)	8-10/100/1000, 2-10 GE SFP+ (with ASA5585-Sec-PI license), 2-10/100/1000 management + 8-10/100/1000, 2-10 GE SFP+, 2-10/100/1000 management (with IPS SSP-20)	6-10/100/1000, 4-10 GE SFP+, 2-10/100/1000 management + 6-10/100/1000, 4-10 GE SFP+, 2-10/100/1000 management (with IPS SSP-40)	6-10/100/1000, 4-10 GE SFP+, 2-10/100/1000 management + 6-10/100/1000, 4-10 GE SFP+, 2-10/100/1000 management (with IPS SSP-60)
Maximum Virtual Interfaces (VLANs)	1024	1024	1024	1024	1024	1024
Expansion Capabilities						
SSP Expansion	Not available	Not available	1- IPS SSP	1- IPS SSP	1-IPS SSP	1-IPS SSP
SSP Supported	Not available	Not available	IPS SSP-10	IPS SSP-20	IPS SSP-40	IPS SSP-60
Intrusion Prevention	Not available	Not available	Yes (with IPS SSP)	Yes (with IPS SSP)	Yes (with IPS SSP)	Yes (with IPS SSP)
Concurrent Threat Mitigation Throughput (Mbps) (Firewall + IPS Services)	Not available	Not available	2 Gbps	3 Gbps	5 Gbps	10 Gbps
Features						
Cisco Adaptive Security Appliance Software Version (latest)	8.4	8.4	8.4	8.4	8.4	8.4
Application-Layer Firewall Services	Yes	Yes	Yes	Yes	Yes	Yes
Layer 2 Transparent Firewalling	Yes	Yes	Yes	Yes	Yes	Yes
Security Contexts (included/maximum[3])	2/250	2/250	2/100	2/250	2/250	2/250
GTP/GPRS Inspection[3]	Yes	Yes	Yes	Yes	Yes	Yes
High-Availability Support[4]	A/A and A/S	A/A and A/S	A/A and A/S	A/A and A/S	A/A and A/S	A/A and A/S
SSL and IPsec VPN Services	Yes	Yes	Yes	Yes	Yes	Yes
VPN Clustering and Load Balancing	Yes	Yes	Yes	Yes	Yes	Yes
Advanced Endpoint Assessment[3]	Yes	Yes	Yes	Yes	Yes	Yes

1. Maximum throughput measured under ideal test conditions
2. VPN throughput and sessions count depend on the ASA device configuration and VPN traffic patterns. These elements should be taken in to consideration as part of your capacity planning.
3. Licensed features
4. A/S = Active/Standby: A/A = Active/Active

Specifications—Mid-Range

Cisco ASA 5500 Series Model/License	Cisco ASA 5505 Base / Security Plus	Cisco ASA 5510 Base / Security Plus	Cisco ASA 5520	Cisco ASA 5540	Cisco ASA 5550
Network Location	Small Business, Branch Office, Enterprise Teleworker	Internet Edge	Internet Edge	Internet Edge	Internet Edge, Campus
Performance Summary					
Maximum Firewall throughput	150 Mbps	300 Mbps	450 Mbps	650 Mbps	1.2 Gbps
Maximum Firewall Connections	10,000 / 25,000	50,000 / 130,000	280,000	400,000	650,000
Maximum Firewall Connections/Second	4000	9000	12,000	25,000	36,000

Packets Per Second (64 byte)	85,000	190,000	320,000	500,000	600,000
Maximum 3DES/AES VPN Throughput	100 Mbps	170 Mbps	225 Mbps	325 Mbps	425 Mbps
Maximum Site-to-Site and IPsec IKEv1 Client VPN User Sessions	10 /25	250	750	5000	5000
Maximum AnyConnect or Clientless VPN User Sessions	25	250	750	2500	5000
Bundled SSL VPN User Session	2	2	2	2	2
Technical Summary					
Memory	512 MB	1 GB	2 GB	2 GB	4 GB
Minimum System Flash	128 MB	256 MB	256 MB	256 MB	256 MB
Integrated Ports	8 port 10/100 switch with 2 Power over Ethernet (PoE) ports	5-10/100 / 2-10/100/1000, 3-10/100 +4-10/100/1000, 4 SFP (with 4GE SSM)	4-10/100/1000, 1-10/100 +4-10/100/1000, 4 SFP (with 4GE SSM)	4-10/100/1000, 1-10/100 +4-10/100/1000, 4 SFP (with 4GE SSM)	8-10/100/1000, 4-SFP, 1-10/100
Maximum Virtual Interfaces (VLANs)	3 (trunking disabled) / 20 (trunking enabled)	50 / 100	150	200	400
Expansion Capabilities					
SSC/SSM/ICs Expansion	1-SSC	1-SSM	1-SSM	1-SSM	Not available
SSC/SSM/ICs Supported	AIP, SSC	CSC SSM, AIP SSM, 4GE SSM	CSC SSM, AIP SSM, 4GE SSM	CSC SSM, AIP SSM, 4GE SSM	Not available
Intrusion Prevention	Yes (with AIP SSC)	Yes (with AIP SSM)	Yes (with AIP SSM)	Yes (with AIP SSM)	Not available
Concurrent Threat Mitigation Throughput (Mbps) (Firewall + IPS Services)	75 (with AIP SSC-5)	150 (with AIP SSM-10) 300 (with AIP SSM-20)	225 (with AIP SSM-10) 375 (with AIP SSM-20) 450 (with AIP SSM-40)	500 (with AIP SSM-20) 650 (with AIP SSM-40)	Not available
Content Security (Anti-virus, Anti-Spyware, File Blocking)	Not available	Yes (with CSC SSM)	Yes (with CSC SSM)	Yes (with CSC SSM)	Not available
Maximum Number of Users for Anti-virus, Anti-spyware, File Blocking (CSC SSM only)	Not available	500 (CSC-SSM-10) 1000 (CSC-SSM-20)	500 (CSC-SSM-10) 1000 (CSC-SSM-20)	500 (CSC-SSM-10) 1000 (CSC-SSM-20)	Not available
Content Security Plus License features	Not available	Anti-spam, anti-phishing, URL filtering	Anti-spam, anti-phishing, URL filtering	Anti-spam, anti-phishing, URL filtering	Not available
Features					
Cisco Adaptive Security Appliance Software Version (latest)	8.4	8.4	8.4	8.4	8.4
Application-layer Firewall Services	Yes	Yes	Yes	Yes	Yes
Layer 2 Transparent Firewalling	Yes	Yes	Yes	Yes	Yes
Security Contexts (included/ maximum)	0/0	0/0 / 2/5	2/20	2/50	2/100
GTP/GPRS Inspection	Not available	Not available	Yes	Yes	Yes
High-availability Support	Not supported Stateless A/S	Not supported A/A and A/S	A/A and A/S	A/A and A/S	A/A and A/S
SSL and IPsec VPN Services	Yes	Yes	Yes	Yes	Yes

VPN Clustering and Load Balancing	Not available	Not available / Yes	Yes	Yes	Yes
Advanced Endpoint Assessment	Yes	Yes	Yes	Yes	Yes

Selected Part Numbers and Ordering Information

Cisco ASA 5500 Series Firewall Edition Bundles	
ASA5505-BUN-K9	Cisco ASA 5505 10-User Bundle includes 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, Triple Data Encryption Standard/Advanced Encryption Standard (3DES/AES) license
ASA5505-K8	Cisco ASA 5505 10-User Bundle includes 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, Data Encryption Standard (DES) license
ASA5505-50-BUN-K9	Cisco ASA 5505 50-User Bundle includes 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5505-UL-BUN-K9	Cisco ASA 5505 Unlimited-User Bundle includes 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5505-SEC-BUN-K9	Cisco ASA 5505 Unlimited-User Security Plus Bundle includes 8-port Fast Ethernet switch, 25 IPsec VPN peers, 2 SSL VPN peers, DMZ, stateless Active/Standby high availability, 3DES/AES license
ASA5510-BUN-K9	Cisco ASA 5510 Firewall Edition includes 3 Fast Ethernet interfaces, 250 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5510-K8	Cisco ASA 5510 Firewall Edition includes 3 Fast Ethernet interfaces, 250 IPsec VPN peers, 2 SSL VPN peers, DES license
ASA5510-SEC-BUN-K9	Cisco ASA 5510 Security Plus Firewall Edition includes 2 Gigabit Ethernet + 3 Fast Ethernet interfaces, 250 IPsec VPN peers, 2 SSL VPN peers, Active/Standby high availability, 3DES/AES license
ASA5520-BUN-K9	Cisco ASA 5520 Firewall Edition includes 4 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 750 IPsec VPN peers, 2 SSL VPN peers, Active/Active and Active/Standby high availability, 3DES/AES license
ASA5520-K8	Cisco ASA 5520 Firewall Edition includes 4 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 750 IPsec VPN peers, 2 SSL VPN peers, Active/Active and Active/Standby high availability, DES license
ASA5540-BUN-K9	Cisco ASA 5540 Firewall Edition includes 4 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 5000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5540-K8	Cisco ASA 5540 Firewall Edition includes 4 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 5000 IPsec VPN peers, 2 SSL VPN peers, DES license
ASA5550-BUN-K9	Cisco ASA 5550 Firewall Edition includes 8 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 4 Gigabit SFP interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5550-K8	Cisco ASA 5550 Firewall Edition includes 8 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 4 Gigabit SFP interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, DES license
ASA5580-20-BUN-K8	Cisco ASA 5580-20 Firewall Edition includes 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, DES license
ASA5580-20-BUN-K9	Cisco ASA 5580-20 Firewall Edition includes 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5580-20-4GE-K9	Cisco ASA 5580-20 Firewall Edition 4 Gigabit Ethernet Bundle includes 4 Gigabit Ethernet interfaces, 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, Dual AC power, 3DES/AES license
ASA5580-20-8GE-K9	Cisco ASA 5580-20 Firewall Edition 8 Gigabit Ethernet Bundle includes 8 Gigabit Ethernet interfaces, 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, Dual AC power, 3DES/AES license
ASA5580-40-BUN-K8	Cisco ASA 5580-40 Firewall Edition includes 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, DES license
ASA5580-40-BUN-K9	Cisco ASA 5580-40 Firewall Edition includes 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5580-40-8GE-K9	Cisco ASA 5580-40 Firewall Edition 8 Gigabit Ethernet Bundle includes 8 Gigabit Ethernet interfaces, 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, Dual AC power, 3DES/AES license
ASA5580-40-10GE-K9	Cisco ASA 5580-40 Firewall Edition 4 10Gigabit Ethernet Bundle includes 4 10Gigabit Ethernet interfaces; 2 management interfaces; 5000 IPsec VPN peers; 2 SSL VPN peers, Dual AC power, 3DES/AES license

Cisco ASA 5500 Series IPS Edition Bundles	
ASA5505-50-AIP5-K9	Cisco ASA 5505 50-User IPS Edition includes AIP-SSC-5, 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5505-U-AIP5P-K9	Cisco ASA 5505 Unlimited-User IPS Edition includes AIP-SSC-5, DMZ support, high availability, 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5510-AIP10-K9	Cisco ASA 5510 IPS Edition includes AIP-SSM-10, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 5 Fast Ethernet interfaces
ASA5510-AIP10SP-K9	Cisco ASA 5510 IPS Edition includes AIP-SSM-10, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 2 Gigabit Ethernet interfaces, 3 Fast Ethernet interfaces, and high availability
ASA5510-AIP20SP-K9	Cisco ASA 5510 IPS Edition includes AIP-SSM-20, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 2 Gigabit Ethernet interfaces, 3 Fast Ethernet interfaces, and high availability
ASA5520-AIP10-K9	Cisco ASA 5520 IPS Edition includes AIP-SSM-10, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5520-AIP20-K9	Cisco ASA 5520 IPS Edition includes AIP-SSM-20, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5520-AIP40-K9	Cisco ASA 5520 IPS Edition includes AIP-SSM-40, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5540-AIP20-K9	Cisco ASA 5540 IPS Edition includes AIP-SSM-20, firewall services, 5000 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5540-AIP40-K9	Cisco ASA 5540 IPS Edition includes AIP-SSM-40, firewall services, 5000 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
Cisco ASA 5500 Series Content Security Edition Bundles	
ASA5510-CSC10-K9	Cisco ASA 5510 Content Security Edition includes CSC-SSM-10, 50-user antivirus/anti-spyware with 1-year subscription, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 3 Fast Ethernet interfaces
ASA5510-CSC20-K9	Cisco ASA 5510 Content Security Edition includes CSC-SSM-20, 500-user antivirus/anti-spyware with 1-year subscription, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 3 Fast Ethernet interfaces
ASA5520-CSC10-K9	Cisco ASA 5520 Content Security Edition includes CSC-SSM-10, 50-user antivirus/anti-spyware with 1-year subscription, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5520-CSC20-K9	Cisco ASA 5520 Content Security Edition includes CSC-SSM-20, 500-user antivirus/anti-spyware with 1-year subscription, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
Cisco ASA 5500 Series SSL/IPsec VPN Edition Bundles	
ASA5505-SSL10-K9	Cisco ASA 5505 SSL/IPsec VPN Edition includes 10 IPsec VPN peers, 10 SSL VPN peers, 50 firewall users, 8-port Fast Ethernet switch
ASA5505-SSL25-K9	Cisco ASA 5505 SSL/IPsec VPN Edition includes 25 IPsec VPN peers, 25 SSL VPN peers, 50 firewall users, 8-port Fast Ethernet switch
ASA5510-SSL50-K9	Cisco ASA 5510 SSL/IPsec VPN Edition includes 250 IPsec VPN peers, 50 SSL VPN peers, firewall services, 3 Fast Ethernet interfaces
ASA5510-SSL100-K9	Cisco ASA 5510 SSL/IPsec VPN Edition includes 250 IPsec VPN peers, 100 SSL VPN 100 peers, firewall services, 3 Fast Ethernet interfaces
ASA5510-SSL250-K9	Cisco ASA 5510 SSL/IPsec VPN Edition includes 250 IPsec VPN peers, 250 SSL VPN peers, firewall services, 3 Fast Ethernet interfaces
ASA5520-SSL500-K9	Cisco ASA 5520 SSL/IPsec VPN Edition includes 750 IPsec VPN peers, 500 SSL VPN peers, firewall services, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5540-SSL1000-K9	Cisco ASA 5540 SSL/IPsec VPN Edition includes 5000 IPsec VPN peers, 1000 SSL VPN peers, firewall services, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5540-SSL2500-K9	Cisco ASA 5540 SSL/IPsec VPN Edition includes 5000 IPsec VPN peers, 2500 SSL VPN peers, firewall services, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5550-SSL2500-K9	Cisco ASA 5550 SSL/IPsec VPN Edition includes 5000 IPsec VPN peers, 2500 SSL VPN peers, firewall services, 8 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5550-SSL5000-K9	Cisco ASA 5550 SSL/IPsec VPN Edition includes 5000 IPsec VPN peers, 5000 SSL VPN peers, firewall services, 8 Gigabit Ethernet interfaces, 1 Fast Ethernet interface

ASA5580-20-10K-K9	Cisco ASA 5580 SSL/IPsec VPN Edition includes 10,000 IPsec VPN peers, 10,000 SSL VPN peers, firewall services, 4 Gigabit Ethernet interfaces, 2 management interfaces, Dual AC power, 3DES/AES license
Security Services Modules	
ASA-SSM-AIP-5-K9=	Cisco ASA Advanced Inspection and Prevention Security Services Module 5
ASA-SSM-AIP-10-K9=	Cisco ASA Advanced Inspection and Prevention Security Services Module 10
ASA-SSM-AIP-20-K9=	Cisco ASA Advanced Inspection and Prevention Security Services Module 20
ASA-AIP-40-INC-K9=	Cisco ASA Advanced Inspection and Prevention Security Services Module 40
ASA-SSM-CSC-10-K9=	Cisco ASA Content Security and Control Security Services Module 10 with 50-user antivirus/anti-spyware, 1-year subscription
ASA-SSM-CSC-20-K9=	Cisco ASA Content Security and Control Security Services Module 20 with 500-user antivirus/anti-spyware, 1-year subscription
SSM-4GE=	Cisco ASA 4-Port Gigabit Ethernet Security Services Module
Cisco ASA 5520 Adaptive Security Appliance for Unified Communications Security	
ASA5520-UC-BUN-K9	Cisco ASA 5520 Adaptive Security Appliance UC Security Edition; includes 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface, 1000 UC proxy sessions, 750 IPsec VPN peers, 2 SSL VPN peers, Active/Active and Active/Standby high availability, Triple Data Encryption Standard/Advanced Encryption Standard (3DES/AES) license
ASA5520-UC-BUN-K8	Cisco ASA 5520 Adaptive Security Appliance UC Security Edition; includes 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface, 1000 UC proxy license, 750 IPsec VPN peers, 2 SSL VPN peers, Active/Active and Active/Standby high availability, DES license
Cisco ASA 5540 Adaptive Security Appliance for Unified Communications Security	
ASA5540-UC-BUN-K9	Cisco ASA 5540 Adaptive Security Appliance UC Security Edition; includes 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface, 2000 UC proxy sessions, 5000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5540-UC-BUN-K8	Cisco ASA 5540 Adaptive Security Appliance UC Security Edition includes 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface, 2000 UC proxy sessions, 5000 IPsec VPN peers, 2 SSL VPN peers, DES license
Cisco ASA 5550 Adaptive Security Appliance for Unified Communications Security	
ASA5580-20-UC-K9	Cisco ASA 5580 Adaptive Security Appliance UC Security Edition; includes 4 Gigabit Ethernet interfaces, 5000 UC proxy sessions, 10,000 IPSec VPN peers, 2 SSL VPN peers, 3DES/AES license,
ASA5580-20-UC-K8	Cisco ASA 5580 Adaptive Security Appliance UC Security Edition; includes 4 Gigabit Ethernet interfaces, 5000 UC proxy sessions, 10,000 IPSec VPN peers, 2 SSL VPN peers, DES license
Cisco ASA 5580 Series Interface Expansion Cards	
ASA5580-4GE-CU=	Cisco ASA 5580 4-port 10/100/1000 Ethernet interface card, RJ45
ASA5580-4GE-FI=	Cisco ASA 5580 4-port Gigabit Ethernet fiber interface card, SR, LC
ASA5580-2X10GE-SR=	Cisco ASA 5580 2-port 10 Gigabit Ethernet fiber interface card, SR, LC
Cisco ASA 5500 Series Software	
ASA-SW-UPGRADE=	Cisco ASA Software one-time upgrade for nonsupport customers

For More Information

http://www.cisco.com/go/asa

Cisco Intrusion Prevention System



Business networks of all sizes now face increasingly sophisticated attacks that can impede productivity, obstruct access to applications and resources, and cause significant communications disruption. In addition, because of compliance regulations and consumer privacy laws, business priorities now include minimizing legal liability, protecting brand reputation, and safeguarding intellectual property.

A core component of Cisco Secure Borderless Network, Cisco IPS collaborates with other key network components for end-to-end network-wide protection. Threat information is shared between Cisco IPS and host-based IPS Cisco Security Agent and Cisco wireless controller. Available as a dedicated appliance, Cisco IPS is also integrated into Cisco firewall, switch, and router platforms for maximum protection and deployment flexibility.

This inline, network-based defense can identify, classify, and stop known and unknown threats, including worms, network viruses, application threats, system intrusion attempts, and application misuse.

Cisco IPS Sensors and Cisco IPS Sensor Software deliver high-performance, intelligent threat detection and protection. Cisco IPS with Global Correlation uses global threat information that has been turned into actionable intelligence, such as reputation scores, and pushed out to all enabled technologies. Reputation filtering and global inspection give Cisco IPS 7.0 several advantages:

- Twice the effectiveness of signature-only intrusion prevention systems
- More accurate with fewer false-positives using reputation
- 100 times faster than traditional signature-only methods

This technology provides metrics in both multimedia and transactional environments, so organizations can anticipate true IPS performance tailored to their business. The sensors can be deployed widely and incrementally on servers and endpoints, as dedicated appliances and as service modules on routers, switches, and firewalls. They collaborate and adapt in real time to emerging threats.

In addition, with Cisco Services for IPS, organizations easily manage their IPS deployment with near-real time updates to the most recent threats.

Ideal for Companies That Need These Features

Cisco IPS 4200 Series Sensors	• Dedicated hardware appliance platform with performance levels from 300 Mbps to 4 Gbps
Cisco Advanced Inspection and Prevention Security Services Module (AIP-SSM)	• IPS security module or card for the Cisco ASA 5500 Series for companies that want to manage IPS with their firewall in one appliance
Cisco IPS Advanced Integration Module (AIM)	• IPS AIM for the Cisco 1841, 2800, and 3800 Series Integrated Services Routers with performance level of up to 45 Mbps
Cisco IDS Services Module (NME)	• IPS NME for the Cisco 2800 and 3800 Series Integrated Services Routers with performance level of up to 75 Mbps
Cisco IDS Services Module 2 (ISDM-2)	• IPS security module for Cisco Catalyst 6500 Series Switches with up to 500 Mbps performance
Cisco IOS IPS	• Focused set of IPS capabilities using Cisco IOS Software on the router with varying performance levels

Key Features and Benefits

- Pervasive network integration—Cisco Intrusion Prevention System (IPS) solutions defeat threats from multiple vectors, including network, server, and desktop endpoints. The solutions extend across Cisco platforms, from purpose-built appliances to services modules integrated into firewall and routers and switches. A Cisco IPS solution protects the network from policy violations, vulnerability exploitations, and anomalous activity through detailed inspection of traffic at Layers 2 through 7, across the entire network.
- Collaborative threat prevention—A Cisco IPS solution employs a unique, system-wide security ecosystem that assesses and reacts to threats, delivering exceptional network scalability and resiliency. This ubiquitous alliance includes cross-solution feedback linkages, common policy management, multivendor event correlation, attack-path identification, passive-active fingerprinting, and host-based (Cisco Security Agent) IPS collaboration.
- Proactive posture adaptation—As an organization's network threat posture changes, a Cisco IPS solution evolves and adapts to stay ahead of the security landscape, mitigating threats by both known and unknown attacks. Extensive behavioral analysis, anomaly detection, policy adjustments, and rapid threat-response techniques save time, resources, and most importantly, the organization's assets and productivity.

NOTE: IPS technology strategically deployed throughout the network provides excellent end-to-end, zero-day protection. A Cisco IPS solution protects an organization's infrastructure and business.

Specifications

Feature	Cisco IPS-4240	Cisco IPS-4255	Cisco IPS-4260	Cisco IPS-4270	Cisco IPS Module (IDSM-2)	Cisco IPS Network Module (AIM)	Cisco IPS Network Module (NM-CIDS)
Performance	250 Mbps	500 Mbps	1 Gbps	2 Gbps	500 Mbps	45 Mbps	45 Mbps
Monitoring Interface	Four 10/100/1000 Base-TX	Four 10/100/1000 Base-TX	Autosensing 10/100/1000 Base-TX	Four 10/100/1000 Base-TX or Four 10-00Base-SX	PCI	Internal 10/100 Mbps Ethernet	Internal 10-100-Mbps Ethernet and external 10-100-Mbps Ethernet
Command and Control Interface	10/100 Base-TX	10/100 Base-TX	10/100 Base-TX	Two onboard 10/100/1000 Base-TX	PCI	10/100 Base-TX (on host ISR)	10/1010/100 Base-TX

Optional Interface			4x 10/100/ 1000 Base-TX 2x1000SX	• Four 10/100/ 1000 Base-TX • Two 1000Base -SX (fiber) (up to 16 total monitoring interfaces)			

Selected Part Numbers and Ordering Information

Cisco IPS 4200 Appliances	
IPS-4240-K9	Cisco IPS 4240 Sensor (chassis, software, SSH, four 10/100/1000BASE-TX interfaces with RJ-45 connector)
IPS4240-DC-K9	Cisco IPS 4240 NEBS-Compliant Sensor with DC power (chassis, software, SSH, four 10/100/ 1000BASE-TX interfaces with RJ-45 connector)
IPS-4255-K9	Cisco IPS 4255 Sensor (chassis, software, SSH, four 10/100/1000BASE-TX interfaces with RJ-45 connector)
IPS-4260-K9	Cisco IPS 4260 Sensor (chassis, software, SSH, two onboard 10/100/1000BASE-TX interfaces with RJ-45 connector)
IPS-4260-4GE-BP-K9	Cisco IPS 4260 Sensor with an included 4-GE copper NIC with hardware bypass (chassis, software, SSH, two onboard 10/100/1000BASE-TX interfaces with RJ-45 connector, and four 10/100/1000BASE-TX interfaces with built-in bypass)
IPS-4260-2SX-K9	Cisco IPS 4260 Sensor with an included NIC card (chassis, software, SSH, two onboard 10/ 100/1000BASE-TX interfaces with RJ-45 connector, and two fiber interfaces)
IPS4270-20-K9	Cisco IPS 4270 Sensor (chassis, redundant power, software, SSH, two onboard 10/100/ 1000BASE-TX interfaces with RJ-45 connector)
IPS4270-20-4GE-K9	Cisco IPS 4270 Sensor (chassis, redundant power, software, SSH, two onboard 10/100/ 1000BASE-TX interfaces with RJ-45 connector, and four 10/100/1000BASE-TX interfaces)
IPS4270-20-4SX-K9	Cisco IPS 4270 Sensor (chassis, redundant power, software, SSH, two onboard 10/100/ 1000BASE-TX interfaces with RJ-45 connector, and four fiber interfaces)
IPS-4GE-BP-INT=	Spare 4-port copper interface card with built-in hardware bypass for the Cisco IPS 4260 and 4270
IPS-2SX-INT=	Spare 2-port fiber interface card for the Cisco IPS 4260 and 4270
IPS Modules on ISR	
AIM-IPS-K9	Cisco Intrusion Prevention System Advanced Integrated Module for Cisco 1841, 2800, 3800
NME-IPS-K9	Cisco Intrusion Prevention System Advanced Integrated Module for Cisco 2800, 3800
Security Services Modules	
ASA-SSC-AIP-5-K9=	Cisco ASA Advanced Inspection and Prevention Security Services Card 5
ASA-SSM-AIP-10-K9=	Cisco ASA Advanced Inspection and Prevention Security Services Module 10
ASA-SSM-AIP-20-K9=	Cisco ASA Advanced Inspection and Prevention Security Services Module 20
ASA-AIP-40-INC-K9 =	Cisco ASA Advanced Inspection and Prevention Security Services Module 40
Select Bundles	
ASA5510-AIP10-K9	Cisco ASA 5510 IPS Edition includes AIP-SSM-10, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 5 Fast Ethernet interfaces
ASA5520-AIP10-K9	Cisco ASA 5520 IPS Edition includes AIP-SSM-10, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5520-AIP20-K9	Cisco ASA 5520 IPS Edition includes AIP-SSM-20, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5520-AIP40-K9	Cisco ASA 5520 IPS Edition includes AIP-SSM-40, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5540-AIP20-K9	Cisco ASA 5540 IPS Edition includes AIP-SSM-20, firewall services, 5000 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5540-AIP40-K9	Cisco ASA 5540 IPS Edition includes AIP-SSM-40, firewall services, 5000 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface

WS-C6506E-IPSC-K9	Cisco Catalyst 6506-E Switch, Supervisor Engine 32 with 8 x 1 Gigabit Ethernet Small Form-Factor Pluggable (SFP) plus 1 x 10/100/1000 uplink port, 8 copper SFP interfaces, 4 IDSM-2s, and 1 Power-Supply 3000W
WS-C6506E-IPSF-K9	Cisco Catalyst 6506-E Switch, Supervisor Engine 32 with 8 x 1 Gigabit Ethernet SFP plus 1 x 10/100/1000 uplink port, 8 multimode fiber SFP interfaces, 4 IDSM-2s, and 1 Power-Supply 3000W
WS-C6506E-IPS10GK9	Cisco Catalyst 6506-E Switch, Supervisor Engine 32 with 2 x 10 Gigabit Ethernet XENPAK plus 1 x 10/100/1000 uplink port, 2 short-range 10 Gigabit XENPAK interfaces, 4 IDSM-2s, and 1 Power-Supply 3000W

For More Information

http://www.cisco.com/go/ips

Cisco Catalyst 6500 Series ASA Services Module



The Cisco Catalyst 6500 Series ASA Services Module is a high-speed, integrated network security module for Cisco Catalyst 6500 Series Switches. Delivering industry-leading firewall data rates, this module provides exceptional scalability to meet the needs of today's dynamic organizations—in a single blade architecture.

The Cisco Catalyst 6500 Series ASA Services Module provides enhanced security, reliability, and performance. It offers twice the performance and four times the session count of competitive network security modules.

Ideal for Companies That Need These Features

Cisco Catalyst 6500 Series ASA Services Module

- Ability to add an integrated firewall module for Cisco Catalyst 6500 Switches

Key Features and Benefits

- 20-Gbps maximum firewall throughput (max)
- 16 Gbps of maximum firewall throughput (multiprotocol)
- 300,000 connections per second
- 10 million concurrent connections
- 250 security contexts
- 1,000 VLANs

Its advanced features can help your organization reduce costs and operational complexity, while allowing you to manage multiple firewalls from the same platform. In addition, you can install up to four Cisco Catalyst 6500 Series ASA Services Module blades in a Cisco Catalyst 6500 Series Switch, providing scalability to 64 Gbps.

The Cisco Catalyst 6500 Series ASA Services Module delivers industry-leading innovations, including the following customer benefits:

- Advanced scalability and performance
- Exceptional security protection at Layer 2 through Layer 7
- Ability to work with other modules in the chassis for comprehensive security delivery

It also delivers superior return on investment (ROI) by taking advantage of the existing infrastructure to deliver new services. You can add full firewall capabilities by sliding a blade into an empty slot in the existing Cisco Catalyst 6500 Series switch. No additional rack space, cabling, power, or physical interface is required.

Selected Part Numbers and Ordering Information

Hardware	
WS-SVC-ASA-SM1-K9	ASA Services Module for Catalyst 6500-E, 3DES/AES
WS-SVC-ASA-SM1-K9=	ASA Services Module for Catalyst 6500-E, 3DES/AES (Spare)
WS-SVC-ASA-SM1-K8	ASA Services Module for Catalyst 6500-E, DES
WS-SVC-ASA-SM1-K8=	ASA Services Module for Catalyst 6500-E, DES (Spare)
WS-SVC-ASA-SM1-K7	ASA Services Module for Catalyst 6500-E, NPE
WS-SVC-ASA-SM1-K7=	ASA Services Module for Catalyst 6500-E, NPE (Spare)
Security Bundles	
WS-C6506-E-FWM-K9	Cisco Catalyst 6506 Firewall Security System with Enhanced Chassis and Supervisor 720 3B
WS-C6509-E-FWM-K9	Cisco Catalyst 6509 Firewall Security System with Enhanced Chassis and Supervisor 720 3B
WS-C6513-FWM-K9	Cisco Catalyst 6513 Firewall Security System with Supervisor 720 3B

WS-6509EXL-2FWM-K9	Cisco Catalyst 6509 Firewall Security System with Enhanced Chassis, Supervisor 720 3BXL and two Firewall Service Modules
WS-6513XL-2FWM-K9	Cisco Catalyst 6513 Firewall Security System with Supervisor 720 3BXL and two Firewall Service Modules
WS-6506-EXL-FWM-K9	Cisco Catalyst 6506 Firewall Security System with Enhanced Chassis, Supervisor 720 3BXL and one Firewall Service Module
WS-6509-EXL-FWM-K9	Cisco Catalyst 6506 Firewall Security System with Enhanced Chassis, Supervisor 720 3BXL and one Firewall Service Module
WS-C6513-XL-FWM-K9	Cisco Catalyst 6513 Firewall Security System with Enhanced Chassis, Supervisor 720 3BXL and one Firewall Service Module

For More Information

http://www.cisco.com/en/US/prod/collateral/modules/ps2706/ps11621/data_sheet_c78-672507.html

Secure Access

Cisco TrustSec

Secure your networks and services with Cisco TrustSec context-based access control for users and devices. Cisco TrustSec technology allows organizations to enforce compliance, strengthen security, increase operational efficiency and establish a consistent global access policy while embracing the changing business environment:

- Growth in user demand for mobility and device choices
- Use and deployment of IP-enabled devices
- A complex workforce of employees, partners, and guests
- Convergence of wired and wireless environments
- Increased use of virtual network devices, services, and cloud-based access

Cisco TrustSec software can be deployed as an appliance-based overlay mode where a set of appliances provide the access control on top of an existing network infrastructure, or as a network-integrated 802.1X mode where authentication, authorization, and enforcement occur on the network. The Cisco TrustSec architecture includes three pillars:

- Identity context—Ability to identify who and what is in your network based on a variety of attributes such as user, posture, location, access type, device type and more. These richer set of attributes provides the true "role" of a user or device in the network. This context-awareness is derived from the networking infrastructure in the case of the 802.1X network-integrated solution, with consistent identity features supported across all Cisco switch platforms. In the overlay mode, context awareness is provided through the NAC agent intelligence.
- Authorization and enforcement—The next step after organizations have visibility into who and what is in the network is the ability to allow them into appropriate parts of the network. Cisco offers the traditional authorization options at ingress using VLANs and downloadable ACLs. Additionally, Cisco also offers Security Group Access, the ability to authorize users with "security group tags" that define their role in the organization. When user traffic has these tags, any device in the network can enforce based on the tags at egress. It is operationally more scalable than the traditional authorization options.
- Data integrity—The third component of the Cisco TrustSec architecture is data integrity and confidentiality through MACSec or 802.1AE, including the ability to tie your policy to encryption; for example, allowing users access to the network based on the ability to encrypt from endpoint to switch. In addition, switch-to-switch encryption from access to data center switches and between data centers protects data throughout the entire network.

Cisco TrustSec software™ integrates with the SecureX architecture to allow the Cisco security portfolio to take advantage of network-based identity context for full context-aware firewalling and policy enforcement.

For More Information

http://www.cisco.com/go/trustsec

Cisco NAC Appliance (Clean Access)

Cisco NAC Appliance (formerly Cisco Clean Access) is an easily deployed Network Admission Control (NAC) product that uses the network infrastructure to enforce security policy compliance on all devices seeking to access network computing resources. With NAC Appliance, network administrators can authenticate, authorize, evaluate, and remediate wired, wireless, and remote users and their machines prior to network access. It identifies whether networked devices such as laptops, IP phones, or game consoles are compliant with your network's security policies and repairs any vulnerabilities before permitting access to the network.

Cisco NAC has several core components, with additional optional components for enhanced capabilities.

- Cisco NAC Server—This device initiates assessment and enforces access privileges based on endpoint compliance. Users are blocked at the port layer and restricted from accessing the trusted network until they successfully pass inspection. The Cisco NAC Server is available in seven sizes based on the number of online, concurrent users: 100, 250, 500, 1500, 2500, 3500, and 5000 users. A single company can have several servers of differing sizes; for example, a headquarters building would require a 1500-user Cisco NAC Server, while a branch office for the same company might only require a 100-user server.

- Cisco NAC Manager—A centralized, web-based console for establishing roles, checks, rules, and policies. The Cisco NAC Manager is available in three sizes: the Cisco NAC Lite Manager manages up to three Cisco NAC Servers; the Cisco NAC Standard Manager manages up to 20 Cisco NAC Servers; and the Cisco NAC Super Manager manages up to 40 Cisco NAC Servers or 80 Cisco NAC Network Modules.
- Cisco NAC Agent—A thin, read-only agent that enhances posture assessment functions and streamlines remediation. Cisco NAC Agents are optional and are distributed free of charge.

Ideal for Companies That Need These Features

Cisco NAC Appliance (Clean Access)	• Minimized network outages • Enforcement of security policies • Significant cost savings with automated device repairs and updates

Key Features and Benefits

- Authentication integration with single sign-on—Cisco NAC serves as an authentication proxy for most forms of authentication, natively integrating with Kerberos, Lightweight Directory Access Protocol (LDAP), RADIUS, Active Directory, S/Ident, and others. Cisco NAC supports single sign-on for VPN clients, wireless clients, and Windows Active Directory domains.
- Vulnerability assessment—Cisco NAC supports scanning of all Windows, Mac OS, and Linux-based operating systems and machines, as well as non-PC networked devices such as game consoles, PDAs, printers, and IP phones. It conducts network-based scans or can use custom-built scans as required. Cisco NAC can check for any application as identified by registry key settings, services running, or system files.
- Device quarantine—Cisco NAC can place noncompliant machines into quarantine. Quarantine can be accomplished by using subnets as small as /30, or by using a quarantine VLAN.
- Automatic security policy updates—Automatic security policy updates that are part of Cisco's standard software maintenance package provide predefined policies for the most common network access criteria, including policies that check for critical operating system updates, common antivirus software virus definition updates, and common antispyware definition updates.
- Centralized Management—The Cisco NAC web-based management console allows administrators to define the types of scans required for each role, as well as the related remediation packages necessary for recovery. One management console can manage multiple servers.
- Remediation and Repair—Quarantining gives devices access to remediation servers that can provide operating system patches and updates, virus definition files, or endpoint security solutions such as Cisco Security Agent. Administrators can enable automated remediation through the optional agent, or specify a series of remediation instructions. In addition, Cisco NAC delivers user-friendly features, such as the monitoring mode and silent remediation, to minimize user impact.
- Flexible Deployment Modes—Cisco NAC offers the broadest array of deployment modes to fit into any customer network. Customers can deploy the product as a virtual or real IP gateway, at the edge or centrally, with Layer 2 or Layer 3 client access, and in-band or out-of-band with network traffic.
- Cisco TrustSec Planning and Design Service from Cisco and our partners helps you customize and successfully deploy your TrustSec solution based on the Cisco Network Admission Control (NAC) appliance and take full advantage of the available features.

Specifications

Feature	Cisco NAC Appliance 3315	Cisco NAC Appliance 3355	Cisco NAC Appliance 3395
Products	• Cisco NAC Server for 100, 250, and 500 users • Cisco NAC Lite Manager	• Cisco NAC Server for 1500, 2500, 3500, and 5000 users • Cisco NAC Standard Manager	• Cisco NAC Super Manager
Processor	Quad-core Intel Xeon (Core 2 Quad)	Quad-core Intel Xeon (Nehalem)	2 x Quad-core Intel Xeon (Nehalem)
Memory	4 GB	6 GB	8 GB
Hard disk	250-GB SATA drive	2 x 300-GB SAS RAID drives	4 x 300-GB SFF SAS RAID drives
Removable media	CD/DVD-ROM drive	CD/DVD-ROM drive	CD/DVD-ROM drive
Network Connectivity			
Ethernet network interface cards (NICs)	• 2 x Integrated NICs • 2 x Gigabit NICs (PCI-X)	• 2 x Integrated NICs • 2 x Gigabit NICs (PCI-X)	• 2 x Integrated NICs • 2 x Gigabit NICs (PCI-X)
10BASE-T cable support	Category (Cat) 3, 4, or 5 unshielded twisted pair (UTP) up to 328 ft (100 m)	Cat 3, 4, or 5 UTP up to 328 ft (100 m)	Cat 3, 4, or 5 UTP up to 328 ft (100 m)
10/100/1000BASE-TX cable support	Cat 5 UTP up to 328 ft (100 m)	Cat 5 UTP up to 328 ft (100 m)	Cat 5 UTP up to 328 ft (100 m)
Secure Sockets Layer (SSL) accelerator card	None	Cavium CN1120-NHB-E	Cavium CN1120-NHB-E
Interfaces			
Serial ports	1	1	1

USB 2.0 ports	4 (two front, two rear)	4 (one front, one internal, two rear)	4 (one front, one internal, two rear)
Keyboard ports	1	1	1
Video ports	1	1	1
Mouse ports	1	1	1
External SCSI ports	None	None	None
System Unit			
Form factor	Rack-mount 1 RU	Rack-mount 1 RU	Rack-mount 1 RU
Weight	35 lb (15.87 kg) fully configured	35 lb (15.87 kg) fully configured	35 lb (15.87 kg) fully configured
Dimensions	1.70 x 16.78 x 27.75 in. (4.32 x 42.62 x 70.49 cm)	1.70 x 16.78 x 27.75 in. (4.32 x 42.62 x 70.49 cm)	1.70 x 16.78 x 27.75 in. (4.32 x 42.62 x 70.49 cm)
Power supply	350W	Dual 675W (redundant)	Dual 675W (redundant)
Cooling fans	6; non-hot plug, nonredundant	9; redundant	9; redundant
BTU rating	2661 BTU/Hr (at 120V)	2661 BTU/Hr (at 120V)	2661 BTU/Hr (at 120V)
Regulatory and Standards Compliance			
Industry certifications	FIPS 140-2 Level 2 Common Criteria EAL2	FIPS 140-2 Level 2 Common Criteria EAL2	FIPS 140-2 Level 2 Common Criteria EAL2

Selected Part Numbers and Ordering Information

NACMGR-3-K9	Cisco NAC Appliance 3310 Manager—Max 3 servers
NACMGR-3FB-K9	Cisco NAC Appliance 3310 Manager Failover Bundle—Max 3 servers
NACMGR-20-K9	Cisco NAC Appliance 3350 Manager—Max 20 servers
NACMGR-20FB-K9	Cisco NAC Appliance 3350 Manager Failover Bundle—Max 20 servers
NACMGR-40-K9	Cisco NAC Appliance 3390 Manager—Max 40 servers
NACMGR-40FB-K9	Cisco NAC Appliance 3390 Manager Failover Bundle—Max 40 servers

For More Information

http://www.cisco.com/en/US/products/ps6128/index.html

Cisco Identity Services Engine (ISE)

Provision and deliver cross-domain application and network services more securely and reliably with Cisco Identity Services Engine (ISE). This policy-based service-enablement platform helps ensure corporate and regulatory compliance.

Enhance infrastructure security and simplify enterprise service operations. Gather real-time contextual information from the network, users, and devices, and make proactive governance decisions by enforcing policy across the network infrastructure.

Cisco Identity Services Engine offers the following benefits:

- Security—Get visibility and control over all users and devices on your network.
- Compliance—Create consistent policy across the infrastructure for corporate governance.
- Efficiency—Increase IT staff productivity by automating labor-intensive tasks and simplifying service delivery.

Ideal for Companies That Need These Features

Cisco ISE	• Network visibility • Context-aware enforcement • Significant cost savings with automated device repairs and updates

Key Features and Benefits

An integral component of the Cisco TrustSec solution, the Cisco Identity Services Engine:

- Allows enterprises to authenticate and authorize users and endpoints through wired, wireless, and VPN with consistent policy throughout the enterprise
- Prevents unauthorized network access to protect corporate assets
- Provides complete guest lifecycle management by empowering sponsors to allow guests onboard, thus reducing IT workload
- Discovers, classifies, and controls endpoints connecting to the network to enable the appropriate services per endpoint type

- Addresses vulnerabilities on user machines through periodic evaluation and remediation to help proactively mitigate network threats such as viruses, worms, and spyware
- Enforces security policies by blocking, isolating, and repairing noncompliant machines in a quarantine area without needing administrator attention
- Offers a built-in monitoring, reporting, and troubleshooting console to assist helpdesk operators and administrators streamline operations

Specifications

Feature	Cisco Identity Services Engine Appliance 3315 (Small)	Cisco Identity Services Engine Appliance 3355 (Medium)	Cisco Identity Services Engine Appliance 3395 (Large)
Processor	1 x QuadCore Intel Core 2 CPU Q9400 @ 2.66 GHz	1 x QuadCore Intel Xeon CPU E5504 @ 2.00 GHz	2 x QuadCore Intel Xeon CPU E5504 @ 2.00 GHz
Memory	4 GB	4 GB	4 GB
Hard disk	2 x 250-GB SATA HDD	2 x 300-GB SAS drives	4 x 300-GB SFF SAS drives
RAID	No	Yes (RAID 0)	Yes (RAID 0+1)
Removable media	CD/DVD-ROM drive	CD/DVD-ROM drive	CD/DVD-ROM drive
Network Connectivity			
Ethernet NICs	x Integrated Gigabit NICs	4 x Integrated Gigabit NICs	4 x Integrated Gigabit NICs
10BASE-T cable support	Cat 3, 4, or 5 unshielded twisted pair (UTP) up to 328 ft (100 m)	Cat 3, 4, or 5 UTP up to 328 ft (100 m)	Cat 3, 4, or 5 UTP up to 328 ft (100 m)
10/100/1000BASE-TX cable support	Cat 5 UTP up to 328 ft (100 m)	Cat 5 UTP up to 328 ft (100 m)	Cat 5 UTP up to 328 ft (100 m)
Secure Sockets Layer (SSL) accelerator card	None	Cavium CN1620-400-NHB-G	Cavium CN1620-400-NHB-G
Interfaces			
Serial ports	1	1	1
USB 2.0 ports	4 (two front, two rear)	4 (one front, one internal, two rear)	4 (one front, one internal, two rear)
Video ports	1	1	1
External SCSI ports	None	None	None
System Unit			
Form factor	Rack-mount 1 RU	Rack-mount 1 RU	Rack-mount 1 RU
Weight	28 lb (12.7 kg) fully configured	35 lb (15.87 kg) fully configured	35 lb (15.87 kg) fully configured
Dimensions	1.69 x 17.32 x 22 in. (43 x 440 x 55.9 mm)	1.69 x 17.32 x 27.99 in. (43 x 42.62 x 711 mm)	1.69 x 17.32 x 27.99 in. (43 x 42.62 x 711 mm)
Power supply	350W	Dual 675W (redundant)	Dual 675W (redundant)
Cooling fans	6; non-hot plug, nonredundant	9; redundant	9; redundant
BTU rating	1024 BTU/hr (at 300W)	2661 BTU/hr (at 120V)	2661 BTU/hr (at 120V)
Regulatory and Standards Compliance			
Industry certifications	Criteria EAL2	Criteria EAL2	Criteria EAL2

Selected Part Numbers and Ordering Information

SE-3315-K9	Cisco Identity Services Engine 3315 Appliance
ISE-3355-K9	Cisco Identity Services Engine 3355 Appliance
ISE-3395-K9	Cisco Identity Services Engine 3395 Appliance
ISE-VM-K9=	Cisco Identity Services Engine Virtual Appliance
ISE-5VM-K9=	Bundle of 5 Cisco Identity Services Engine Virtual Appliances
ISE-10VM-K9=	Bundle of 10 Cisco Identity Services Engine Virtual Appliances

For More Information

http://www.cisco.com/en/US/products/ps11640/index.html

Cisco Secure Access Control System (ACS)

Cisco Secure Access Control System (ACS) is a highly scalable, high-performance access policy system that centralizes device administration, authentication, and user access policy and reduces the management and support burden for these functions.

Cisco Secure ACS 5.1 is the second release of this next-generation network identity and access solution. This release establishes Cisco Secure ACS as a Policy Administration Point (PAP) and Policy Decision Point (PDP) for policy-based access control. Release 5.1 offers additional capabilities, including:

- A powerful, attribute-driven rules-based policy model that addresses complex policy needs in a flexible manner
- A lightweight, web-based graphical user interface (GUI) with intuitive navigation and workflow
- Integrated advanced monitoring, reporting, and troubleshooting capabilities for maximum control and visibility
- Improved integration with external identity and policy databases, including Windows Active Directory and Lightweight Directory Access Protocol (LDAP)-accessible databases, simplifying policy configuration and maintenance
- A distributed deployment model that enables large-scale deployments and provides a highly available solution

The Cisco Secure ACS 5.1 rules-based policy model supports the application of different authorization rules under different conditions, and thus policy is contextual and not limited to authorization determined by a single group membership. New integration capabilities allow information in external databases to be directly referenced in access policy rules, and attributes can be used both in policy conditions and authorization rules.

Cisco Secure ACS 5.1 features centralized collection and reporting for activity and system health information for full manageability of distributed deployments. It supports proactive operations such as monitoring and diagnostics, and reactive operations such as reporting and troubleshooting. Advanced features include a deployment-wide session monitor, threshold-based notifications, entitlement reports, and diagnostic tools.

Key Features and Benefits

- Complete access control and confidentiality solution—Can be deployed with other Cisco TrustSec components-including policy components, infrastructure enforcement components, endpoint components, and professional services-for a comprehensive access control and confidentiality solution.
- AAA protocols—Cisco Secure ACS 5.1 supports two distinct protocols for authentication, authorization, and accounting (AAA). Cisco Secure ACS 5.1 supports RADIUS for network access control and TACACS+ for network device access control. Cisco Secure ACS is a single system for enforcing access policy across the network.
- Database options—Cisco Secure ACS 5.1 supports an integrated user repository in addition to supporting integration with existing external identity repositories such as Windows Active Directory and LDAP. Multiple databases can be used concurrently for maximum flexibility in enforcing access policy.
- Authentication protocols—Cisco Secure ACS 5.1 supports a wide range of authentication protocols including PAP, MS-CHAP, Extensible Authentication Protocol (EAP)-MD5, Protected EAP (PEAP), EAP-Flexible Authentication via Secure Tunneling (FAST), and EAP-Transport Layer Security (TLS) to support your authentication requirements.
- Access policies—Cisco Secure ACS 5.1 supports a rules-based, attribute-driven policy model that provides greatly increased power and flexibility for access control policies that may include authentication protocol requirements, device restrictions, time of day restrictions, posture validation, and other access requirements. Cisco Secure ACS may apply downloadable access control lists (dACLs), VLAN assignments, and other authorization parameters.
- Centralized management—Cisco Secure ACS 5.1 supports a completely redesigned lightweight, web-based GUI that is easy to use. An efficient, incremental replication scheme quickly propagates changes from primary to secondary systems providing centralized control over distributed deployments. Software upgrades are also managed through the GUI and can be distributed by the primary system to secondary instances.
- Monitoring and troubleshooting—Cisco Secure ACS 5.1 includes an integrated monitoring, reporting, and troubleshooting component that is accessible through the web-based GUI. This tool provides maximum visibility into configured policies and authentication and authorization activities across the network. Logs are viewable and exportable for use in other systems as well.
- Platform options—Cisco Secure ACS 5.1 is available as a closed and hardened Linux-based appliance or as a software operating system image for VMware ESX.

Cisco Secure Access Control Server (ACS) Express

Cisco Secure Access Control Server (ACS) Express is an entry-level RADIUS and TACACS+ authentication, authorization, and accounting (AAA) server for retail branch locations, enterprise branch offices, and small and medium-sized businesses (SMBs) that have fewer than 350 users and 50 devices.

Cisco Secure ACS Express provides a centralized identity networking solution that:

- Offers a simple user and access policy management interface
- Gives administrators greater access to and control of users and machines in various networks including wireless, wired, and virtual private networks
- Controls administrative access to network devices using RADIUS and TACACS+

This product is intended to serve small to medium-sized businesses, retail sites and enterprise branch offices where customers need an easy-to-use GUI yet require a comprehensive but simple feature set and a lower price point to address their specific deployment needs.

Cisco Policy Administration Point (PAP)
Cisco Policy Administration Point (PAP) provides centralized administration, management and monitoring of entitlement policies, and delegation and integration with enterprise information repositories such as Active Directory and Lightweight Directory Access Protocol (LDAP).

Cisco Secure Access Control Server (ACS) Solution Engine
The Cisco Secure Access Control Server (ACS) Solution Engine is a dedicated, rack-mountable appliance for network access policy control. It helps companies comply with growing regulatory and corporate requirements, improve productivity, and contain costs. It supports multiple scenarios simultaneously, including:

- Device administration—Authenticates administrators, authorizes commands, and provides an audit trail
- Remote Access:—Works with VPN and other remote network access devices to enforce access policies
- Wireless—Authenticates and authorizes wireless users and hosts and enforces wireless-specific policies
- Network admission control—Communicates with posture and audit servers to enforce admission control policies

Cisco Secure Access Control System (ACS) View
Cisco Secure Access Control System (ACS) View provides the highest level of reporting, alerting, and troubleshooting functions for Cisco Secure ACS deployments. Providing maximum visibility into configured policies and authentication and authorization activities across the network, Cisco Secure ACS View is the ideal solution for organizations that require the greatest levels of reporting and control.

Specifications

Component Specifications	Cisco ACS 5.1
CPU	Intel Xeon 2.66-GHz Q9400 (Quad Core)
System memory	4 GB DDR II ECC
Hard disk drive	2 x 250 GB 7.2K RPM 3.5" SATA
Optical storage	DVD-ROM
Network connectivity	4 10/100/1000, RJ-45 interfaces
I/O ports	1 serial port, 4 USB 2.0 (2 front, 2 rear), SVGA Video
Rack-mounting	4-post (kit included)
Physical dimensions (1RU)	17.3 (W) x 22.0 (D) x 1.75 (H) in.; 44.0 (W) x 55.9 (D) x 4.45 (H) cm
Weight	24.25 (minimum) to 28.0 lb (maximum); 11.0-12.7 kg
Power Specifications	
Number of Power Supplies	1
Power Supply Size	351W universal, autoswitching
Environmental Specifications	
Operating temperature range	50 to 95ûF; 10 to 35ûC (up to 3000 ft / 914.4m)
Heat emitted	341 (minimum) to 1024 (maximum) BTUs; 100-300W
Maximum altitude	7000 ft; 2133 m
Component Specifications	
VMware Version	ESX 3.5 or ESX 4.0
CPU	Intel Core 2 (2.13 GHz)
System memory	4 GB
Hard disk requirement	Minimum 512 GB
Cisco Secure Access Control Server (ACS) Express	
Processor	Intel 352 Celeron D
Memory	1 GB RAM
Hard drive	250 GB
Optical Drive	DVD-ROM
Interfaces	Two onboard 10/100/1000 Ethernet NIC ports
Cisco Secure Access Control Server (ACS) 4.2	
Hardware Requirements	· IBM PC compatible with Pentium IV processor, 1.8 GHz or faster · 1GB RAM minimum · Color monitor with minimum graphics resolution of 256 colors at 800 x 600 resolution · CD-ROM drive · 100BaseT or faster network connection

OS Requirements	Windows Server 2003, R2, Service Pack 2
Cisco ACS Secure Solution Engine	
Processor	Pentium IV, 3.4 GHz
Memory	1 GB RAM
Hard drive	120 GB SATA
Optical Drive	CD/DVD combo
Interfaces	Two integrated 10/100/1000 Ethernet ports

Selected Part Numbers and Ordering Information

For the most up to date part numbers, visit http://www.cisco.com/go/acs

For More Information

http://www.cisco.com/go/acs

Secure E-mail and Web

Cisco IronPort Email Security Appliances

Cisco IronPort Email Security solutions provide outstanding protection to organizations of all sizes. Sophisticated and scalable mechanisms help to:

- Minimize the downtime associated with email-borne malware
- Simplify the administration of corporate mail systems
- Reduce the burden on technical staff, while offering insight into mail system operation

Ideal for Companies That Need These Features

Cisco IronPort E-mail Security Appliances	• Anti-spam and anti-virus solution • Data loss prevention (DLP) • Regulatory compliance • E-mail encryption
Cisco IronPort Cloud E-mail Security	• Delivers leadership with choice, providing superior protection and control with the cost-effective convenience of a cloud deployment model. • Stops spam and viruses with a fully-supported infrastructure in Cisco data centers. • Maximum data protection eliminates data contamination, reduces overhead, increases the speed of deployment, and provides capacity assurance for future growth.
Cisco IronPort Hybrid E-mail Security	• Offers that maximizes flexibility by dividing control between the customer site and Cisco cloud-based, software as a service (SaaS) infrastructure. • With a divided control model, whereby appliances reside on the customer premises and in the Cisco data center, this model secures an organization's e-mail infrastructure by stopping spam and viruses. • Provides maximum flexibility and optimal design with additional outbound controls including DLP, encryption and onsite LDAP integration.
Cisco IronPort Managed E-mail Security	• Secures an organization's e-mail infrastructure by stopping spam and viruses, allowing IT managers to focus on other strategic initiatives. • Eliminates the need to continuously train personnel and budget for more hardware due to increasing spam volumes. • Customers benefit from the highest levels of data security provided by an on-site e-mail security appliance, while taking advantage of the flexibility to delegate some or all of the management and maintenance responsibilities.

NOTE: Please contact IronPort for sizing of specific appliances.

Key Features and Benefits

- Cisco IronPort AsyncOS—Cisco IronPort AsyncOS is a unique, high-performance software architecture engineered from the ground up to address concurrency-based communications bottlenecks and the limitations of file-based queuing.
- Cisco IronPort Reputation Filters - Cisco IronPort Reputation Filters perform a real-time e-mail threat assessment and then identify suspicious e-mail senders. Suspicious senders are rate-limited or blocked, preventing malicious traffic from entering the network. As the first line of defense on the Cisco IronPort e-mail security appliances, Reputation Filters dispose of up to 90 percent of incoming spam at the connection level -- saving bandwidth, conserving system resources, and yielding the very highest levels of security for critical messaging systems. A proven preventive solution, Cisco IronPort Reputation Filters defend the largest Internet service provider (ISP) and enterprise networks, as well as small and medium-sized businesses (SMBs), in production environments around the world.
- Cisco IronPort Anti-Spam—The catch rate of Cisco IronPort Anti-Spam is 99 percent. Its false positive rate is less than 1 in 1 million. To eliminate the broadest range of known and emerging e-mail threats, Cisco IronPort Anti-Spam combines best-of-class conventional techniques with breakthrough context-sensitive detection technology.

- Cisco IronPort Outbreak Filters—Stop email-borne targeted attacks in real time, leveraging Cloud web scanning capabilities and SIO. In addition, while continuing to detect new virus outbreaks in real time, Cisco IronPort Outbreak Filters offer protection up to 42 hours before traditional anti-virus solutions.
- Cisco IronPort E-mail Encryption—Cisco IronPort E-mail Encryption technology revolutionizes e-mail encryption, meeting compliance requirements while delivering powerful new business-class e-mail features.
- Cisco IronPort Data Loss Prevention (DLP)—Cisco IronPort delivers high-performance, comprehensive data loss prevention for data in motion, helping organizations both large and small prevent leaks, enforce compliance, and protect their brand and reputation.
- The Cisco SensorBase Network—SensorBase collects data from more than ten times the networks of competing monitoring systems, with data on more than 30 percent of the world's e-mail and Web traffic. This volume provides a very statistically significant sample size, resulting in immediate and accurate detection of even low-volume mail senders. A highly diverse group of more than 100,000 organizations, including some of the largest networks in the world, contribute information to Cisco's SensorBase on a remarkable 10 billion messages per day. SensorBase gives mail administrators excellent real-time visibility into security threats from around the world.
- SIO—Add standard SIO sentence

For More Information

http://www.cisco.com/en/US/products/ps10154/index.html

Cisco IronPort Secure Web Security Appliances

The Cisco IronPort S-Series Web Security Appliance provides multiple layers of defense against these risks, both horizontally (at the application layer) and vertically (up the protocol stack). Cisco IronPort Web Usage Controls enforce acceptable-use policy (AUP), while Cisco Security Intelligence Operations, Cisco IronPort Web Reputation Filters, and the Cisco IronPort Anti-Malware System—with simultaneous scanning by Sophos, Webroot, and McAfee for greater efficacy—provide protection against web-based malware.

The Cisco IronPort S-Series also offers comprehensive coverage for the three most common protocols carrying business information across the boundary and over the Internet: HTTP, HTTPS, and FTP. Finally, the Layer 4 Traffic Monitor detects and blocks phone-home malware activity that attempts to circumvent port 80 security features. With threats becoming more complex and sophisticated, Cisco IronPort S-Series appliances offer one of the industry's most comprehensive Web security protection and enterprise-class performance.

Ideal for Companies That Need These Features

Cisco IronPort S-Series Secure Web Security Appliance	• A secure web gateway, with multiple layers of defense against malware • High security and high performance • Consolidated security, Acceptable Use Policy (AUP), application control, and content caching features, all on a single, integrated appliance • HTTPS decryption and scanning • Data security and off-box DLP support

Key Features and Benefits

- Single appliance security and control—The Cisco IronPort S-Series offers a single appliance solution to secure and control the three greatest web traffic risks facing enterprise networks: security risks, resource risks, and compliance risks.
- Mitigation of malware risks and costs—With malware infecting approximately 75 percent of corporate desktops, overhead for managing infected desktops, ensuring minimal downtime to employees, and minimizing the risk of information leakage is considerable.
- Reduced administrative costs—By stopping these threats at the network perimeter with Cisco IronPort Web Security Appliances, enterprises can significantly reduce the administrative costs, prevent attacker phone-home activity on networks, reduce support calls, enhance worker productivity, and also eliminate the business exposure that accompanies these threats.
- Complete, accurate protection—Cisco IronPort S-Series appliances are designed from the beginning to address the broadest range of web-based malware threats, including those from the use of FTP and dynamic Web 2.0 sites. A multilayered defense that includes Cisco Security Intelligence Operations, Cisco IronPort Web Usage Controls, Cisco IronPort Web Reputation Filters, and Cisco IronPort DVS technology (with multiple antimalware scanning engines running simultaneously) helps ensure industry-leading accuracy.

This multilayered protection is based on a comprehensive content application layer inspection, as well as network layer pattern detection, checking both inbound and outbound activities. These innovations make the Cisco IronPort S-Series one of the industry's most secure web gateways.

- Enforcement of acceptable use policies—By implementing acceptable use web policies, enterprises can both conserve resources for work-related web usage and inform employees to help shape web access behavior over time. Enterprises can increase the amount of time that employees spend on business-oriented activities, reducing misuse of enterprise networks and bandwidth.
- Simplified data security—The data-loss problem extends well beyond malware. Employees can easily use webmail to send a message including proprietary information, post confidential data on social networks and blogs, or transfer financial documents over FTP to a server outside the corporate network. Making sure that sensitive data does not leave the corporate boundary-while allowing employees to take advantage of the full power of the Internet-is an important and challenging problem to solve.

Cisco IronPort Web Security Appliances enable organizations to take quick, easy steps to enforce common-sense data security policies for outbound traffic on HTTP, HTTPS, and FTP, as well as enabling simple interoperability with major dedicated DLP solutions.

- Mobile security across borderless networks—The Cisco AnyConnect Secure Mobility solution supports a wide range of desktops and mobile devices, helping ensure that web security continues to be enforced as employees change which devices they use. By using a standardized security solution for employees whether they are in the office or mobile, IT can also streamline security operations for a compelling TCO.
- SaaS access controls—The Cisco IronPort solution uses a standards-based authentication mechanism to bring sign-on under the control of your enterprise. Taking advantage of the employee credentials and access rights stored in the local directory, either Active Directory or LDAP, administrators retain control over access rights, and employees get a transparent experience using their corporate username and password for accessing all applications.
- Reporting visibility—The Cisco IronPort S-Series appliances deliver real-time and historical security information, allowing administrators to quickly understand web traffic activity. Real-time reports let administrators identify and track factors such as policy and security violations as they occur. Historical reports allow administrators to identify trends and report on efficacy and return on investment (ROI).
- Enterprise-scale performance—Cisco IronPort Web Security Appliances scale to meet the unique scanning needs of web traffic, thereby helping ensure that the employee's experience is maintained. Cisco offers industry-leading performance through its proprietary Cisco IronPort AsyncOS platform, an enterprise-grade web proxy and cache file system as well as an intelligent, multicore engine for rapid content scanning. Consequently, the Cisco IronPort S-Series is a platform that can address the capacity requirements of even the largest of enterprises.
- Low TCO—Traditional solutions typically require multiple appliances or servers to protect against security, resource, and compliance risks. Unlike other solutions, the Cisco IronPort S-Series provides a single platform that contains a complete, in-depth defense-along with all the necessary management tools-significantly reducing initial and ongoing TCO.
- Reduced administrative overhead—Designed to minimize administrative overhead, Cisco IronPort Web Security Appliances offer easy setup and management with an intuitive GUI, support for automated updates, and comprehensive monitoring and alerting. The solution is also easy to deploy and configure to match corporate-specific policies.

Specifications

Feature	S660	S360	S160
User Targets	10000+	1000-10000	< 1000
Chassis			
Form Factor	2RU	2RU	1RU
Dimensions	3.5" (h) x 17.5" (w) x 29.5" (d)	3.5" (h) x 17.5" (w) x 29.5" (d)	1.75" (h) x 17.5" (w) x 21.5" (d)
Power Supply	750 watts, 100/240 volts	750 watts, 100/240 volts	345 watts, 100/240 volts
Redundant Power Supply	Yes	Yes	No
Processor, Memory, and Disks			
CPUs	2x4 (2 Quad Cores) XEONs	1x4 (1 Quad Core) XEONs	2x2 (1 Dual Core) Pentium
Memory	8 GB	4 GB	4 GB
Disk Space	1.6 TB	1.2 TB	500 GB
Hot Swappable Hard Drives	Yes	Yes	No
RAID	RAID 10, battery-backed 256MB cache	RAID 10, battery-backed 256MB cache	RAID 1, battery-backed 256MB cache
Interfaces			
Ethernet	6xGigabit NICs, RJ-45	6xGigabit NICs, RJ-45	2xGigabit NICs, RJ-45
Serial	1xRS-232 (DB-9) Serial	1xRS-232 (DB-9) Serial	1xRS-232 (DB-9) Serial
Fiber	Optional	No	No
Configuration, Logging, and Monitoring			
Web Interface	GUI-based (HTTP or HTTPS)	GUI-based (HTTP or HTTPS)	GUI-based (HTTP or HTTPS)
Command Line Interface	SSH or Telnet (Configuration Wizard or command-based)	SSH or Telnet (Configuration Wizard or command-based)	SSH or Telnet (Configuration Wizard or command-based)
Logging	Squid, Apache, syslog	Squid, Apache, syslog	Squid, Apache, syslog
Centralized Reporting	Supported	Supported	Supported
File Transfer	SCP, FTP	SCP, FTP	SCP, FTP
Configuration Files	XML-based	XML-based	XML-based
Centralized Configuration	Supported	Supported	Supported
Monitoring	SNMPv1-3, e-mail alerts	SNMPv1-3, e-mail alerts	SNMPv1-3, e-mail alerts

Selected Part Numbers and Ordering Information

The following information pertains to Cisco IronPort bundle offerings. For a-la-carte, government, or educational pricing please contact a Cisco IronPort sales representative at sales@ironport.com.

Note: All bundles include Platinum Support, Rails (4-Post Square), and Sawmill Software for Cisco IronPort URL Filtering, Web Reputation Filters, and Anti-Malware System; the Cisco IronPort Anti-Malware System includes signatures from Webroot and McAfee.

Note the following abbreviations: URL = URL Filtering; ASPY = Antispyware; WEBREP = Cisco IronPort Web Reputation Filters; AV = Antivirus and antimalware

Single Appliance Bundles (1 Year)		
URL	**URL+WREP**	**URL+WREP+ASPY+AV**
WBUN-1A-EN-A-1Y	WBUN-1A-EN-AB-1Y	WBUN-1A-EN-ABC-1Y
Single Appliance Bundles (3 Year)		
URL	**URL+WREP**	**URL+WREP+ASPY+AV**
WBUN-1A-EN-A-3Y	WBUN-1A-EN-AB-3Y	WBUN-1A-EN-ABC-3Y
Single Appliance Bundles (5 Year)		
URL	**URL+WREP**	**URL+WREP+ASPY+AV**
WBUN-1A-EN-A-5Y	WBUN-1A-EN-AB-5Y	WBUN-1A-EN-ABC-5Y
Dual Appliance Bundles (1 Year)		
URL	**URL+WREP**	**URL+WREP+ASPY+AV**
WBUN-2A-EN-A-1Y	WBUN-2A-EN-AB-1Y	WBUN-2A-EN-ABC-1Y
Dual Appliance Bundles (3 Year)		
URL	**URL+WREP**	**URL+WREP+ASPY+AV**
WBUN-2A-EN-A-3Y	WBUN-2A-EN-AB-3Y	WBUN-2A-EN-ABC-3Y
Dual Appliance Bundles (5 Year)		
URL	**URL+WREP**	**URL+WREP+ASPY+AV**
WBUN-2A-EN-A-5Y	WBUN-2A-EN-AB-5Y	WBUN-2A-EN-ABC-5Y

For More Information

http://www.cisco.com/web/products/ironport

Cisco IronPort M-Series Security Management Appliance

The Cisco IronPort M-Series Security Management Appliance complements all of the Cisco IronPort e-mail and web security appliances. By helping ensure top performance for all of your application security gateways, the Cisco IronPort M-Series provides one location for you to monitor all corporate policy settings and audit information. Designed and built as a flexible management tool to centralize and consolidate policy and runtime data, this product can provide a single management interface for all of your organization's Cisco IronPort security appliances. Optional features allow you to run all your security operations from a single appliance, or to spread the load across multiple appliances.

Ideal for Companies That Need These Features

Cisco IronPort M-Series Security Management Appliance

- Top performance from Cisco IronPort e-mail and web security appliances
- A central platform for managing all reporting and auditing information
- Comprehensive visibility into all e-mail traffic
- Flexible management and complete security control at the network gateway
- Deployment flexibility and management to protect corporate network integrity

Key Features and Benefits

- Each Cisco IronPort M-Series appliance can host one or more of the innovative security management features available from the Cisco IronPort appliance to ease administrator workload.
- The end-user quarantine is a self-service solution, with an easy-to-use web or e-mail-based interface and simple integration into existing directory and mail systems. All operations are automatic and self-managing, so there is no risk of a capacity overload. Most importantly, the Cisco IronPort Spam Quarantine requires no maintenance by the administrator or the end user.
- End users can be authenticated either through a corporate Lightweight Directory Access Protocol (LDAP) directory or with their regular e-mail password for any standards-based Internet Message Access Protocol (IMAP) or point-of-presence (POP) server. Message distribution lists can be managed through one-click authentication from the quarantine message digests.
- Centralized reporting allows for consolidation of traffic data from multiple e-mail security appliances to provide fully integrated security reporting.
- Cisco IronPort third-generation reporting technology provides comprehensive insight into even the highest-volume networks in the world. Detailed and accurate information is coalesced into clear and informative reports, suitable for all levels of your organization.

- Cross-application reporting provides insight into the threats being blocked from inside and outside your network, internal user behavior, and critical content security policy infractions [[is this what you mean? Otherwise, you're saying the reporting provides insight into ... policy]]. You can see which users are sending the most mail, and track policy infractions across any department, site, or communication medium.
- End-to-end communications auditing enables administrators to know where and when a communication took place. They can search message telemetry for multiple e-mail security appliances or request-response data from the web and report the full scanning and delivery details.
- The Cisco IronPort M-Series is a centralized policy and device management system that provides fine-grained role-based and hierarchical access to security and policy settings across hundreds of Cisco IronPort S-Series devices, improving security and reducing management overhead by allowing for delegation of critical policy decisions.
- You can use the Cisco IronPort M-Series appliance to manage quarantines, reporting data, and message tracking information—letting you dedicate your other appliances to mitigating e-mail and web security threats.
- All upgrades and new features are delivered directly from the Cisco IronPort appliance for your approval, and then automatically installed and managed.

Specifications

Chassis	IronPort M1060	IronPort M660	IronPort M160
Form Factor	19" rack-mountable 2RU rack height	19" rack-mountable 2RU rack height	19" rack-mountable 2RU rack height
Dimensions	3.5" (h) x 17.5" (w) x 29.5" (d)	3.5" (h) x 17.5" (w) x 29.5" (d)	1.75" (h) x 17.5" (w) x 21.5" (d)
Power Supply	750 watts, 100/240 volts	750 watts, 100/240 volts	345 watts, 100/240 volts
Processor, Memory, and Disks			
CPUs	2x4 (Quad Cores) Intel XEON	2x4 (Quad Core) Intel XEON	1x2 (Dual Core) Intel XEON
Disk Space	3 TB	1.8 TB	500 GB
RAID	RAID 10, battery-backed 256MB cache	RAID 10, battery-backed 256MB cache	RAID 1, battery-backed 256MB cache
Interfaces			
Ethernet	3xGigabit NICs, RJ-45	3xGigabit NICs, RJ-45	2xGigabit NICs, RJ-45
Fiber	Yes	No	No
Web Interface	GUI-based (HTTP or HTTPS)	GUI-based (HTTP or HTTPS)	GUI-based (HTTP or HTTPS)

Selected Part Numbers and Ordering Information

The following information pertains to Cisco IronPort bundle offerings. For a-la-carte, government, or educational pricing please contact a Cisco IronPort sales representative at sales@ironport.com.

Cisco IronPort Security Reporting Bundle

This bundle is for e-mail only.

- All new deals include a Cisco IronPort M160 Security Management Appliance
- All bundles include the following licenses for up to two E-mail Security Appliances
  - IronPort spam quarantine
  - Centralized e-mail reporting
  - Centralized message tracking
- All bundles include platinum support and rails (4-post square)
- For 5-year bundle contracts only—If IronPort, in its sole discretion, creates a new version or upgrade that is delivered to customer as part of the support and maintenance program and the software specifically licensed by the customer is incompatible with the IronPort hardware the customer uses to run the software, IronPort will upgrade the customer's incompatible hardware at no additional charge.

New Deals (1 Year)		
SKU	**ISQ + Reporting + Tracking**	**Users**
MBUN-1A-EN-ABC-1K-1Y	5000.00	100 to 999
MBUN-1A-EN-ABC-2K-1Y	11,675.00	1000 to 2000
New Deals (3 Years)		
SKU	**ISQ + Reporting + Tracking**	**Users**
MBUN-1A-EN-ABC-1K-3Y	9000.00	100 to 999
MBUN-1A-EN-ABC-2K-3Y	21,000.00	1000 to 2000
New Deals (3 Years)		
SKU	**ISQ + Reporting + Tracking**	**Users**
MBUN-1A-EN-ABC-1K-3Y	9000.00	100 to 999

Security Management Appliances	
M1050-BUN-R-NA	Cisco IronPort M1050, Standard Configuration

M650-BUN-R-NA	Cisco IronPort M650, Standard Configuration
M1060-BUN-R-NA	Cisco IronPort M1060, Standard Configuration
M660-BUN-R-NA	Cisco IronPort M660, Standard Configuration
M160-BUN-R-NA	Cisco IronPort M160, Standard Configuration
M1050-BUN-S-NA	Cisco IronPort M1050, Spare Unit (production unit required)
M650-BUN-S-NA	Cisco IronPort M650, Spare Unit (production unit required)
M1060-BUN-S-NA	Cisco IronPort M1060, Spare Unit (production unit required)
M660-BUN-S-NA	Cisco IronPort M660, Spare Unit (production unit required)
M160-BUN-S-NA	Cisco IronPort M160, Spare Unit (production unit required)
M1050-BUN-U-NA	Cisco IronPort M1050, Refurbished Unit
M650-BUN-U-NA	Cisco IronPort M650, Refurbished Unit

For More Information

http://www.cisco.com/en/US/products/ps10155/index.html
http://www.ironport.com/management

Cisco ScanSafe Cloud Web Security

ScanSafe Web Security is powered by Outbreak Intelligence™ which is comprised of numerous correlated detection technologies, automated machine-learning heuristics, and multiple "scanlets". Outbreak Intelligence builds a detailed view of each Web request and the associated security risk to ensure that ScanSafe customers use the Web safely.

Outbreak Intelligence scans over 1 billion Web requests a day, in real-time, stopping millions of malware instances and protecting thousands of the most demanding organizations around the world. Outbreak Intelligence scanlets analyze all elements of a Web request including HTML, JavaScript, Flash and active scripts, among others, which when coupled with numerous Context scanlets, offers multiple indicators as to the security posture of each Web request.

Ideal for Companies That Need These Features

Cisco ScanSafe Web Security

- Proactive, in-the-cloud protection against zero-day threats
- Prevent malware that is attempting to steal confidential data
- Protect against malware communication leaving the network
- Easily identify infected machines on your network
- Reduce time and resources used to remediate infected machines

Key Features and Benefits

- In-depth security analysis of all Web content as it is requested by end users
- High performance, secure Web access enabled by a global, multi-tenant infrastructure
- Powered by Outbreak Intelligence that is proven to block over 20% more malware than traditional security techniques
- Granular reporting to determine and resolve users that are infected by malware or are at risk

For More Information

http://www.cisco.com/en/US/products/ps11720/index.html

Cisco ScanSafe Web Filtering

ScanSafe Web Filtering offers granular control over all Web content, including SSL encrypted communications, utilizing multiple techniques including real-time dynamic Web content classification, an industry-leading URL filtering database, file type filters and early warning filtering and real-time scanning of search results with Search*Ahead*.

Enabled in-the-cloud, ScanSafe Web Filtering enables businesses to implement granular control for both inbound and outbound communications while realizing cost savings of up to 40% by eliminating the need to purchase, deploy and maintain hardware required for on-premise solutions. ScanSafe Web Filtering allows businesses to be in complete control of how end users access content on the Internet by providing intuitive tools to create, monitor, and enforce effective inbound and outbound Web policy.

ScanSafe Web Filtering is managed through an intuitive Web-based interface, ScanCenter, which integrates all management and reporting capabilities. Through ScanCenter, a global Web usage policy can be created and enforced across the organization, even down the group or user level. Any edits to the policy are rolled out in real time without having to wait for policy changes to propagate throughout the network.

Ideal for Companies That Need These Features

Cisco ScanSafe Web Filtering	· Limit legal liability by controlling access to inappropriate Web content · Optimize network resources by reducing bandwidth consumption · Enhance productivity by limiting non-business related Web activity · Limit exposure to financial and other penalties related to the loss of confidential data · Understand and control how your network resources are being used

Key Features and Benefits

- Control all Web-based traffic including SSL encrypted communications
- Prevent confidential data from leaving the network
- Ensure safe search engine results
- Granular reporting on all aspects of Web usage

For More Information

http://www.cisco.com/en/US/products/ps11733/index.html

Secure Mobility

Cisco AnyConnect Secure Mobility Solution

With Cisco AnyConnect Secure Mobility Solution, users can access the network with their mobile device of choice, including laptops and handhelds. At the same time, this solution helps your organization easily manage the security risks of borderless networks.

This mobile security solution provides:

- Security policy enforcement that is context-aware, comprehensive, and preemptive
- Connectivity that is intelligent, simple, and always on
- Highly secure mobility across the rapidly increasing number of managed and unmanaged mobile devices

The Cisco AnyConnect Secure Mobility solution consists of the following components:

- Cisco AnyConnect Secure Mobility Client for highly secure connectivity
- Cisco IronPort Web Security Appliance for security policy enforcement
- Cisco AnyConnect Secure Mobility Solution enables the connection to simply work and be persistently connected, without the user needing to juggle where and how to best connect and persist, even when roaming between networks.
- The Cisco IronPort S-Series Web Security Appliance applies context-aware policy, including enforcing acceptable use and protection from malware for all users. The Web Security Appliance also accepts user authentication information from the AnyConnect client, providing an automatic authentication step for the user to access their web content.
- Cisco ASA Series as the firewall and secure mobility headend Cisco AnyConnect Version 3.0, with Cisco ASA 5500 Series Adaptive Security Appliances at the headend, provides the remote-access connectivity portion of Cisco AnyConnect Secure Mobility.

Ideal for Companies That Need These Features

Cisco AnyConnect Secure Mobility Solution	For end users, Cisco AnyConnect Secure Mobility provides: · A connectivity experience that is intelligent, seamless and always-on · Secure mobility across today's proliferating managed and unmanaged mobile devices · For security administrators, Cisco AnyConnect Secure Mobility provides: · Security policy enforcement that is context-aware, comprehensive and preemptive · Reduced operating costs with a simplified IT operations for all end users · Improved customer satisfaction by providing flexibility and choice for end users For company executives, Cisco AnyConnect Secure Mobility provides: · Ability to boost productivity by enabling mobile access from any device without compromising security · Provide the end users choice of how, when, and where to access their information

Key Features and Benefits

- Security policy enforcement that is context-aware, comprehensive and preemptive
- A connectivity experience that is intelligent, seamless and always-on
- Secure mobility across today's proliferating managed and unmanaged mobile devices

Specifications

Advanced IP Network Connectivity	· Access to internal IPv4 and IPv6 network resources · Centralized split tunneling control for optimized network access IP address assignment mechanisms: · Static · Internal pool · Dynamic Host Configuration Protocol (DHCP) · RADIUS/LDAP
Client Firewall Policy	· Added protection for Split Tunneling configurations. · Used in conjunction with Cisco Secure Mobility to allow for local access exceptions (i.e. printing, tethered device support, etc). · Supports port-based rules for IPv4 and network/IP Access Control Lists (ACLs) for IPv6. · Available for Windows XP SP2, Vista, Windows 7 & Mac OS X
AnyConnect Profile Editor	· AnyConnect policies may be customized directly from Cisco ASDM (Adaptive Security Device Manager).
Pre-connection Posture Assessment (Premium license required)	· In conjunction with Cisco Secure Desktop, Host Scan verification checking seeks to detect the presence of antivirus software, personal firewall software, and Windows service packs on the endpoint system prior to granting network access. · Administrators also have the option of defining custom posture checks based on the presence of running processes. · Cisco Secure Desktop can detect the presence of a watermark on a remote system. The watermark can be used to identify assets that are corporate-owned and provide differentiated access as a result. The watermark checking capability includes system registry values, file existence matching a required CRC32 checksum, IP address range matching, and certificate issued by/to matching. · An advanced endpoint assessment option is available to automate the process of repairing out-of-compliance applications.

For More Information

http://www.cisco.com/en/US/netsol/ns1049/index.html

Cisco Adaptive Wireless IPS Software

Cisco Adaptive Wireless Intrusion Prevention System (IPS) offers advanced network security for dedicated monitoring and detection of wireless network anomalies, unauthorized access, and RF attacks. Fully integrated with the Cisco Unified Wireless Network, this solution delivers integrated visibility and control across the network, without the need for an overlay solution.

To further reduce capital investment, organizations can now benefit from the Enhanced Local Mode feature, allowing them to capitalize on the same access points they're already using for data, voice, and video traffic to provide Adaptive Wireless IPS functionality.

Selected Part Numbers and Ordering Information

Cisco Adaptive wIPS in Cisco Unified Wireless Network Version 5.2 or later is a licensed software feature set on the Cisco Mobility Services Engine. The following table shows the license levels available for Adaptive wIPS. These licenses levels may be combined in any permutation to arrive at the count of access points you need to run Adaptive wIPS. For example, combining a five access point and a 25 access point license yields a license to run Adaptive wIPS on 30 access points.

Cisco Adaptive Wireless IPS Software Licenses	
AIR-WIPS-AP-5	Adaptive wIPS Software License: Supports 5 Cisco Monitor-Mode Access Points
AIR-WIPS-AP-25	Adaptive wIPS Software License: Supports 25 Cisco Monitor-Mode Access Points
AIR-WIPS-AP-100	Adaptive wIPS Software License: Supports 100 Cisco Monitor-Mode Access Points
AIR-WIPS-AP-500	Adaptive wIPS Software License: Supports 500 Cisco Monitor-Mode Access Points
AIR-WIPS-AP-2000	Adaptive wIPS Software License: Supports 2000 Cisco Monitor-Mode Access Points

For More Information

http://www.cisco.com/en/US/products/ps9817/index.html

VPN Services for Cisco ASA Series

Today's remote-access VPN deployments require the ability to safely and easily extend corporate network access beyond managed desktops to different user devices, while protecting these endpoints and key corporate resources from ever-evolving threats.

Secure Remote Access, powered by the Cisco ASA 5500 Series SSL/IPsec VPN Edition, enables organizations to securely and seamlessly provide resource access to a broad array of users, contractors, and business partners on the largest variety of mobile and fixed endpoints.

Supporting a wide range of deployment and application environments, the Cisco ASA 5500 Series delivers maximum value to your organization with the most comprehensive set of Secure Socket Layer (SSL) and IP security (IPsec) VPN features, performance, and scalability in the industry. The solution, comprised of a single unified platform: the Cisco ASA 5500 Series and the AnyConnect Secure Mobility Client, enables organizations to use a powerful combination of seamless controlled access and market-proven, best-of-breed firewall, intrusion prevention inspection, and web threat prevention that enables mobile workers to be productive while protecting corporate interests. With inclusive support for unrestricted full-network access, as well as controlled access to select web-based applications and network resources, the platform provides the flexibility required by any VPN deployment.

For More Information

http://www.cisco.com/en/US/prod/collateral/vpndevc/ps6032/ps6094/ps6120/prod_brochure0900aecd80402e39.html

Cisco 3300 Series Mobility Services Engine

The Cisco 3300 Series Mobility Services Engine is an open platform that provides a new approach for the delivery of mobility services to enable mobile business applications. A combination of hardware and software, the Mobility Services Engine is an appliance-based solution that supports a suite of software services to provide centralized and scalable service delivery. The Mobility Services Engine transforms the wireless LAN into a mobility network by abstracting the application layer from the network layer, effectively allowing for the delivery of mobile applications across different types of networks, including Wi-Fi, Ethernet, cellular, and RFID.

The Cisco 3300 Series Mobility Services Engine provides an open API that allows a broader ecosystem of partners to access network intelligence in developing industry-relevant mobility solutions. The Mobility Services Engine is an extension of the Cisco Unified Wireless Network, and integrates with Cisco Unified Communications and Cisco compatible devices to deliver a comprehensive approach to business mobility-an approach that extends applications to the right device at the right time, no matter which network is being used.

Key Features and Benefits

- Simplifies provisioning and management of mobility services
- Offers scalable and reliable multidevice, multinetwork application delivery
- Facilitates a broad partner ecosystem for mobile applications development
- As a component of the Cisco Unified Wireless Network, supports lightweight access points
- Integrates with the Cisco Unified Wireless Network, including the Cisco Wireless Control System, for a single mobility management solution

The Cisco 3350 Mobility Services Engine transforms existing WLANs into comprehensive mobility networks through a uniform method of mobility services delivery.

The Cisco 3350 Mobility Services Engine software suite includes:

- Cisco Context-Aware Software to track up to 18,000 devices
- Cisco Mobile Intelligent Roaming for up to 2000 simultaneous devices
- Cisco Adaptive Wireless Intrusion Prevention System (IPS) Software

Specifications

Feature	Cisco 3310	Cisco 3350
Supported Services	• Context-aware software to track up to 2000 devices • Adaptive Wireless Intrusion Prevention System software to support up to 2000 monitor mode access points	• Context-aware software to track up to 18,000 devices • Adaptive Wireless Intrusion Prevention System software to support up to 3000 monitor mode access points.
Evaluation Support	• Customers who purchase a mobility service have the option to trial other mobility services on their MSE at the following scale: • Context-aware client tracking: 100 Clients • Context-aware tag tracking: 100 Tags • Adaptive Wireless Intrusion Prevention: 20 monitor mode access points	
Processor	(1) Dual-Core Intel Processor 1.8 GHz	(2) Quad-Core Intel Xeon Processors 2.33 GHz
Memory	4-GB PC2-5300 (4 x 1 GB)	8-GB PC2-5300 (4 x 2 GB)
Hard Disk	(2) Fixed 247-GB Serial ATA-150 / SATA-300 MBps	(2) Hot-swappable 137-GB SAS-300 MBps drives
Connectivity	Network: Two embedded Multifunction Gigabit Network Adapters	Network: Two embedded Multifunction Gigabit Network Adapters with TCP/IP Offload Engine
Management	SNMP v1, v2c, and v3	SNMP v1, v2c, and v3
Management Interface	Cisco WCS Mobility Services v.5.2 or greater running Internet Explorer 6.0/Service Pack 1 or later	Cisco WCS Mobility Services v.5.2 or greater running Internet Explorer 6.0/Service Pack 1 or later

Network Devices	Cisco 2100, 4400 & 5500 Series Wireless LAN Controllers; Cisco Catalyst 6500 Series Wireless Services Module, Cisco Catalyst 3750G Integrated Wireless LAN Controller, Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for Integrated Services Routers; Cisco Aironet® lightweight access points	Cisco 2100, 4400 & 5500 Series Wireless LAN Controllers; Cisco Catalyst 6500 Series Wireless Services Module, Cisco Catalyst 3750G Integrated Wireless LAN Controller, Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for Integrated Services Routers; Cisco Aironet lightweight access points
Programming Interfaces	SOAP/XML APIs	SOAP/XML APIs
Form Factor	· 1.70 in. x 16.78 in. x 20 in. (4.32 cm x 42.62 cm x 50.8 cm) · 15 lbs (6.8 kg) maximum	· 1.70 in. · x 16.78 in. x 27.25 in. (4.32 cm x 42.62 cm x 69.22 cm) · 39.5 lbs (17.92 kg) maximum
Power	· AC power supply wattage: 540W · AC power supply voltage: 100-120V at 50-60 Hz; 200-240V at 50-60 Hz	· AC power supply wattage: 852W · AC power supply voltage: 100-120V at 50-60 Hz; 200-240V at 50-60 Hz · Redundant Power Supplies
Software Compatibility	· Available with Cisco Mobility Services Engine (MSE) Software Release 5.2 or later · Requires WLC software version 4.2.130 or later and Wireless Control System (WCS) Version 5.2 or later · Multiple mobility services can run concurrently on the same MSE using WLC and MSE Software Release 6.0 or later · Supported services may have different software requirements	· Available with Cisco Mobility Services Engine (MSE) Software Release 5.1 or later · Requires WLC software Version 4.2.130 or later and WCS Version 5.1 or later · Multiple mobility services can run concurrently on the same MSE using WLC and MSE Software Release 6.0 or later · Supported services may have different software requirements

Selected Part Numbers and Ordering Information

AIR-MSE-3350-K9	Cisco 3350 Series Mobility Services Engine
AIR-MSE-3310-K9	Cisco 3310 Series Mobility Services Engine

For More Information

http://www.cisco.com/en/US/products/ps9742/index.html

Cisco Virtual Office

Remote worker solutions from Cisco boost flexibility and productivity and extend the enterprise by delivering secure, rich, and manageable network services to teleworkers and employees working outside the traditional office environment. By providing full IP phone, wireless, data, and video services, Cisco Virtual Office provides a smooth, office-caliber experience to staff, wherever they may be located.

The Cisco Virtual Office solution consists of the following components:

- A remote-site presence with a Cisco 800 Series Integrated Services Router and a Cisco Unified IP Phone 7900 Series phone.
- Headend presence remote-site aggregation includes a VPN router and centralized management software for policy, configuration, and identity controls. Cisco and approved partners provide deployment and ongoing services for successful deployment and integration as well as consultative guidance for automating the deployment.

Deployment Options

Cisco Virtual Office includes provisioning and management through numerous management tools that provide the ability to define network-wide policy, use identity for authorization, and actively update configurations at remote sites.

Cisco Virtual Office Express refers to a simplified architecture to address initial installation steps. It extends the same network services available through the Cisco Virtual Office solution but is distinct in its ability to quickly set up the secured connections between sites. Cisco Virtual Office Express has a reduced number of management and headend components to provide rich functions while keeping operating costs low.

Solution Benefits

The Cisco Virtual Office solution addresses many of the requirements associated with remote working for both end users and organizations alike. In doing so, it also provides benefits across three distinct organizational groups:

- For end users—Cisco Virtual Office allows schedule flexibility and improves work/life balance by providing the ability to work at home or on the road. The solution also provides integrated family support with multiple Service Set Identifiers (SSIDs) for wireless and separate VLANs for a secure "split-tunneling."
- For IT groups—Cisco Virtual Office simplifies the process of extending real-time, high-performance network services to remote locations. These services are delivered without any compromise to the overall security policy. Traffic is protected through VPN technologies, and authorization to access corporate resources is managed through strict identity controls. This solution also provides architecture for centralized, simplified management and operations, and contributes to improved scalability security and low total cost of ownership. For example, Cisco IT effectively supports more than 20,000 Cisco Virtual Office deployments with just a handful of resources. This support is particularly important because users at these

locations have heightened expectations for the delivery of virtual office services, and these locations typically do not have IT staff for onsite support. For an even simpler deployment model, Cisco Virtual Office Express comprises a single, integrated device that results in initial cost savings as well as investment protection in the form of the scalability and modularity of the routers as business needs expand. With only one management solution to learn, training needs are minimized and ongoing operations are simplified.

- For businesses and organizations—This solution improves productivity of the workforce while saving costs associated with energy, facilities, and real estate. It also enables better business resiliency, allowing the workforce to stay secure and connected if employees cannot get to the office or are traveling.

A Differentiated Solution

Teleworkers and technology that enables teleworking has existed for many years, but the solutions in the past have typically lacked a critical component, creating a barrier to adoption. Perhaps the solution is not robust enough to handle communication and collaboration applications. Perhaps it lacks the proper security controls to comply with corporate standards. Or perhaps it does not use unified communications or wireless technologies, making it less convenient. Cisco Virtual Office delivers a truly comprehensive solution that addresses each of these concerns, providing mutual benefits to the end user, the IT department—and ultimately—the business.

For More Information

http://www.cisco.com/go/cvo

Security Management

Cisco Security Manager

Cisco Security Manager is an enterprise-class management application that provides insight into and control of Cisco security and network devices. Cisco Security Manager offers comprehensive security management (configuration and event management) across a wide range of Cisco security appliances, including Cisco ASA Adaptive Security Appliances, Intrusion Prevention System (IPS) Sensor Appliances, Integrated Services Routers, Firewall Services Modules, and Cisco Catalyst 6000 Series Switches. Cisco Security Manager allows you to efficiently manage networks of all sizes-from small networks to large networks consisting of hundreds of devices.

Cisco Threat Defense

Cisco threat defense helps organizations secure and manage their borderless network environment. Organizations are protected from today's dynamic threat environment using proactive intelligence from Cisco Security Intelligence Operations (SIO), market-leading network security devices, and a single, integrated management platform.

Simplified Security Management

- Next-generation Cisco Security Manager enables organizations to gain insight and control of the entire security topology through a single, integrated user interface, including:
  - Global policies for Cisco ASA and IPS Appliances
  - Single console for configuration and device changes
- Next-generation Cisco Security Manager increases visibility into security environment so that you can better understand and respond to threat patterns and risk. Features include:
  - Single view of Cisco IPS with Cisco Global Threat Correlation engine and ASA-thwarted events
  - Single view of traffic statistics
  - Drill-down capabilities
  - Integration of reputation data into IPS events
  - Dynamic policy tuning based on actionable events
- Cisco IPS with the Cisco Global Threat Correlation engine reduces the time needed to manage IPS by providing more accurate detection and automated rule sets
- Support for event-to-policy linkages and cross-launching
- Integrated troubleshooting tools such as Cisco Packet Tracer and the traceroute command
- Detection of out-of-band changes and selective ASA policy management for heterogeneous operational IT environments
- Simplified policy definition paradigms for ASA appliances (providing Network Address Translation [NAT] services) and Global Access Rules for improved management efficiency
- Enhanced support for Cisco's latest intrusion protection system (IPS) and firewall features, such as Botnet Traffic Filter and the Global Threat Correlation engine, for an improved threat response experience

For More Information

http://www.cisco.com/go/csmanager

Physical Security

Cisco Physical Access Gateway



An integral component of the Cisco Physical Access Control solution, the Cisco Physical Access Gateway is the primary module used to connect door hardware (readers, locks, etc.) to the IP network. The gateway can connect to a maximum of two doors and associated inputs and outputs.

The Cisco Physical Access Gateway is a mandatory component of any access-control deployment. The following optional modules may be connected to the Cisco Physical Access Gateway to control additional doors, inputs, and outputs:

- Cisco Physical Access Gateway Reader Module
- Cisco Physical Access Gateway Input Module
- Cisco Physical Access Gateway Output Module

Key Features and Benefits

- Manage up to two doors
- Additional module support
- Reader and lock power
- Credential cache
- Event cache
- Encryption

Specifications

Feature	Cisco Physical Access Gateway			
Housing	Aluminum			
Dimensions (LxWxH)	5 x 7 x 2.14 in. 127 x 178 x 54.6 mm			
Weight	Without Plugs and Brackets	With Plugs	With Brackets	With Plugs and Brackets
	1.65 lb (749 g)	1.8 lb (817 g)	1.81 lb (823 g)	1.97 lb (891 g)
Certifications	FCC UL CE			
Operating Temperature	Indoors only 32 to 122ûF (0 to 50ûC)			
Humidity	5 to 95% relative, non-condensing			
Power	There are two options to power the device: 12 to 24 VDC (+/- 10%) through an external power supply 802.3AF-compliant Power over Ethernet (PoE) connected to the Ethernet 0 connector			

Selected Part Numbers and Ordering Information[1]

CIAC-GW-K9	Cisco Physical Access Gateway

1. The Cisco Physical Access Gateway is available through Cisco Authorized Technology Provider (ATP).

For More Information

http://www.cisco.com/en/US/products/ps9687/index.html

Cisco Physical Access Manager

Cisco Physical Access Manager is the management application for the Cisco Physical Access Control solution. It comes installed on hardware, and is sold as an appliance. This application is used to configure Cisco Physical Access Gateways and Modules, monitor activity, enroll users, and integrate with IT applications and data stores.

Key Features and Benefits

- Thick client and web browser support—Cisco Physical Access Manager supports a thick client model for provisioning and operation. Clients running Windows XP or Windows 7 communicate to the Cisco Physical Access Manager for full-featured operations and administrative purposes. Also supported is a Microsoft Internet Explorer 8 browser connection directly to the Cisco Physical Access Control server and gateways for device administration.
- Microsoft Active Directory integration—You can configure administrative users of Cisco Physical Access Manager to use Microsoft Active Directory for authentication.

- Badging and enrollment—An optional licensable module enables the creation of badge templates, badge printing, taking user photographs, and enrolling users into the Cisco Physical Access Manager user database.
- Device configuration—You can configure Cisco Physical Access Gateway hardware using Cisco Physical Access Manager. The access gateway contacts Cisco Physical Access Manager to download preprovisioned configuration information.
- Access policies—You can assign areas (comprising a group of doors) and users entry permission based on schedules.
- User rights —You can assign permissions to administrative users of the Cisco Physical Access Manager, and you can tailor user profiles very specifically.
- Credential management—You can edit cardholder credentials, including systemwide card formats.
- Alarm and event management—Cisco Physical Access Manager provides a view of events and alarms in the system. You can filter alarm and event views based on several criteria.
- Global I/O thick client and web browser support— Cisco Physical Access Manager supports a thick client model for provisioning and operation. Clients running Windows XP or Windows 7 communicate to the Cisco Physical Access Manager for full-featured operations and administrative purposes. Also supported is a Microsoft Internet Explorer 8 browser connection directly to the Cisco Physical Access Control server and gateways for device administration.
- Reporting—You can create standard and custom reports with Cisco Physical Access Manager.
- Audit trails—Cisco Physical Access Manager provides a log of all administrative uses of the system, arranged by user.
- Enterprise application integration—An optional licensable component allows Cisco Physical Access Manager to be synchronized with data from either external SQL databases or Microsoft Active Directory. Large numbers of records (including .jpg photographs) can now be imported from external systems into the Cisco Physical Access Manager database using the Cisco Enterprise Data Integration (EDI) tool.
- Cisco Video Surveillance Manager integration—Cisco Physical Access Manager dynamically acquires camera inventory from Cisco Video Surveillance Manager and associates cameras to doors; you can view recorded or live video for every event from the door.
- License management—You can add license files (capacity upgrades or feature additions) to the application.
- Server administration—You can administer the Cisco Physical Access Manager appliance by performing tasks such as IP address assignment.
- Access gateway image management—You can upgrade Cisco Physical Access Gateway images using the Cisco Physical Access Manager.
- Configuration backup—You can back up the entire configuration to an external server.
- System restore—You can restore previously backed up configuration from an external server.
- High availability—You can configure two Cisco Physical Access Manager appliances as a pair to provide warm standby redundancy; you must install the secondary appliance with a high-availability license.
- URL invocation—HTTP/S URLs can be invoked as a result of any event or alarm. Event data can be inserted in the URL to integrate with any external application that accepts URL invocations. URL actions can be sent from the Cisco Physical Access Manager or directly from the Cisco Physical Access Gateway.
- Web services API—A licensable option allows for external systems to use a web services API to integrate with Cisco Physical Access Manager. A SOAP binding over HTTP and HTTPS is supported.
- Internationalization support —Language packs can be added displaying Cisco Physical Access Manager menu text in a language other than English. For debugging purposes, both English and the local language can be displayed at the same time.
- Event management —New events generated by the system can be effectively managed and old events can be archived, automatically reducing the event database size.
- Events can be excluded from system backups, significantly reducing the backup file size.
- Event policies—Event policies can be set up to suppress alarms from device(s) or all devices from a location based on a schedule.

  For example, an education customer can create different event policies for different schools. Each policy can include the alarm type (such as motion detection) together with the cameras assigned to the location of a specific school. A schedule can also be associated with the event policy so events are logged only after normal working hours. If each school has different working hours, the user can create multiple schedules and assign them to the event policy for each school.
- NTP configuration—The Network Time Protocol (NTP) server can be configured for all Cisco Physical Access Gateway modules, or for selected modules, over the network using Cisco Physical Access Manager.
- Enrollment reader interface—Cisco now supports two methods of quickly enrolling new users into the Cisco Physical Access Manager database: optical scanners and proximity card enrollment readers.
  - The optical scanner allows badge administrators to scan government-issued drivers' license ID cards. Data from the cards, such as the name and address, is automatically extracted and populated into the new personnel records.
  - Proximity card enrollment readers allow proximity badge data such as facility code and ID to automatically populate into the new or existing personnel record, saving valuable time during enrollment.

Specifications

Server Hardware System Requirements
Cisco Physical Security Multiservices Platform; 1 RU

Selected Part Numbers and Ordering Information[1]

CPS-MSP-1RU-K9	Cisco Multiservices Platform Server, 1-RU MSP assembly
CIVS-HDD-1000	1 TB SATA drive for CIVS-MSP
CIVS-CAB-16-CE	CIVS C16 power cable for Europe (CE)
CIVS-CAB-16-CI	CIVS C16 power cable for Italy (CI)
CIVS-CAB-16-CU	CIVS C16 power cable for UK (CU)
CIVS-CAB-16- AC	CIVS C16 power cable for North America (AC)
CIAC-PAME-M1X-K9	Cisco Physical Access Manager Software
CIAC-PAME-BD=	Cisco Physical Access Manager Badge Designer and Enroller
CIAC-PAME-HA=	Cisco Physical Access Manager High-Availability License
CIAC-PAME-M64=	Cisco Physical Access Manager 64-module capacity upgrade license
CIAC-PAME-M128=	Cisco Physical Access Manager 128-module capacity upgrade license
CIAC-PAME-M512=	Cisco Physical Access Manager 512-module capacity upgrade license
CIAC-PAME-M1024=	Cisco Physical Access Manager 1024-module capacity upgrade license
CIAC-PAME-EDI=	Cisco Physical Access Manager Enterprise Data Integration License
CIAC-PAME-WSAPI=	Cisco Physical Access Manager Web Services API License

1. The Cisco Physical Access Manager is available through Cisco Authorized Technology Provider (ATP) Partners.

For More Information

http://www.cisco.com/en/US/products/ps9688/index.html

Cisco Video Surveillance 2600 Series IP Cameras



The Cisco Video Surveillance 2600 Series IP Cameras and IP Domes are professional-class, multifeature cameras that offer:

- Outstanding performance and image quality
- Ease of deployment
- Options ranging from indoor mounting to outdoor, vandal- and weather-resistant installations

The cameras employ H.264 compression for the optimal balance of image quality and compression. They provide a superior image while reducing network traffic and storage requirements. You can remotely adjust the focus and field of view of the dome cameras, greatly simplifying deployment.

Key Features and Benefits

- Optimal imaging efficiency—The Cisco Video Surveillance 2600 Series IP Camera can stream video using H.264 compression, reducing network traffic and storage requirements while providing superior image quality.
- Wide dynamic range—The camera employs powerful digital imaging technology, allowing it to capture high-quality images in a wide variety of lighting conditions. It uses a progressive scan image sensor with global electronic shuttering to help ensure natural color rendition, zero blooming and smear, and minimal motion blurring.
- Dual streaming—The camera can deliver two simultaneous video streams over the network. A combination of H.264, MPEG4, and MJPEG can be configured. Each video stream can be configured with individual resolution, quality and frame-rate settings.
- Day and night operation—The camera provides true day and night functions including an IR filter that can automatically switch to night mode in low-light scenes. This function can be set to manual or automatic control.
- Embedded security and networking—The camera provides 802.1X authentication and supports IP Multicast for enhanced bandwidth management.
- Event notification—The camera can examine designated areas in the video for motion activity and then notify users or other applications when it detects activity that exceeds a predefined threshold.
- Motorized focus and zoom—The lens on the IP dome allows the focus and zoom to be controlled remotely, greatly simplifying installations and field-of-view adjustments.

Specifications

To choose the best digital IP camera for your needs, refer to the model comparison chart: http://www.cisco.com/en/US/products/ps11251/prod_models_comparison.html#~standard_cameras

For More Information

http://www.cisco.com/en/US/products/ps11251/index.html

Cisco Video Surveillance 4000 Series High-Definition IP Cameras



Cisco Video Surveillance 4000 Series IP Cameras are feature-rich digital cameras designed for superior performance in a wide variety of video surveillance applications. The cameras employ true high-definition (HD) video and H.264 compression, streaming up to 30 frames per second (fps) at 1080p (1920 x 1080) resolution, and 60 fps at 720p (1280 x 720) resolution, offering efficient network usage with the highest-quality video. Contact closures and two-way audio allow integration with microphones, speakers, and access control systems. With their open, standards-based design, the cameras provide an ideal platform for integration and operation as independent devices or as part of a Cisco Video Surveillance network.

The Cisco Video Surveillance 4300 Series and 4500 Series IP Cameras (CIVS-IPC-4300 and CIVS-IPC-4500, respectively) have identical feature sets, with the exception of the additional digital signal processor (DSP) capabilities specifically designed to support real-time video analytics at the edge on the Cisco Video Surveillance 4500 Series IP Cameras. On these cameras, applications and end users have the option to run multiple analytics packages without compromising video streaming performance on the cameras. This highly flexible computing platform, which will be compatible with future versions is ideal for next-generation video analytics applications.

Key Features and Benefits

- True high-definition (HD) video—The cameras stream crisp and clear 1080p (1920 x 1080) video at 30 frames per second while maintaining surprisingly low network bandwidth. For fast-motion applications, you can set the cameras to stream 720p (1280 x 720) video at 60 frames per second.
- Progressive scan video—The cameras capture each frame at its entire resolution using progressive scan rather than interfaced video capture, which captures each field of video. This feature allows for better detail for video of moving objects such as faces and license plates on automobiles.
- Dual streaming—The camera can stream H.264 and MJPEG video simultaneously. Each video stream can be configured with individual resolution, quality, and frame-rate settings.
- Day and night operation—The cameras provide true day and night functions including an automatic infrared (IR) filter in low-light scenes. With the appropriate IR-corrected lenses and IR illumination, the cameras can provide HD video in low-light environments.
- Flexible power options—The cameras support Power over Ethernet (PoE) 802.3af, 12-VDC, or 24-VAC power through an optional external power supply.
- Mounting options—You can install the cameras with a fixed mount or with an optional external pan or tilt mount and motorized zoom lens.*
- Embedded security and networking*—The camera provides hardware-based Advanced Encryption Standard (AES). For enhanced bandwidth management, the camera supports IP Multicast.
- Event notification*—The camera can examine designated areas for activity and notify users or other applications when it detects activity that exceeds a predefined sensitivity and threshold. The camera also provides two digital inputs and two digital outputs that can be used to initiate specific actions when an alarm is detected.
- Medianet support.—The camera supports the medianet interface. When connected to a Cisco switch that also supports medianet, the camera is recognized as a video endpoint by the switch, which then uses SmartPort macros to set the right network parameters for the video stream on the network.
- Video analytics support —The Cisco Video Surveillance 4500 IP camera provides real-time, edge-based video analytics capabilities.

Specifications

To choose the best digital IP camera for your needs, refer to the model comparison table:
http://www.cisco.com/en/US/products/ps9716/prod_models_comparison.html#~hd_cameras

Selected Part Numbers and Ordering Information[1]

CIVS-IPC-4300	Cisco Video Surveillance 4300 IP Camera, HD, Day/Night
CIVS-IPC-4500	Cisco Video Surveillance 4500 IP Camera, HD, DSP, Day/Night
CIVS-PWRPAC-12V	12 VDC @ 1.6A Power Supply

1. The Cisco 4000 Series Video Surveillance IP Camera is available through Cisco Authorized Technology Provider (ATP) Partners.

For More Information

http://www.cisco.com/en/US/products/ps9716/index.html

Cisco Video Surveillance 5000 Series HD IP Dome Cameras



Cisco Video Surveillance 5010 and 5011 Indoor Fixed Dome IP HD Cameras are 2.1-megapixel indoor fixed dome cameras designed with industry-leading image quality and high processing power. Designed to install quickly and easily, all of the post-back-box installation and setup can be done with one hand.

The Cisco Video Surveillance 5010 and 5011 Cameras deliver high-definition (HD) resolution, advanced low-light capabilities, consistent color science, and fast processing power. The H.264 compression video

files are up to 20 times smaller, making HD video more affordable. With their open, standards-based design, the cameras provide an ideal platform for integration and operation as independent devices or as part of a Cisco Video Surveillance network.

Key Features and benefits

- Up to 2.1-megapixel resolution (1920 x 1080)
- Up to 30 fips at full HD 1080p
- Optional CS-mount lenses
- Auto back focus for high precision
- Easy, quick, one-handed installation
- H.264 and MJPEG compression
- Day and night capability
- Sensitivity down to 0.03 lux
- Power over Ethernet (IEEE 802.3af Class 3) or 24 VAC
- Video setup jack and focus button accessible with dome closed
- Up to two simultaneous video streams
- Motion detection

Specifications

To choose the best digital IP camera for your needs, refer to the model comparison table:
http://www.cisco.com/en/US/products/ps11027/prod_models_comparison.html#~hd_cameras

Selected Part Numbers and Ordering Information

CIVS-IPC-5010	Cisco Video Surveillance 5010 IP Camera, Indoor HD Dome, Clear Bubble
CIVS-IPC-5011	Cisco Video Surveillance 5011 IP Camera, Indoor HD Dome, Smoked Bubble
CIVS-IPC-VFM28-12	Megapixel Lens, varifocal, 2.8–12 mm
CIVS-IPC-VFM15-50	Megapixel Lens, varifocal, 15–50 mm

For More Information

http://www.cisco.com/en/US/products/ps11027/index.html

Cisco Video Surveillance 2900 Series PTZ IP Dome Cameras



Cisco Video Surveillance 2900 Series PTZ IP Dome Cameras are standard-definition, feature-rich cameras designed for superior performance, image quality, and ease of deployment. These cameras allow for viewing and control of analog video while simultaneously viewing, recording, and controlling IP video.

The cameras come with integrated camera optics packages. They offer 360° continuous pan rotation, as well as 256 PTZ presets. In addition, the back boxes for these cameras feature built-in memory, which can be used to store camera- and location-specific dome settings, including labels, presets, patterns, and zones.

Cisco Video Surveillance 2900 Series IP Cameras support two simultaneous video streams. The two streams can be compressed in MJPEG, MPEG-4, and H.264 formats across several resolution configurations. The streams can be configured in a variety of frame rates, bit rates, and group-of-pictures (GOP) structures for additional bandwidth administration.

All cameras in the Cisco Video Surveillance 2900 Series feature a Sony EXview HAD imager for increased sensitivity, and low-light technology that allows the cameras to compensate for scenes where minimal light is present. In addition, the cameras feature built-in motion detection and advanced 128X wide dynamic range (WDR) that enables the system to compensate for scenes where dramatic contrasts in lighting are present. The 35X day and night camera also supports electronic image stabilization, which digitally reduces the blurring of the camera image due to vibration caused by external sources such as wind and traffic.

Key Features and Benefits

The indoor camera features:

- In-ceiling mounting
- 27X zoom
- Smoked dome
- Separate PAL and NTSC models

The outdoor camera features:

- Pendant mounting
- IP-66 rating
- 35X zoom
- Clear dome
- Separate PAL and NTSC models

Cisco Video Surveillance 2900 Series IP PTZ Cameras offer a variety of benefits, including:

- Simultaneous IP and analog video

- H.264, MPEG-4, and MJPEG compression
- Integrated camera/optics packages with autofocus
- Window blanking
- 256 PTZ presets and 8 user-defined patterns
- 360° continuous pan rotation
- Motion detection
- Electronic image stabilization (35X models only)
- Onscreen compass and tilt display
- Wide dynamic range
- Day/night operation

Specifications

To choose the best digital IP camera for your needs, refer to the model comparison table:
http://www.cisco.com/en/US/products/ps11027/prod_models_comparison.html#~hd_cameras

Selected Part Numbers and Ordering Information

CIVS-IPC-2911	Cisco Video Surveillance 2911 IP Camera, Indoor PTZ In-Ceiling Dome, 27X, Smoked Bubble, NTSC
CIVS-IPC-2916	Cisco Video Surveillance 2916 IP Camera, Indoor PTZ In-Ceiling Dome, 27X, Smoked Bubble, PAL
CIVS-IPC-2930	Cisco Video Surveillance 2930 IP Camera, Outdoor PTZ Pendant, 35X, Clear Bubble, NTSC
CIVS-IPC-2935	Cisco Video Surveillance 2935 IP Camera, Outdoor PTZ Pendant, 35X, Clear Bubble, PAL

For More Information

http://www.cisco.com/en/US/products/ps11252/index.html

Cisco Physical Security Operations Manager



Cisco Physical Security Operations Manager is a scalable command-and-control style operator console that unifies management and operation of Cisco Video Surveillance Manager, Cisco Physical Access Manager, and the Cisco IP Interoperability and Collaboration System (IPICS). The Cisco Physical Security Operations Manager integrates security alarms and events from multiple sources, consolidates device management into a single location, and displays information on easy-to-use and intuitive maps, providing efficient data visualization and allowing smooth access to live and stored video and access-controlled doors. The Cisco Physical Security Operations Manager is powered by a sophisticated business logic engine, enabling users to create custom workflows to support use cases that cross all product domains. The manager helps mitigate risk across an enterprise by providing actionable intelligence, speeding security incident resolution, and reducing security operations costs.

Key Features and Benefits

- Improved scalability for large and geographically distributed environments
- Complete view of facilities, sensors, and alarms in an easy-to-use and intuitive map-enabled graphical interface
- A comprehensive security alarms and events management system with a powerful workflow and business logic engine

Specifications

Feature	Enterprise Version	Lite Version
Hardware	2-RU Cisco Multi Services Platform	1-RU or a 2-RU Cisco Multi Services Platform
Operating System	Windows 2008 R2 64-bit	Windows 2008 R2 64-bit
SQL Server	SQL Server 2008 Standard	SQL Server 2008 Standard
Physical Security Operations Manager Software	Version 5.1	Version 5.1
Hard Disk Capacity	6 TB RAID 6	2 TB RAID 1 (1RU); 6 TB RAID 6 (2RU)
Power Supply	Dual	Single

Selected Part Numbers and Ordering Information

Part Number	Enterprise Edition
CPS-OM5.1-ENT	Cisco Physical Security Operations Manager Enterprise Edition
CPS-OM5.1-10EP	Cisco Physical Security Operations Manager 10-Sensor License Bundle

CPS-OM5.1-100EP	Cisco Physical Security Operations Manager 100-Sensor License Bundle
CPS-OM5.1-500EP	Cisco Physical Security Operations Manager 500-Sensor License Bundle
CPS-OM5.1-1000EP	Cisco Physical Security Operations Manager 1000-Sensor License Bundle
CPS-OM5.1-2500EP	Cisco Physical Security Operations Manager 2500-Sensor License Bundle
CPS-OM5.1-5000EP	Cisco Physical Security Operations Manager 5000-Sensor License Bundle
CPS-OM5.1-USTD	Cisco Physical Security Operations Manager-Standard Client
CPS-OM5.1-UPREM	Cisco Physical Security Operations Manager-Premium Client (with IPICS Support)
Part Number	**Lite Edition**
CPS-OM5.1-LITE	Cisco Physical Security Operations Manager Lite Edition (includes license for 250 sensors)
CPS-OM5.1-LITE-250	Cisco Physical Security Operations Manager Lite-Upgrade from 250 to 500 sensors
CPS-OM5.1-ENT-UPG	Cisco Physical Security Operations Manager-Upgrade from Lite to Enterprise edition

For More Information

http://www.cisco.com/en/US/products/ps11265/index.html

Cisco Video Surveillance Media Server Software

Cisco offers network-centric video surveillance software and hardware that supports video transmission, monitoring, recording, and management. Cisco Video Surveillance solutions work with the advanced features and functions of the IP network infrastructure—switches, routers, and other network security devices—to enable secure, policy-based access to live or recorded video. With support for many surveillance cameras, encoders, and applications, Cisco Video Surveillance solutions allow you to build high-quality video surveillance systems that optimize cost, performance, and capability.

The core component of the Cisco Video Surveillance Manager, Cisco Video Surveillance Media Server 6.0 performs the following networked video surveillance system functions:

- Collection and routing of video from a wide range of cameras and encoders over an IP network
- Secure local, remote, and redundant video archiving
- Event tagging for review and archival purposes
- Bandwidth management for both live distribution and historical recording

Cisco Video Surveillance Media Server is fully compatible with other Cisco Video Surveillance Manager applications that provide video display control and distribution (virtual matrix switching), a customizable web-based user interface for roles-based operation and management, system configuration, and options to support direct-attached storage. The media server and other Cisco Video Surveillance software applications run on Linux-based servers. As a result, you can upgrade your investment to include new features, address your evolving requirements, and support a diverse range of deployment scenarios.

Key Features and Benefits

By using the power and advanced capabilities of IP networks, Cisco Video Surveillance Media Server Software allows you to add applications, users, cameras, and storage over time. As a result, the software provides exceptional video surveillance system flexibility and scalability to support:

- Deployments that range from small systems to those with thousands of cameras
- Hundreds of simultaneous users accessing live and recorded video
- Standard video codecs such as Motion JPEG, MPEG-2, MPEG-4, and H.264 simultaneously in a single Cisco Video Surveillance Media Server
- Conservation of storage using events, clipping, record-on-motion, and loop-based archival options
- Integration with other security and IT applications using open, standards-based API and RTP/RTSP streaming IT-caliber, fault-tolerant storage for greater efficiency and easier maintenance

Specifications

Feature	
Server and client hardware	Cisco Physical Security Multiservice Platform; 1-RU Cisco Physical Security Multiservice Platform; 2-RU Cisco Multiservice Platform for Video Surveillance; 1-RU Cisco Multiservice Platform for Video Surveillance; 2-RU Cisco Multiservice Platform for Video Surveillance; 4-RU

Selected Part Numbers and Ordering Information

CIVS-MS-SW6.3	Cisco Video Surveillance Media Server 6.3
CPS-MSP-1RU-K9	Cisco Physical Security Multiservice Platform; 1-RU
CPS-MSP-2RU-K9	Cisco Physical Security Multiservice Platform; 2-RU
CIVS-MSP-1RU	Cisco Multiservice Platform for Video Surveillance; 1-RU

CIVS-MSP-2RU	Cisco Multiservice Platform for Video Surveillance; 2-RU
CIVS-MSP-4RU	Cisco Multiservice Platform for Video Surveillance; 4-RU

For More Information

http://www.cisco.com/en/US/products/ps9152/index.html

Cisco Video Surveillance Operations Manager Software

Cisco Video Surveillance Operations Manager is a component of the Cisco Video Surveillance Manager suite of products. It enables the efficient and effective configuration and management of video throughout an enterprise. It provides a secure web portal to configure, manage, display, and control video in an IP network, and provides the ability to easily manage a large number of security assets and users, including media server instances, cameras, encoders, and event sources, as well as digital monitors.

Key Features and Benefits

Quickly and effectively configure and manage video throughout your enterprise with the Cisco Video Surveillance Operations Manager. Working in conjunction with the Cisco Video Surveillance Media Server, the Operations Manager meets the diverse needs of administrators, systems integrators, and operators by providing:

- A web-based toolkit for configuration, management, display, and control of video from a wide variety of both Cisco and third-party surveillance endpoints
- Management of a large number of Cisco Video Surveillance Media Servers, Virtual Matrixes, IP cameras, and users
- Flexible video recording options, including motion-based, schedule-based, and event-based recording
- Rapid investigations over low-bandwidth links through an integrated forensic search tool
- Comprehensive control of users and user roles, including scheduling of operator shifts, event filters, and user-specific video views
- Detailed activity reports and system audits

Specifications

Feature	
Platforms	Cisco Physical Security Multiservice Platform; 1-RU Cisco Physical Security Multiservice Platform; 2-RU Cisco Multiservice Platform for Video Surveillance; 1-RU Cisco Multiservice Platform for Video Surveillance; 2-RU Cisco Multiservice Platform for Video Surveillance; 4-RU

Selected Part Numbers and Ordering Information

CIVS-OM-SW6.3	Cisco Video Surveillance Operations Manager 6.3
CPS-MSP-1RU-K9	Cisco Physical Security Multiservice Platform; 1-RU
CPS-MSP-2RU-K9	Cisco Physical Security Multiservice Platform; 2-RU
CIVS-MSP-1RU	Cisco Multiservice Platform for Video Surveillance; 1-RU
CIVS-MSP-2RU	Cisco Multiservice Platform for Video Surveillance; 2-RU
CIVS-MSP-4RU	Cisco Multiservice Platform for Video Surveillance; 4-RU

For More Information

http://www.cisco.com/en/US/products/ps9153/index.html

Cisco Physical Security Multiservices Platform



The Cisco Physical Security Multiservices Platform offers you innovative choices for deploying and managing physical security services, including video surveillance, access control, and flexible incident response communications. It is composed of a suite of two server models and includes a wide array of features in a single, easy-to-use, and easy-to-deploy component that offers you choices among the following security applications:

- Video surveillance —Provides network digital recording and playback. With optional built-in analog video encoder cards and Fibre Channel interfaces, the Cisco Physical Security Multiservices Platform 1-RU and 2-RU servers enables direct connectivity from analog cameras or for IP video directed from the network, and allows remote playback of the recordings over an IP network. This platform offers scalable and flexible options for replacing traditional analog or digital video recorders in a variety of video surveillance deployments. For other video surveillance platform options, refer to: http://www.cisco.com/en/US/products/ps9152/products_data_sheets_list.html
- Physical access control—Provides electronic access control using the IP network to manage doors and locks. The solution consists of hardware and software products and is modular, scalable, and easy to install. The management application of the solution, Cisco Physical Access Manager, comes installed on the Cisco Physical Security Multiservices Platform 1-RU appliance. Cisco Physical Access Manager is used to

configure Cisco Physical Access Gateways and Modules, monitor activity, enroll users, and integrate with IT applications and data stores. For other physical access control platform options, refer to: http://www.cisco.com/en/US/products/ps9688/products_data_sheets_list.html

- Cisco IP Interoperability and Collaboration System (IPICS)—Provides on-demand incident communications across multiple agencies, enabling new levels of interoperability and operational efficiencies for public safety agency and support personnel. Cisco IPICS Server Software can be installed on the Cisco Physical Security Multiservices Platform 1RU and 2RU servers, and integrates disparate push-to-talk systems with other voice systems for emergency personnel. For other Cisco IPICS platform options, refer to: http://www.cisco.com/en/US/products/ps6718/products_data_sheets_list.html.
- Cisco Physical Security Operations Manager—Provides a scalable command-and-control style operator console that unifies event management and operation of Cisco Video Surveillance Manager, Cisco Physical Access Manager, and Cisco IPICS. Cisco Physical Security Operations manager comes in both Enterprise and Lite versions. The Lite version can be installed on the Cisco Physical Security Multiservices Platform 1RU and 2RU servers. The Enterprise version can be installed only on the 2RU server. For more information, refer to: http://www.cisco.com/en/US/products/ps11265/products_data_sheets_list.html
- Cisco VSS Alloy for VSM—Converged video user interface (UI) software that allows you to customize to fit specific video security needs. Designed for the education market to provide a unified user experience, Cisco VSS Alloy for VSM delivers a simplified user experience with graphical maps, video paging, and other features. To learn more, refer to: http://www.cisco.com/en/US/prod/collateral/vpndevc/ps6918/ps9145/ps9152/product_bulletin_c25-626399.pdf

Key Features and Benefits

- Built-in 300W high-efficiency power supply in the 1RU server
- 900 W high-efficiency power supply with hot-swappable, redundancy option in 2RU server
- High-performance fans with built-in redundancy for optimized cooling
- System health and management features, including redundant cooling fans, a convenient power switch, reset button, and LED indicators
- Various RAID configurations for resiliency
- Optional encoder cards that compress up to 16 analog video inputs with full frame rate at D1 resolution
- Optional hot-swappable hard-disk drives that can be removed without powering down the server (must have Redundant Array of Independent Disks [RAID] configuration to be hot-swappable)
- High storage density
- System resiliency
- Hardware diagnostics
- High-performing motherboard

Specifications

1 RU Mechanical Specifications	
Housing	1RU x 19 in., 4 x SATA front-loading drive bays
Motherboard	Intel E5502 1.86 GHz Xeon Dual-Core CPU, 4 GB DDR3 RAM
LEDs	Power, hard-drive activity, network activity, system overheat/fan fail
Weight	• 24.5 lbs. (11.1 kg), 4 × 1 TB hard-disk drives and 1 x power supply • 18.5 lbs. (8.4 kg), with power supply, no HDDs, and no cards
Dimension	1.7 in. (43 mm) x 17.2 in. (437mm) x 19.8 in. (503 mm)
Power Supply	300 W
Power Requirements (no option cards)	110V/60Hz: Spinup Surge: 175 W, Steady-State: 128 W 220V/60Hz: Spinup Surge: 222 W, Steady-State: 143 W
Operating Temperature	50° to 95° F (10° to 35° C)
2 RU Mechanical Specifications	
Housing	2RU x 19 in., 12 x SATA front-loading drive bays
Motherboard	Intel E5502 2.26 GHz Xeon Dual-Core CPU, 4 GB DDR3 RAM
LEDs	Power, hard-drive activity, network activity, system overheat/fan fail
Weight	• 42.5 lbs. (19.3 kg), 6 × 1 TB hard-disk drives and 2 x power supply • 27.5 lbs. (12.5 kg), no power supply, no HDDs, and no cards
Dimension	3.5 in. (89 mm) x 17.2 in. (437 mm) x 25.5 in. (648 mm)
Power Supply	1 × 900 W internal power supply
Power Requirements (no option cards)	110 V/60 Hz: Spin-up surge: 395 W, Steady-state: 274 W 220 V/60 Hz: Spin-up surge: 480 W, Steady-state: 284 W
Operating Temperature	50° to 95° F (10° to 35° C)

Selected Part Numbers and Ordering Information[1]

CPS-MSP-1RU-K9	1-RU chassis with motherboard, one CPU, and one built-in 300W power supply (no drives, no power cables, and no option cards)
CIVS-HDD-1000	1 TB SATA drive for CIVS-MSP and CPS-MSP platforms (1-RU)
CPS-MSP-2RU-K9	2-RU chassis with motherboard, one CPU, and one 900W power supply (no drives and no power cables)
CPS-HDD-6TB-BNDL	6 x 1 TB SATA hard-disk drive bundle for CPS-MSP platforms (2-RU)

1. The Multiservices Platform is available through Cisco Authorized Technology Provider (ATP) Partners.

For More Information

http://www.cisco.com/en/US/products/ps10823/index.html

Cisco IPICS Server Software

The Cisco IPICS Server supports the management of the Cisco IPICS system. First responders and safety and security personnel use the Cisco IPICS system to enable rapid incident response, collaborative crisis communications, notification, and comprehensive interoperable communications. The Cisco IPICS Server is used to create virtual talk groups (VTGs) to facilitate push-to-talk (PTT) communications between users of multiple types and technologies of Land Mobile Radios with users of PCs, landline phones, cellular and Nextel phones, and Cisco Unified IP Phones.

The Cisco IPICS Server is a security-enhanced, Linux-based platform installed on select Cisco 7800 Series Media Convergence Servers, a family of proven and reliable hardware platforms that you can deploy in mobile command units or in headquarters, branch offices, or operations centers. Other Cisco IPICS system components include the Cisco IPICS Push-to-Talk Management Center (PMC), Cisco IPICS Phone Client, Cisco IPICS Operational Views (Ops Views), Cisco Land Mobile Radio (LMR) gateways, Router Media Service (RMS), and Session Initiation Protocol (SIP) telephony gateways.

Cisco IPICS is a systems-level, network-based solution for voice interoperability. It takes full advantage of open IP standards and IP network infrastructure for greater resiliency, scaling, and security, and is part of a complete communications solution for organizations of all sizes.

Key Features and Benefits

- All-in-one safety and security incident response, communications, and collaboration solution
- User-friendly setup and operation
- Centralized, remote, or distributed administration across locations, agencies, networks, and jurisdictions
- Complete and secure Virtual Push to Talk communications and management
- Support for secure incident management, response, notification, and messaging
- Customizable secure voice dial-in and dial-out access to radio channels and incident virtual talk groups
- Role-based user, dispatch console, operator, and system administrator management
- Support for radio resources, desktop PC clients, and Cisco Unified Communications IP Phone PTT clients
- Integrated support and management of Cisco integrated services routers and Land Mobile Radio gateways
- Proven IP network protocols for critical communications over IP Unicast, IP Multicast, Session Initiation Protocol (SIP), VPN, satellite, IP, and wireless networks

Selected Part Numbers and Ordering Information

CIS-IPICS2.0-K9(=)	Cisco IPICS 2.1 Server software and licenses, including licenses for: • 50 Cisco IPICS Virtual Talk Groups • 4 Cisco IPICS Channel/radio ports • 4 Cisco IPICS PMC clients • 10 Cisco IPICS IP Phone clients • 2 Cisco IPICS Operational Views
CIS-IPICS-PM1-K9(=)	Cisco IPICS Policy Engine for Cisco IPICS 2.1 or Higher Cisco IPICS Policy Engine Dial Port for Cisco IPICS 2.1 or Higher
CIS-VIP-DIAL(=)	Cisco IPICS Policy Engine Dial Port for Cisco IPICS 2.1 or Higher
CIS-VIP-VTG(=)	Cisco IPICS Virtual Talk Group (VTG) for Cisco IPICS 2.1 or Higher
CIS-VIP-CHNL(=)	Cisco IPICS Channel/Radio Port for Cisco IPICS 2.1 or Higher
CIS-PHN(=)	Cisco IPICS IP Phone Client License for Cisco IPICS 2.1 or Higher
CIS-PMC-K9(=)	Cisco IPICS PMC Client for Cisco IPICS 2.1 or Higher
CIS-OPSVIEW2(=)	Cisco IPICS Operational Views for IPICS 2.1 or Higher

For More Information

http://www.cisco.com/go/ipics

Cisco IPICS Dispatch Console



The Cisco IPICS Dispatch Console is an end-to-end radio dispatching solution designed for mission-critical radio communications. It is the vital link between dispatchers and field personnel, helping to coordinate field response and ensure personnel safety. Running on a standard PC platform, it extends existing push-to-talk (PTT) radio channels so that users with a variety of communication devices can participate.

The Cisco IPICS Dispatch Console introduces rich-media incident management support, giving dispatchers the power to consolidate information relating to an incident and instantly share it among participants. Incident dispatch enables the sharing of multimedia data such as the following:

- Live video sent from surveillance cameras, access control gateways, and mobile clients
- Archived videos such as Flip or YouTube
- Photos
- Alarm monitoring
- Journal and live statuses
- Website links

Key Features and Benefits

- Push to talk (PTT) and monitoring for up to 50 radio channels and talk groups
- Selecting, unselecting, and deselecting of channels
- Selecting and unselecting of audio speakers
- Receiving and transmitting of on-screen indicators for channel activity
- Instant recall recording per channel
- Support for Windows 7 Operating System for the IDC
- ISR G2 LMR and RMS Gateways Support
- Support for the iPhone 4 as an IPICS Mobile Client
- Last-call transmit
- Alert tones
- Channel multiselect
- Confirmation tones for trunked systems
- Unit ID and talker ID
- Emergency alert and acknowledge
- Coded and clear channels
- Loop prevention
- Integrated telephone
- Frequency select

Selected Part Numbers and Ordering Information[1]

The Cisco IPICS Dispatch Console comes in two versions, Silver and Platinum. The Silver version provides a simple user interface and supports basic radio and incident dispatch functions. The Platinum version includes patch capabilities, integrated telephone, incident management, and policy management support.

CIS-CON4.0-SIL	Cisco Dispatch Console Silver License
CIS-CON4.0-PLA	Cisco Dispatch Console Platinum License
CIS-CON4.0-SIL-UG	Cisco Dispatch Console Silver Upgrade License

1. IPICS Dispatch Console is available through Cisco Authorized Technology Provider (ATP) Partners.

For More Information

http://www.cisco.com/go/ipics or http://www.cisco.com/en/US/prod/collateral/ps6712/ps6718/datasheet_c78-582928.html

Cisco IPICS Mobile Client



The Cisco IPICS Mobile Client is a new component of the Cisco IPICS solution that helps smartphones join an IPICS-enabled incident response network. This smartphone application allows responders to interact with other incident participants. Incidents can be within a single agency or among multiple agencies. With this application, responders can perform a variety of incident-related activities, including:

- Access incident-related push-to-talk (PTT) channels to communicate between responders and radio users
- Obtain up-to-date incident status information from each responder
- Access incident-related video clips, photographs, and status either pushed to them from the dispatcher or added by other responders
- Dynamically add their own video clips, photographs, and status updates

Key Features and Benefits

- Mobility—The Cisco IPICS Mobile Client, based on smartphone technology, moves with the user anywhere there is a wireless network, for example, Wi-Fi or third-generation (3G) cellular network.
- Radio interoperability and beyond—The Cisco IPICS Mobile Client allows PTT interoperability with radio channels and talk groups.
- Rich media—The Cisco IPICS Mobile Client moves beyond audio to support rich media and a new generation of mobile endpoints.
- Open standards compatible—Built as a smartphone application, the Cisco IPICS Mobile Client transfers to new devices as replacement technology is introduced.

Specifications

Platforms	Apple iPhone 3G/3GS
Platforms	Apple iPhone 3G / 3GS/ 4 with iOS up to 4.1; iPad, iTouch
Connectivity	WiFi or 3G with active service (dependent upon Smartphone)
Assigned incidents	Up to 10 suggested for optimum performance
Live video	Up to 10 minutes
Photos	Up to 2 MB
Mobility client	1000 mobile clients per IPICS system

Selected Part Numbers and Ordering Information

The Cisco IPICS Mobile Client requires an Apple iPhone 3G/3GS and iPhone service from a certified service provider. Note: Both the iPhone 3G/3GS can view incident media, add photos, and communicate on the Incident PTT channel. The iPhone 3GS additionally supports video uploading.

The IPICS Mobile Client is available for download free of charge from the Apple App Store. Visit the Apple iPhone website at http://www.apple.com/iphone/apps-for-iphone/. The application name is "Incident".

This application also requires a Cisco IPICS installation as well as one or more IPICS Mobile Client licenses on the IPICS Server, one license for each active IPICS Mobile Client. The Cisco IPICS solution and Mobile Client licenses are available direct from Cisco Advanced Services and through select technology partners.

CIS-MC	Mobile Client IPICS License
CIS-MC-100	Mobile Client IPICS License 100 Units

For More Information

http://www.cisco.com/go/ipics or http://www.cisco.com/en/US/prod/collateral/ps6712/ps6718/datasheet_c78-582927.html

Cisco Security Services

Cisco and our partners can help you accelerate business transformation, achieve operational maturity, and increase agility. This is done through consultative planning, solution development, and full deployment to create network architectures to support solutions that help you meet your business goals.

The broad portfolio of Cisco Security Services helps maintain intelligent defenses against information security threats. Services are based on proven methodologies and best practices for designing, deploying, operating, and optimizing network solutions and technologies. This integrated security services portfolio provides guidance for threat, event, and vulnerability management, as well as compliance support across a broad range of industries and advanced technologies, including unified communications, storage networking, and wireless networks.

Cisco Services for Physical Security provide comprehensive offerings to help plan, design, implement, and operate physical security solutions.

Cisco has a portfolio of technical services that help maintain the health and performance of every Cisco product. These services range from traditional maintenance to proactive and predictive services that use smart services capabilities. Cisco's Security Services provide detailed diagnostics and real-time alerts on core network devices to help resolve concerns quickly and improve network availability. The Cisco Technical Services portfolio is built on foundational and expanded performance capabilities to meet the changing technology needs of our customers.

For more information about Cisco Security Services, visit http://www.cisco.com/go/services/security.

Chapter 6: Data Center

This chapter provides only a subset of Cisco products and part numbers.

Data Center At-a-Glance

Product	Features	Page
DATA CENTER SWITCHING		
Cisco Nexus 7000 Series Switches	· Designed to scale beyond 15 terabits per second with high density 10G today and built in support for 40- and 100-Gigabit connectivity · Enables data center consolidation of LAN and SAN networks over a simplified, single network. · Offers extensive industry leading NX-OS innovations for exceptional intra and inter data center scalability for virtualization and cloud deployments · Offers the industry's highest availability for continuous operation	6–6
Cisco Nexus 5000 Series Switches	· Consolidates the data center and protects investment assets · Lowers total cost of ownership by simplifying data center infrastructure · Increases agility with faster, more pervasive data center virtualization · Enhances business resilience through greater operational continuity	6–8
Cisco Nexus 4000 Series Switches	· Reduces number of switches, network interface cards, and power requirements · Purpose-built with Unified Switch ASIC · Line-rate, extremely low-latency 10 Gigabit Ethernet switch	6–9
Cisco Nexus 3000 Series Switches ***NEW PRODUCT***	· Faster trade execution, because of ultralow latency with high density · Increased application performance through wire-rate Layer 3 switching · Ideal for High Frequency Trading (HFT) market	6–9
Cisco Nexus 2000 Series Fabric Extenders	· Provides server connectivity for 100-Mb Ethernet and 1 and 10 Gigabit Ethernet · Offers optimized space for top-of-rack and end-of--row topologies · Allows smooth transition from Gigabit to 10 Gigabit Ethernet · Reduces data center cabling costs and footprint, and optimizes inter- rack cabling · Based on the emerging standard 802.1BR. See the Fabric Extender Portfolio section for additional 802.1BR-based technologies	6–11
Cisco Nexus 1000V Series Switches	· Integrates directly with VMware vSphere and VMware vCloud Director · Delivers virtual machine-aware network services · Accelerates server virtualization deployments and simplifies management · Reduces total cost of ownership, provides consistency and network visibility · Provides scalable network isolation for cloud networking	6–10
Cisco Catalyst 6500 Series Switches	· Architectural Flexibility: Ideal for campus core and distribution, and for data center customers looking to deploy integrated service modules · High availability: Single point of management and interchassis traffic stateful failover with Virtual Switching System · Operational efficiency: Unify and simplify the network with Integrated Services Modules · Investment protection: Use existing investments to scale system performance in traditional data centers	See 2–5
Cisco Catalyst 4900M Series Switches	· Architectural Flexibility: Increased link use without buffer overflow and Layer 2 and 3 support at the access layer as needed · Investment Protection: Smooth transition from 10/100/1000 to 10 Gb Ethernet interfaces · Simplified Management: Edge switch auto-provisioning · Transport Flexibility: Support for a wide range of storage, high-performance computing, and video applications	See 2–14
FABRIC EXTENDER PORTFOLIO		
Cisco Nexus 2000 Series Fabric Extenders	· Provides server connectivity for 100-Mb Ethernet and 1 and 10 Gigabit Ethernet · Offers optimized space for top-of-rack and end-of--row topologies · Allows smooth transition from Gigabit to 10 Gigabit Ethernet · Reduces data center cabling costs and footprint, and optimizes inter- rack cabling · Based on the emerging standard 802.1BR. See the Fabric Extender Portfolio section for additional 802.1BR-based technologies	6–11
Cisco Adapter FEX ***NEW PRODUCT***	· Single point of management · Increased 10GbE bandwidth utilization · Less power, cabling adapters with Adapter FEX · Based on emerging standard IEEE 802.1BR	6–11
Cisco VM-FEX ***NEW PRODUCT***	· Collapse virtual and physical networking into a single infrastructure · Provision, configure, manage, monitor, and diagnose virtual machine network traffic and bare metal network traffic within one unified infrastructure. · Based on emerging standard IEEE 802.1BR	6–12

STORAGE NETWORKING—FIBRE CHANNEL SWITCHING		
Cisco MDS 9500 Series Multilayer Directors	· Share a common architecture, the Cisco MDS 9000 NX-OS operating system, and switching and services modules that are backward- and forward-compatible throughout all Cisco MDS 9500 Series Multilayer Directors and MDS 9200 Series Multilayer Fabric Switches · The portfolio includes: - Cisco MDS 9513 Multilayer Director - Cisco MDS 9509 Multilayer Director - Cisco MDS 9506 Multilayer Director	6–12
Cisco MDS 9200 Series Multilayer Switches	· Delivers state-of-the-art multiprotocol and distributed multiservice convergence, offering high-performance storage-area-network (SAN) extension and disaster-recovery solutions, intelligent fabric services, and cost-effective multiprotocol connectivity including FC, iSCSI, FCIP, and FICON · The portfolio includes: - Cisco MDS 9222i Multiservice Modular Switch	6–14
Cisco MDS 9100 Series Multilayer Fabric Switches	· Cost-effective, scalable, easy-to-install, and highly configurable fixed-port Fibre Channel fabric switches are ideal for small to medium-sized businesses · Available as blade-switch form factors for market-leading OSM blade server partners; specifically IBM and HP blade servers · The rack-mount portfolio includes: - Cisco MDS 9148 Multilayer Fabric Switch - Cisco MDS 9124 Multilayer Fabric Switch	6–15
Cisco MDS 9000 Series Intelligent Fabric Applications ***NEW PRODUCT***	· Applications such as continuous data replication, Cisco Storage Media Encryption (SME disk and tape), and Cisco MDS Data Mobility Manager (DMM) address customer concerns related to storage provisioning, security, (data security at rest) data migration and replication, backup and recovery, storage usage, and increasing storage costs · The portfolio includes: - Cisco FCIP for Remote SAN Extension - Cisco MDS 9000 Storage Media Encryption - Cisco MDS 9000 Family I/O Accelerator (IOA) - Cisco MDS 9000 XRC Acceleration - Cisco MDS Data Mobility Manager (DMM) - Cisco Nexus OS operating system	6–16
Cisco Catalyst Blade Switch 3000 and 3100 Series	· Includes Cisco Catalyst Ethernet blade switches and Cisco MDS Fibre Channel blade switches for blade servers · Supports blade-server network services that extend from the blade-server edge to clients at the network edge · Provides a virtualized data center infrastructure that can help lower total cost of ownership · Family includes: - Cisco Catalyst Blade Switch 3100 Series for Dell—Specifically designed to meet the rigors of blade-server application infrastructure - Cisco Catalyst Blade Switch 3000 Series - Designed to support the HP BladeSystem c-Class	6–18
UNIFIED COMPUTING		
Cisco Unified Computing System	· Next-generation data center platform that unites compute, network, storage access, and virtualization into a cohesive system designed to reduce total cost of ownership (TCO) and increase business agility · Built from the following components: - Cisco UCS 6100 Series Fabric Interconnects - Cisco UCS 5100 Series Blade Server Chassis - Cisco UCS 2100 Series Fabric Extenders - Cisco UCS Network Adapters - Cisco UCS Manager Management Software - Cisco UCS C-Series and B-Series Blade Servers	6–18

Cisco UCS B-Series Blade Servers ***NEW PRODUCT*****	· Based on both the Intel Xeon 5600 series processors and the Intel Xeon processor E7-2800 and E7-4800 product families, B-Series blade servers offer outstanding performance and availability while intelligently scaling energy use. · The innovative Cisco Extended Memory technology substantially increases the memory footprint, improving performance and capacity for demanding virtualization and large-data-set workloads · Offer unrivaled embedded integration with Cisco UCS Manager for all infrastructure policies · Incorporates standards-based unified network fabric, Cisco VM-FEX, and Adapter FEX support · Enable the stateless movement of service profiles (server personalities) from blade to blade or blade to rack. · Programmable infrastructure that transforms the physical infrastructure into a pool of resources that can be provisioned to support any workload in minutes. · Unified, model-based management configures servers quickly and accurately, improving business agility and eliminating a major source of errors. · Extended Memory technology offers a more cost-effective memory footprint for less-demanding workloads. · The blade-server offerings include: - Cisco UCS B440 M2 High-Performance Blade Servers (Cisco UCS B250 M2 Extended Memory Blade Servers) - Cisco UCS B230 M2 Blade Servers - Cisco UCS B200 M2 Blade Servers	6–20
Cisco UCS C-Series Rack-Mount Servers ***NEW PRODUCT*****	· Extends unified computing innovations to an industry-standard form factor · Designed to operate both in standalone environments and as part of the Cisco Unified Computing System · Supports an incremental deployment model and an entry point into unified computing · Incorporates standards-based unified network fabric, Cisco VM FEX and Adapter FEX support · Enable the stateless movement of service profiles (server personalities) from blade to blade or blade to rack. · Programmable infrastructure that transforms the physical infrastructure into a pool of resources that can be provisioned to support any workload in minutes. · Unified, model-based management configures servers quickly and accurately, improving business agility and eliminating a major source of errors. · Offers a more cost-effective Extended Memory technology for memory-intensive workloads · Extends unified computing innovations to an industry-standard rack mount form factor · Scales horizontally with one instance of Cisco UCS Manager and one set of Cisco UCS 6100 Series Fabric Interconnects · Embedded integration with Cisco UCS Manager for all infrastructure policies · The portfolio includes: - Cisco UCS C460 M2 High-Performance Rack-Mount Server - Cisco UCS C260 M2 Rack-Mount Server - Cisco UCS C250 M2 Extended-Memory Rack-Mount Server - Cisco UCS C210 M2 General-Purpose Rack-Mount Server - Cisco UCS C200 M2 High-Density Rack-Mount Server	6–21
APPLICATION NETWORKING SERVICES		
Cisco Application Control Engine (ACE) Family	· Simplify the way applications and business services are deployed, secured, and managed across the enterprise · Provide greater control over the application infrastructure, allowing organizations to quickly deploy and migrate applications to deliver more responsive services to the end user while simplifying the overall management of the data center · Application delivery products within the ACE family include: - Cisco ACE Module for Cisco Catalyst 6500 Series Switches and Cisco 7600 Series Routers - Cisco ACE 4710 Appliance - Cisco ACE Global Site Selector (GSS) 4400 Series	6–22
Cisco Wide Area Application Services (WAAS) Family	· Delivers a comprehensive, cost-effective, cloud-ready WAN optimization solution that accelerates applications over the WAN, provide local hosting of branch-office IT services, and can accelerate video deliver to the branch office. · WAN optimization products within the Cisco WAAS Family include: - Cisco Wide Area Application Services (WAAS) Software - Cisco Virtual Wide Area Application Services (vWAAS) - Cisco Wide Area Application Services (WAAS) Mobile - Cisco Wide Area Virtualization Engine (WAVE) Appliances - Cisco Wide Area Application Services (WAAS) Express Integrated Services Router (ISR) G2 products - Cisco WAAS Software for Services-Ready Engine (SRE) Service Modules (SM) for Integrated Services Router (ISR) G2 products. - Cisco ECDS Virtual Blades - Windows Server on WAAS	6–23

Cisco Network Analysis Module (NAM)	· Empowers network administrators with actionable visibility to optimize network resources, troubleshoot performance issues, and ensure consistent user experience. · Network analysis products within the Cisco NAM family include: - Cisco Catalyst 6500 Series Network Analysis Module (NAM-3) - Cisco NAM 2200 Series Appliances - Cisco Prime NAM for ISR G2 SRE - Cisco Prime NAM for Nexus 1010 - Cisco Prime NAM for WAAS Virtual Blade (VB)	6–25
DATA CENTER SECURITY		
Cisco ASA 5585-X Adaptive Security Appliance	· Meets the needs of mission-critical data centers by delivering 8X the performance density of competitive products and spanning multiple platforms, technologies, and deployment scenarios. · Supports the highest VPN session counts and twice as many connections per second as competitive firewalls to meet the growing needs of today's most dynamic organizations – all in a compact 2RU footprint. · Combines the world's most proven firewall with the industry's most comprehensive, effective IPS for a powerful, effective security solution.	6–26
Cisco Catalyst 6500 Series ASA Services Module	· Seamlessly integrates with Cisco Catalyst 6500 Series switches to provide unmatched security, reliability, and performance. · Employs the same architecture as the ASA 5585-X adaptive security appliance, but in a blade form factor. · Supports the highest throughput, 5X the concurrent connections, and twice as many connections per second as competitive network security modules — all in a single blade architecture. · Easily integrates into an existing Catalyst 6500 Series switch to add security into the central point of the data center – with no need to worry about how many interfaces are needed, no re-cabling, and no need for any additional rack space.	6–27
Cisco Secure Access Control System (ACS)	· Controls network access based on dynamic conditions and attributes · Next-generation platform for centralized network identity and access control · Simple yet powerful, rule-based policy model and a new, intuitive management interface designed for optimum control and visibility	See 5–18
Cisco Virtual Security Gateway (VSG)	Enhance regulatory compliance and simplify virtual-environment audit processes with the Cisco Virtual Security Gateway (VSG). Cisco VSG: · Provides trusted multitenant access with granular, zone-based, and context-aware security policies · Supports dynamic provisioning of security policies and trust zones during virtual machine instantiation and movement · Helps reduce errors, promote collaboration across server and security teams, and separate administrative responsibilities	6–27
Cisco Security Manager	· Centralized monitoring, event-correlation, and attack-mitigation system Cisco Security Manager is a comprehensive management solution for Cisco ASA 5500 Series Adaptive Security Appliances, Cisco IPS 4200 Series Sensor Appliances, Cisco Secure Routers, and the Cisco AnyConnect Secure Mobility Client. · Enables consistent policy enforcement, quick troubleshooting of security events, and summarized reports from across the security deployment. It also supports role-based access control and an approval framework for proposing and integrating changes. · Integrates a powerful suite of capabilities, including policy and object management, event management, reporting, and troubleshooting. · Provides improved visibility into security devices, including custom reports which can be created using advanced filters, and reports which can be viewed on-demand and scheduled for email delivery.	6–28
DATA CENTER MANAGEMENT		
Cisco Data Center Network Manager (converged) ***NEW PRODUCT***	· Advanced management software that provides comprehensive life cycle management of data center LAN and SAN. Cisco DCNM enables holistic management of the data center infrastructure and optimizes overall uptime and reliability. · Automatically builds an accurate representation of your data center topologies and traffic flows · Real-time pro-active operational monitoring of the data center network · Monitor high level performance and capacity trends in the data center network · Quickly diagnose end-to-end path for latency and congestion · Powerful, industry-standard SOAP/XML API for integration into OSS/BSS systems.	6–28
DATA CENTER CONVERGED INFRASTRUCTURE SERVICES		
Vblock Infrastructure Platforms	VCE integrates industry leading virtualization, networking, computing, storage, security, and management technologies to deliver Vblock Infrastructure Platforms—a unique, converged infrastructure that supports a vast array of business critical applications. Vblock platforms revolutionize IT by unifying industry-leading technology from Cisco, VMware, and EMC to dramatically reduce IT costs while improving time to market.	6–30
FlexPod	FlexPod is a predesigned, base configuration built on leading computing, networking, storage, and infrastructure software components from Cisco, NetApp and VMware. It offers a pre-validated data center solution built on a flexible, shared infrastructure that can be optimized for a variety of mixed application workloads, or be configured for virtual desktop or server infrastructure, secure multi-tenancy, or cloud environments.	6–30

Storage Reference Architecture	The Storage Reference Architecture from Cisco, Hitachi, and VMware is a flexible framework for creating cloud network-ready, virtualized infrastructure solutions. It is comprised of storage from Hitachi Data Systems, computing and networking components from Cisco, and virtualization from VMware. These industry leaders have combined their expertise to create a comprehensive virtualization solution that can be deployed quickly and effectively.	6–31
DATA CENTER PROFESSIONAL SERVICES		
Cisco Services for Application Networking Services	Accelerate deployment of Cisco Wide Area Application Services (WAAS) and Cisco Application Control Engine (ACE) solutions and help secure and increase the availability of business-critical applications. These services include: · Cisco Wide Area Application Services Planning and Design Service · Cisco Application Control Engine Planning and Design Service · Cisco Data Center Optimization Services to support application delivery, distribution, and network performance · For more information go to: www.cisco.com/en/US/products/ps6894/serv_group_home.html	6–31
Cisco Data Center Switching Services	Accelerate deployment of Cisco Nexus switches and migrate to unified fabric. These services help IT organizations build, operate, and maintain an agile, high-performance infrastructure. These services include: · Cisco Nexus Planning and Design Service · Cisco Data Center Optimization Services to support unified fabric · For more information go to: www.cisco.com/en/US/products/ps9443/serv_group_home.html	6–31
Cisco Unified Computing Services	Accelerate the transition to a unified computing architecture and optimize ongoing operations. These services include: · Cisco Unified Computing Architecture Assessment Service · Cisco Unified Computing Planning, Design, and Implementation Services: - Accelerated deployment - Database accelerator - Preproduction pilot - Management systems integration - Migration and transition - Virtualization · Cisco Unified Computing Remote Management Services · Cisco Unified Computing Support and Warranty Services · Cisco Data Center Optimization Services to support unified computing systems · For more information go to: www.cisco.com/en/US/products/ps10312/serv_group_home.html	6–31
Cisco Data Center Storage Networking Services	Plan and deploy, increase operational efficiency, and optimize Cisco MDS SAN architectures. These services include: · Cisco Director Class SAN Planning and Design Service · Cisco SAN Health Check Service · Cisco Data Mobility Manager Planning and Design Service · Cisco Data Center Optimization Service for SAN · For more information go to: www.cisco.com/en/US/products/svcs/ps2961/ps3010/serv_group_home.html	6–31

FOR MORE INFORMATION

Product Ordering
To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml.

End-of-Life and End-of-Sale
Please visit the end-of-life and end-of-sale website for a complete and up-to-date listing of products that are no longer being sold or supported, what replacement products are available, and information about product support.
http://www.cisco.com/en/US/products/prod_end_of_life.html

NOTE: This chapter provides only a subset of Cisco products and part numbers. For the most up-to-date and comprehensive information, refer to the Cisco website at http://www.cisco.com, the Cisco ordering website at http://www.cisco.com/en/US/ordering/index.shtml, or reference the URL listed in the "For More Information" section of each product.

Data Center Switching

As critical components of the Cisco Unified Fabric, our data center switching solutions comprising both the Cisco Nexus and Cisco Catalyst portfolios allow you to build a fabric-based data center network that promotes infrastructure scalability, operational continuity, and transport flexibility.

Cisco Unified Fabric, a critical technological pillar of the Cisco Data Center Fabric alongside the Cisco Unified Compute (addressing compute and virtualization) and Unified Network Services (addressing security and other Layer 4–7 services), delivers the breadth of portfolio, innovations, industry partnerships, and experience needed to deliver a solution for traditional, virtual, and cloud-based environments.

Cisco Nexus 7000 Series Switches

Cisco Nexus 7000 Series Switches comprise Cisco's flagship modular switching platform for data center Cisco Unified Fabric deployments and for highly scalable campus core deployments. They are designed for exceptional 10GE, 40GE, and 100GE scalability with the industry's highest resiliency features and unmatched deployment flexibility for the data center core, aggregation, access, and campus core. Its industry-leading NX-OS innovations and robust feature set enable you to build the next-generation network fabrics for both data centers and campuses.



Key Features and Benefits

Scalable Architectural Design

- End-to-end solution for data center core, aggregation, and high-density end-of-row and top-of-rack server connectivity in a single platform, and for high-performance campus core developments
- Designed for 10GE, 40GE, and 100GE scalability to more than 15 Tbps for ongoing investment protection
- Multicore, multi-threaded, highly modular OS to optimize CPU resources and offload tasks to processors distributed across the modules
- Virtual Device Context (VDC) virtualizes a single physical Cisco Nexus 7000 Switch into multiple logical switches for infrastructure consolidation and segmentation (PCI certified)
- Cisco Nexus 7000 in conjunction with the Cisco Nexus 2000 scales up to 1,500 ports per Cisco Nexus 7000 with a single point of management, significantly simplifying management

Operational Continuity

- Based on NX-OS with highly granular process modularity with automatic fault isolation and containment integrated with hardware resiliency features
- Zero-service downtime with industry's only hitless ISSU for non-disruptive upgrades
- Highest resiliency with no single point of failure in the system hardware and a modular operating system

Industry-Leading Innovations

- Overlay Transport Virtualization (OTV)— Extend Layer 2 networks across geographically
- distributed data centers over any network enabling Layer 2 adjacencies for distributed clustering and transparent workload mobility
- Cisco FabricPath—Enables a highly scalable, high-bandwidth (up to 100+ Tbps fabric) and resilient Layer 2 multipath network without a spanning tree for large virtualization deployments
- Virtual Device Context (VDC)—Virtualizes a single physical Cisco Nexus 7000 Switch into multiple logical switches for infrastructure consolidation and segmentation (PCI certified)
- Fibre Channel over Ethernet (FCoE)—Allows consolidation for LAN and SAN traffic over a
- single converged network minimizing network sprawl and maximizing network agility
- Location/ID Separation Protocol (LISP)— Provides global IP address portability significantly increasing routing scalability and enabling scalable virtualization, multitenancy, cloud enablement, and IPv6 transition
- In Service Software Upgrade (ISSU)—Industry's only truly hitless ISSU, eliminating maintenance network outages
- Virtual Port Channel (vPC)—Enables deployment of active-active uplinks for high availability and double network bandwidth

Modules

Cisco Nexus 7000 Series Supervisor Module

- Designed to deliver scalable control plane and management functions for the Cisco Nexus 7000 Series chassis
- Delivers continuous system operation
  - Active and standby supervisor with hitless failover
  - Segmented and redundant out-of-band provisioning and management paths
  - Virtualization of the management plane
  - Integrated diagnostics and protocol decoding with an embedded control plane packet analyzer
- Upgradable architecture
  - Fully decoupled control plane and data plane with no software forwarding through the supervisor
  - Distributed forwarding architecture, allowing independent upgrades of the supervisor and fabric
- Superior operational efficiency with dedicated out-of-band management processor for lights-out management

Cisco Nexus 7000 Series 8-Port 10 Gigabit Ethernet Module with XL Option

- Full support for Layer 2 and Layer 3 IPv4 and IPv6 protocols, NetFlow, and MPLS

- XL mode enables larger forwarding table (up to 1M routes) for increased scalability
- Wire speed on all ports, 120 Mpps Layer 2 and Layer 3, 80 Gbps
- Flexibility to run in non-XL or XL without requiring a hardware change or upgrade
- Powerful security capabilities through hardware integrated support for Cisco TrustSec security

Cisco Nexus 7000 Series 32-Port 1 and 10 Gigabit F-Series Ethernet Module

- Powered by the F1 Forwarding Engine, delivers Layer 2 forwarding rate of 480 Mpps and up to 320 Gbps of data throughput
- Up to 224, 256, or 512 10 Gigabit Ethernet ports per Cisco Nexus 7000 9-, 10-, or 18-slot switches, respectively
- Interface flexibility through support for Gigabit and 10 Gigabit Ethernet on a per-port basis in both SFP and SFP+ media options
- LAN and SAN convergence through support for Fibre Channel over Ethernet and the IEEE's Data Center Bridging technologies
- Highly scalable 100+ Tbps Layer 2 networks with Cisco FabricPath

Cisco Nexus 7000 Series 48-Port 1 and 10 Gigabit F2-Series Ethernet Module

- Powered by the F2 Forwarding Engine, delivers Layer 2 and Layer 3 forwarding with 720 Mpps and up to 480 Gbps of data throughput
- Up to 336, 384, or 768 10 Gigabit Ethernet ports per Cisco Nexus 7000 9-, 10-, or18-slot switches, respectively
- Interface flexibility through support for Gigabit and 10 Gigabit Ethernet on a per-port basis in both SFP and SFP+ media options
- LAN and SAN convergence through support for Fibre Channel over Ethernet and the IEEE's Data Center Bridging technologies
- Highly scalable 100+ Tbps Layer 2 networks with Cisco FabricPath

Cisco Nexus 7000 Series 32-Port 10 Gigabit Ethernet Module with XL Options

- Full support for Layer 2 and Layer 3 IPv4 and IPv6 protocols, NetFlow, and MPLS
- XL mode enables larger forwarding table (up to 1M routes) for increased scalability
- Flexibility to run in non-XL or XL without requiring a hardware change or upgrade
- Downstream connection to Cisco Nexus 2224TP, Cisco Nexus 2248TP, or Cisco Nexus 2232PP Fabric Extender, offering a cost-effective, scalable server connectivity solution
- Powerful security capabilities through hardware integrated support for Cisco TrustSec security

Cisco Nexus 7000 Series 48-Port Gigabit Ethernet Modules

- Full support for Layer 2 and Layer 3 IPv4 and IPv6 protocols, NetFlow, and MPLS
- Ideal for access layer connectivity, delivering a high-density, high-performance, and continuous operation solution
- Interface flexibility through support for 10/100/1000 RJ-45 connectivity or fiber (SFP) connectivity
- Highly scalable solution with up to 768 ports of Gigabit Ethernet on the Cisco Nexus 7018
- 60 Mpps of Layer 2 and Layer 3 IPv4 of Unicast forwarding

Specifications

Feature	N7K-C7009	N7K-C7010	N7K-C7018
Slots	9	10	18
1 Gigabit Ethernet Density	336	384	768
10/100/1000 (RJ45) Density	336	384	768
10 GbE Port Density	336	384	768

Selected Part Numbers and Ordering Information

N7K-C7009	Cisco Nexus 7000 Series 9-Slot chassis including Fan Trays, No Power Supply
N7K-C7010	Cisco Nexus 7000 Series 10-Slot chassis including Fan Trays, No Power Supply
N7K-C7018	Cisco Nexus 7000 Series 18-Slot chassis including Fan Trays, No Power Supply
N7K-C7010-BUN	Nexus 7010 Bundle (Chassis, SUP1, (3)FAB1, (2)AC-6KW PSU)
N7K-C7010-BUN-R	Nexus 7010 Bundle—Chassis, (2)SUP1, (3)FAB1, (3)AC-6KW PSU)
N7K-C7009-FAB-2	Cisco Nexus 7000 9-Slot Chassis 110 Gbps/Slot Fabric Module (and Spare)
N7K-C7010-FAB-2	Cisco Nexus 7000 10-Slot Chassis 110 Gbps/Slot Fabric Module (and Spare)
N7K-C7018-FAB-2	Cisco Nexus 7000 18-Slot Chassis 110 Gbps/Slot Fabric Module (and Spare)
N7K-C7010-FAB-1	Cisco Nexus 7000 10-Slot Chassis 46 Gbps/Slot Fabric Module (and Spare)
N7K-C7018-FAB-1	Cisco Nexus 7000 18-Slot Chassis 46 Gbps/Slot Fabric Module (and Spare)
N7K-SUP1	Cisco Nexus 7000 Series Supervisor Module, Includes External 8 GB flash

N7K-M108X2-12L	Cisco Nexus 7000 Series 8-Port 10 Gigabit Ethernet Module with XL Option (requires X2)
N7K-F248XP-25	Nexus 7000 - 48 Port 1G/10G Ethernet Module, SFP/SFP+
N7K-F132XP-15	Nexus 7000—32 Port 1G/10G Ethernet Module, SFP/SFP+ (and Spare)
N7K-M108X2-12L	Cisco Nexus 7000 Series 32-Port 10 GB Ethernet Module with 80 Gbps Fabric (Requires SFP+ Optic Module)
N7K-M148GT-11	Cisco Nexus 7000 Series 48-Port 10/100/1000 Ethernet Module
N7K-M148GS-11	Cisco Nexus 7000 Series 48-Port Gigabit Ethernet Module (SFP)
N7K-M148GS-11L	Cisco Nexus 7000 Series 48-port Gigabit Ethernet Module with XL Option (SFP Optics)
N7K-M148GT-11L	Cisco Nexus 7000 Series 48-port 10/100/1000 Ethernet Module with XL Option (RJ45)
N7K-M132XP-12L	Cisco Nexus 7000—32 Port 10GBE with XL Option, 80 G Fabric (requires SFP+ Optics Module)

For More Information

http://www.cisco.com/go/nexus7000

Cisco Nexus 5000 Series Switches

The Cisco Nexus 5000 Series Switches help you transform the data center with innovative, standards-based, multilayer, multiprotocol, and multipurpose Ethernet-based fabric. Now with the Unified Ports functionality you can help enable any transport over Ethernet, including Layer 2 and Layer 3 traffic, and storage traffic, all on one common data center-class platform.



Key Features and Benefits

- Based on the Cisco® NX-OS operating system, that is resilient, efficient, virtualized and extensible.
- High performance, low latency system with up to 1.92 Tbps switching fabric and 1428 Mpps forwarding rate
- Front-to-back cooling supports efficient data center hot- and cold-aisle designs
- Unified ports provides flexibility in choosing SAN and LAN port options consistent with the virtualized data center and offer a migration path to FCoE
- LAN & SAN Convergence ready through FCoE-based unified fabric & Fibre Channel support in a lossless Ethernet service platform with energy efficiency achieved with the convergence of the networks
- Virtualization-aware networking through virtualization optimized services and mobility by mapping virtual machines to network profiles
- Supports the extension of the fabric extender technology into the servers and virtual machines via Adapter FEX and VM-FEX technologies. Nexus 5000 Series Switches acts as the single point of network management for these servers and virtual machines
- Pair with Nexus 5000 for up to 24 fabric extenders per Cisco Nexus 5548P switch

Industry Leading Innovations

- Cisco FabricPath—enables a highly scalable, high-bandwidth (up to 100+ Tbps fabric) and resilient Layer 2 multipath network without a spanning tree for large virtualization deployments
- Fibre Channel of Ethernet (FCoE)—Allows consolidation for LAN and SAN traffic over a
- single converged network minimizing network sprawl and maximizing network agility
- In Service Software Upgrade (ISSU)—Industry's only truly hitless ISSU, eliminating maintenance network outages
- Virtual Port Channel (vPC)—Enables deployment of active/active uplinks for high availability and double network bandwidth

Specifications

Feature	N5K-C5548P-FA	N5K-C5548UP-FA	N5K-C5596UP-FA	N5K-C5010P-BF	N5K-C5020P-BF
Switching Fabric (Gbps)	960	960	1.92Tbps	520 Gbps	1.04 Tbps
Packets per Second (Mpps)	714.2	714.2	1428Mpps	386.9 mpps	773.8
Expansion Slots	1	1	3	1	2
Nexus 2000 Fabric Extender System (FEX)	Up to 24 FEX	Up to 24 FEX	Up to 24 FEX	Up to 12 FEX	Up to 12 FEX
Fiber Channel Ports	16	48	96	8	16
Fiber Channel over Ethernet ports	48	48	96	26	52

Selected Part Numbers and Ordering Information

N5K-C5548P-FA	Nexus 5548, 1 RU chassis includes 32 fixed ports, Front-to-Back Airflow, 2 750W AC Power Supplies, Fan Trays, 1 Expansion Slot
N5K-C5548UP-FA	Nexus 5548UP, 1 RU chassis includes 32 fixed unified ports, Front-to-Back Airflow, 2 750W AC Power Supplies, Fan Trays, 1 Expansion Slot
N5K-C5596UP-FA	Nexus 5596UP, 2 RU chassis includes 48 fixed unified ports, Front-to-Back Airflow, 2 1100W AC Power Supplies, Fan Trays, 3 Expansion Slots
N5K-C5010P-BF	Cisco Nexus 5010 1RU Chassis no PS, 2 Fan Modules, 20 ports (req SFP+)
N5K-C5020P-BF	Cisco Nexus 5020 2RU Chassis no PS, 5 Fan Modules, 40 ports (req SFP+)

For More Information

http://www.cisco.com/go/nexus5000

Cisco Nexus 4000 Series Switches

The Cisco Nexus™ 4001I Switch Module for IBM BladeCenter is a blade switch solution for IBM BladeCenter H and HT chassis, providing the server I/O solution required for high-performance, scale-out, virtualized and non-virtualized x86 computing architectures.



Key Features and Benefits

- Line-rate, extremely low-latency, nonblocking, Layer 2, 10 Gigabit Ethernet blade switch
- Fully compliant with the INCITS Fibre Channel over Ethernet (FCoE) and IEEE 802.1 Data Center Bridging (DCB) standards
- Unified Fabric architecture provides a significant reduction in the number of switches, network interface cards, cabling, and power requirements.
- Supports 14 fixed 1 or 10 Gigabit Ethernet server-facing downlinks and 6 fixed 1 or 10 Gigabit Ethernet uplinks

Selected Part Numbers and Ordering Information

N4K-4001I-XPX	Cisco Nexus 4001I Switch Module chassis for IBM Blade Center
N4K-4001I-SSK9	Cisco Nexus 4001I Storage Protocol Services Software License

For More Information

http://www.cisco.com/go/nexus4000

Cisco Nexus 3000 Series Switches

The Cisco Nexus 3064 Switch is a high performance, high density, sub-microsecond latency Ethernet switch, which is part of the brand-new Cisco Nexus 3000 Series Switches. This compact 1RU form factor 10GbE switch provides wire-rate L2 and L3 switching and future-proofs networks with 40GbE standards-based technologies while also being backward compatible with 1GbE.

Cisco Nexus 3064 is ideal for financial co-location deployments requiring support for advanced unicast and multicast routing protocol features at ultra-low latency.

Cisco Nexus 3000 Series Switches extends the comprehensive proven innovations of Cisco Data Center Business Advantage into the HFT market too. The switch does so by delivering functionalities such as ultra-low latency and wire-rate L2/L3 switching on data center class NX-OS operating system.

Key Features and Benefits

- Cisco Nexus 3000 Series Switches delivers ultra-low latency that translates to faster data transactions thereby resulting in increased revenue for the financial companies.
- Wire-rate 10 Gigabit Ethernet Switching on all 64 10GbE ports
- Layer 2/3 switching up to 1.2Tbps,over 950Mpps (Million Packets per second) in a compact 1RU form factor switch.
- Future-proof with 40GbE standards-based support
- Purpose-built on NX-OS operating system with comprehensive, proven innovations
- Modular OS built from the ground up for resiliency
- Full L3 routing protocol suites including BGP, OSPF, EIGRP, RIPv2
- Integration with Cisco DCNM and XML management tools
- Support for Precision Time Protocol (IEEE-1588) to synchronize system clocks with nanosecond accuracy

Selected Part Numbers and Ordering Information

N3K-C3064PQ	Nexus 3064PQ 1RU fixed chassis, no p/s, no fan-tray
N3K-C3064-FAN	Nexus 3064PQ Fan Module, Front-to-Back Airflow
N2200-PAC-400W	Cisco Nexus 2200 Power supply, Front-to-Back Airflow
N3K-BAS1K9	Nexus 3000 Base License
N3K-LAN1K9	Nexus 3000 LAN Enterprise License

For More Information

http://www.cisco.com/go/nexus3000

Cisco Nexus 1000v Switch Series

Cisco Nexus 1000V Series Switches are virtual software switches that ensure secure network connectivity for all the VMs in the datacenter. The solution is based on the standard IEEE 802.1Q and is integrated with VMware vSphere. Cisco Nexus 1000V Series Switches deliver highly scalable and secure multitenant services by adding virtualization intelligence to the data center network. Nexus 1000V comprises two components:

- Virtual Ethernet Module (VEM), a software-based switch embedded in the VMware hypervisor
- Virtual Supervisor Module (VSM), which manages networking policies and quality of service for virtual machines in concert with the VEM

Nexus 1000V can optimize the use of layer 4-7 services in a virtual machine environment through Cisco vPath architecture services.

Key Features and Benefits

- Cisco VN-Segments providing scalable network isolation for cloud deployments. Provides on-demand provisioning of new network segments for cloud deployments. Fully integrated with VMware vCloud Director.
- Cisco vPath technology is aware of all L4-7 policies associated with individual virtual machines. Once the data packets of a specific virtual machine have been identified and policies applied, the remaining data packets flow directly to the virtual machines
- Cisco Virtual Security Gateway (VSG), integrated with the Nexus 1000V Switch provides trusted multitenant access with granular zone-based security policies for virtual machines. VSG delivers security policies across multiple servers, supporting virtual machine mobility across physical servers for workload balancing, availability, or scale for business growth in cloud computing
- Cisco vWAAS, a WAN optimization solution, integrated with Nexus 1000V Switch, delivers application performance acceleration to IT users connected to enterprise data centers and enterprise private clouds
- Developed in close collaboration with VMware, the Cisco Nexus 1000V Series is certified by VMware to be compatible with VMware vSphere, vCenter, ESX, and ESXi, and with many other vSphere features

Selected Part Numbers and Ordering Information

N1K-VSMK9-404S12=	Nexus 1000V VSM on Physical Media
N1K-VLCPU-01=	Nexus 1000V Paper CPU License Qty 1-Pack
N1K-VLCPU-04=	Nexus 1000V Paper CPU License Qty 4-Pack
N1K-VLCPU-16=	Nexus 1000V Paper CPU License Qty 16-Pack
N1K-VLCPU-32=	Nexus 1000V Paper CPU License Qty 32-Pack
L-N1K-VLCPU-01=	Nexus 1000V eDelivery CPU License Qty 1-Pack
L-N1K-VLCPU-04=	Nexus 1000V eDelivery CPU License Qty 4-Pack
L-N1K-VLCPU-16=	Nexus 1000V eDelivery CPU License Qty 16-Pack
L-N1K-VLCPU-32=	Nexus 1000V eDelivery CPU License Qty 32-Pack

For More Information

http://www.cisco.com/go/nexus1000V

Fabric Extender Portfolio

Cisco Fabric Extender (FEX) Architecture is a solution that provides scalability with a simplified, single point of management from the access switch. The solution is based on the IEEE 802.1Qbh standard, where each physical port is either partitioned or virtualized to enable multiple connections. The FEX Architecture includes technologies such as Nexus 2000 Series Fabric Extenders, Adapter FEX, and VM-FEX. Cisco Nexus 2000 Series Fabric Extenders logically behave like a remote line card, and together with the Cisco Nexus parent switch it forms a distributed modular system. Adapter FEX partitions a bare metal server adapter port and VM-FEX virtualizes a virtual server adapter port into multiple logical NIC ports, thereby improving the scalability of ports. Thus, scale the infrastructure as the business grows.

Cisco Nexus 2000 Series Fabric Extenders



The Cisco Nexus 2000 Series Fabric Extenders (FEX) behave as remote line cards for a parent Cisco Nexus 5000 Series or Cisco Nexus 7000 Series Switch, simplifying data center access operations and architecture by combining the management simplicity of end-of-row platforms with the flexible physical layout of top-of-rack platforms.

Key Features and Benefits

- Comprehensive range of connectivity options ranging from 100Mb, 1GE, and 10GE to Unified Fabric environments
- Transparent addition of network capacity as needed, reducing initial capital expenditures (CapEx)
- Single point of management and policy enforcement with Cisco Nexus 5000 or Cisco Nexus 7000 parent switches
- Supports virtual machine-aware network services; per-virtual machine awareness helps maintain a consistent policy view for each virtual machine and mobility of virtual machines and workloads within data centers
- Supports In-Service Software Upgrade (ISSU) and virtual PortChannel (vPC) technology, extending the resiliency of data center deployments for server connectivity

Specifications

Feature	Cisco Nexus 2148T	Cisco Nexus 2248TP	Cisco Nexus 2224TP	Cisco Nexus 2232PP	Cisco Nexus 2232TM
Performance	176Gbps Forwarding rate/ 131mpps	176Gbps Forwarding rate/ 131mpps	88Gbps Forwarding rate/ 65 mpps	560Gbps Forwarding rate/595 mpps	560Gbps Forwarding rate/ 595 mpps
Fabric extender host interfaces	48	48	24	32	32
Fabric extender fabric interfaces	4	4	2	8	8
Cisco parent switch	Cisco Nexus 5000 Series	Cisco Nexus 5000 or 7000 Series	Cisco Nexus 5000 or 7000 Series	Cisco Nexus 5000 or 7000 Series	Cisco Nexus 5000

Selected Part Numbers and Ordering Information

N2K-C2148T-1GE	Cisco Nexus 2000 Series 1GE Fabric Extender, 1PS, 1 Fan Module, 48x1GBase-T + 4x10GE (req SFP+)
N2K-C2224TP-1GE	Cisco Nexus 2000 Series 1GE Fabric Extender, 2PS, 1 Fan Module, 24x100/1000Base-T + 2x10GE (req SFP+)
N2K-C2224TF-1GE	Cisco Nexus 2000 Series 1GE Fabric Extender, 2PS, 1 Fan Module, 24x100/1000Base-T + 2x10GE (includes 4 Fabric Extender Transceivers)
N2K-C2248TP-1GE	Cisco Nexus 2000 Series 1GE Fabric Extender, 2PS, 1 Fan Module, 48x100/1000Base-T + 4x10GE (req SFP+)
N2K-C2248TF-1GE	Cisco Nexus 2000 Series 1GE Fabric Extender, 2PS, 1 Fan Module, 48x100/1000Base-T + 4x10GE (includes 8 Fabric Extender Transceivers)
N2K-C2232PP-10GE	Cisco Nexus 2000 Series 10GE Fabric Extender, 2PS, 1 Fan Module, 32x1/10GE (req SFP/SFP+) + 8x10GE (req SFP+)
N2K-C2232PF-10GE	Cisco Nexus 2000 Series 10GE Fabric Extender, 2PS, 1 Fan Module, 32x1/10GE (req SFP/SFP+) + 8x10GE (includes 16 Fabric Extender Transceivers)
N2K-C2232TM-10G	Cisco Nexus 2000 10GE Fabric Extender, 2PS, 1 Fan Module, 32x1/10GT + 8x10GE (requires SFP+)

For More Information

http://www.cisco.com/go/nexus2000

Cisco Adapter FEX

Cisco Adapter FEX is a technology that extends the current Cisco Fabric Extender solution into servers and enables the server adapter to be logically partitioned into multiple vNICS. Each vNIC behaves like a physical NIC port to satisfy the connectivity needs to ensure network QoS for applications.

Adapter FEX enables the efficient use of 10 Gigabit Ethernet bandwidth across server adapters and switches in the server access layer

The technology is based on the IEEE 802.1Qbh standards architecture that delivers secure, scalable network monitoring and management in rack and virtualized servers.

There is a single point of management from the access layer switch that manages and controls the end-to-end connectivity between server adapters and the switches in a virtualized environment.

Key Features and Benefits

- Enable efficient usage of 10 Gigabit Ethernet bandwidth
  - Partition 10 Gigabit Ethernet server adapters to provide dedicated network bandwidth to individual applications or virtual machines
  - Reduce cabling, NICs, power, and operational costs
  - Deliver near line-rate network performance and meet network QoS
- Single point of monitoring and management
  - Monitor and manage the entire network from the server access layer switch, Cisco Nexus 5000 Series Switches, into virtual machines
- Flexibility and Scalability with Security
  - Based on industry standard, IEEE 802.1Qbh, that enables the network device (server adapter or switch) to be partitioned into multiple connectivity points (vNICs or virtual line cards)
  - IEEE standard enables bare metal and virtualized environments to scale as the business grows with increased number of applications, virtual machines or number of servers
  - Secure protection for each data packet—By basing ACL implementation on tagged data packets instead of MAC addresses, each data packet is protected and rogue data packets will not affect the overall network

For More Information

http://www.cisco.com/go/adapterfex

Cisco VM-FEX

Cisco Virtual Machine Fabric Extender (VM-FEX) collapses virtual and physical networking into a single infrastructure. Data center administrators can now provision, configure, manage, monitor, and diagnose virtual machine network traffic and bare metal network traffic within one unified infrastructure.

Key Features and Benefits

- The Cisco VM-FEX software extends Cisco fabric extender technology all the way to the virtual machine:
  - Each virtual machine gets a dedicated interface on the parent switch.
  - All virtual machine traffic is sent directly to the dedicated interface on the switch.
  - The software-based switch in the hypervisor is eliminated.
- Cisco VM-FEX technology collapses virtual switching infrastructure and physical switching infrastructure into a single, easy-to-manage environment. Cisco VM-FEX:
  - Simplifies operations by eliminating the need for a separate virtual networking infrastructure
  - Improves network security by containing VLAN proliferation
  - Optimizes network usage by reducing broadcast domains
  - Boosts application performance by offloading virtual machine switching from the host CPU to the parent switch Application Specific Integrated Circuits (ASIC)
- Cisco VM-FEX is supported on Red Hat KVM and VMware ESX hypervisors. Live migration and vMotion are supported with VM-FEX

For More Information

http://www.cisco.com/go/vmfex

Storage Networking—Fibre Channel Switching

Cisco MDS 9500 Series Multilayer Directors



The Cisco MDS 9500 Series Multilayer Directors provide industry-leading availability, scalability, security, and management. The Cisco MDS 9500 Series allows businesses to deploy the highest-performance storage area networks (SANs), with the lowest total cost of ownership (TCO) in the industry. Layering a rich set of intelligent features onto a high-performance, protocol-independent switch fabric, the Cisco MDS 9500 Series addresses the stringent requirements of large data center storage environments.

Available in 6-, 9-, and 13-slot configurations, the Cisco MDS 9500 Series supports 1-, 2-, 4-, 8-, and 10-Gbps Fibre Channel port speeds, up to 528 1-, 2-, 4-, and 8-Gbps autosensing Fibre Channel ports in a single chassis, and up to 1584 Fibre Channel ports per rack.

Cisco MDS 9500 Series Multilayer Directors are also ready for integration of future high-speed standards, helping ensure continued investment protection. The Cisco NX-OS is included at no charge with every Cisco MDS 9000 Multilayer SAN Switch, and is the underlying system software that powers the MDS solution.

The portfolio includes:

- Cisco MDS 9513 Multilayer Director

- Cisco MDS 9509 Multilayer Director
- Cisco MDS 9506 Multilayer Director

Cisco MDS 9513 Multilayer Director

The Cisco MDS 9513 Multilayer Director addresses the stringent requirements of large data center storage environments: uncompromising high availability, security, scalability, ease of management, and transparent integration of new technologies for extremely flexible data center SAN solutions. Compatible with first-, second-, and third-generation Cisco MDS 9000 switching modules, the Cisco MDS 9513 provides advanced functions and outstanding investment protection, allowing the use of any Cisco MDS 9000 Family switching module in this highly scalable system.

The Cisco MDS 9513 supports modular, multilayer, multiprotocol, highly available, dual Cisco MDS 9513 Supervisor 2 modules and 11 module slots (14 rack units [14RU]):

- Supports maximum of 24 10-Gbps Fibre Channel ports per chassis
- Supports maximum of 60 Small Computer System Interface over IP (iSCSI) and Fibre Channel over IP (FCIP) ports per chassis
- Supports maximum of 528 1-, 2-, or 4-Gbps Fibre Channel ports per chassis
- Offers 13 available slots
- Supports 8-Gbps Fibre Channel: 24-, 48-, and 4/44-port 8-Gbps Fibre Channel switching modules
- Supports 4-Gbps Fibre Channel: 12-, 24-, and 48-port 4-Gbps Fibre Channel switching modules
- Supports IP and storage services: 18/44-port multiservice modules and 16-port storage services node
- Supports 10-Gbps Fibre Channel: 4-port 10-Gbps Fibre Channel switching module
- Supports Fibre Channel Over Ethernet: 10-Gbps 8-Port FCoE Module

Cisco MDS 9509 Multilayer Director

The Cisco MDS 9509 supports up to 336 ports of 1-, 2-, 4-, and 10-Gbps Fibre Channel connectivity, and is a powerful director-class SAN switch offering industry-leading availability, scalability, and security. The Cisco MDS 9509 Multilayer Director comes with two redundant Cisco MDS 9500 Supervisor 2 modules preinstalled, and layers a rich set of intelligent features onto a high-performance, protocol-independent switch fabric to meet the needs of large data center storage environments:

- Maximum of 336 1-, 2-, or 4-Gbps Fibre Channel ports per chassis
- Maximum of 28 10-Gbps Fibre Channel ports per chassis
- Maximum of 48 iSCSI and FCIP ports per chassis
- Nine available slots
- 1-, 2-, and 4-, and 10-Gbps Fibre Channel switching
- Advanced management tools for overall lowest TCO
- Backward-compatible for investment protection
- Supports Fibre Channel Over Ethernet: 10-Gbps 8-Port FCoE Module
- Unified SAN management

Cisco MDS 9506 Multilayer Director

The Cisco MDS 9509 Multilayer Director supports up to 336 ports of 1-, 2-, 4-, and 10-Gbps Fibre Channel connectivity, and is a powerful director-class SAN switch offering industry-leading availability, scalability, and security. The Cisco MDS 9509 Multilayer Director comes with two redundant Cisco MDS 9500 Supervisor 2 modules preinstalled, and layers a rich set of intelligent features onto a high-performance, protocol-independent switch fabric to meet the needs of large data center storage environments:

- Maximum of 192 1-, 2-, or 4-Gbps Fibre Channel ports per chassis
- Maximum of 16 10-Gbps Fibre Channel ports per chassis
- Maximum of 24 iSCSI and FCIP ports per chassis
- Six available slots
- 1-, 2-, and 4- and 10-Gbps Fibre Channel switching
- Advanced management tools for overall lowest TCO
- Backward-compatible for investment protection
- Supports Fibre Channel Over Ethernet: 10-Gbps 8-Port FCoE Module
- Unified SAN management

Selected Part Numbers and Ordering Information

Cisco MDS 9500 Base Configuration	
DS-C9506	Cisco MDS 9506 Chassis
DS-C9506-2K9	Cisco MDS 9506 Base Configuration; Chassis, 2-Sup-2.2, 1.9K AC power supply
DS-C9509	Cisco MDS 9509 Chassis
DS-C9509-2K9	Cisco MDS 9509 Base Configuration; Chassis, 2-Sup-2.2, 3K AC power supply
DS-C9513	Cisco MDS 9513 Chassis
DS-C9513-K9	Cisco MDS 9513 Base Configuration; Chassis, 2-Sup-2.2 Fabric, 2 6K AC power supply
DS-X9530-SF2-K9	Cisco MDS 9500 Supervisor/Fabric 2
Cisco MDS 9000 Modules	

DS-X9032-SSM	Cisco MDS 9000 Storage Services Module
DS-X9112	Cisco MDS 9000 12-port 1/2/4-Gbps FC Module
DS-X9124	Cisco MDS 9000 24-port 1/2/4-Gbps FC Module
DS-X9148	Cisco MDS 9000 48-port 1/2/4-Gbps FC Module
DS-X9248-48K9	4/44-Port Host-Optimized 8-Gbps FC Module
DS-X9248-96K9	48-Port 8-Gbps Fibre Channel Switching Module
DS-X9224-96K9	24-Port 8-Gbps Fibre Channel Switching Module
DS-X9304-18K9	Cisco MDS 9000 4-port GE and 18-port FC Module
DS-X9304-18FK9	Cisco MDS 9000 4-port GE and 18-port FC FIPS Module
DS-X9308-SMIP	Cisco MDS 9000 8-port 1 GE IP Storage Services Module
DS-SFP-FC-2G-SW	1/2-Gbps Fibre Channel-SW SFP, LC
DS-SFP-FC-2G-LW	1/2-Gbps Fibre Channel-LW SFP, LC
DS-SFP-FC4G-SW	1/2/4-Gbps Fibre Channel-Shortwave SFP, LC
DS-SFP-FC4G-MR	1/2/4-Gbps Fibre Channel-Longwave SFP, LC (4km reach)
DS-SFP-FC4G-LW	1/2/4-Gbps Fibre Channel-Longwave SFP, LC (10km reach)
DS-SFP-FCGE-SW	1-Gbps Ethernet and 2-Gbps Fibre Channel-SW, SFP, LC
DS-SFP-FCGE-LW	1-Gbps Ethernet and 2-Gbps Fibre Channel-LW, SFP, LC
DS-X2-FC10G-SR	10-Gbps Fibre Channel-Shortwave, SC
DS-X2-FC10G-LW	10-Gbps Fibre Channel-Longwave, SC
DS-SFP-GE-T	Gigabit Ethernet Copper, SFP, RJ-45
Cisco MDS 9500 Memory Options	
MEM-MDS-FLD512M=	Cisco MDS 9500 Sup Compact Flash Disk, 512 MB, Spare

For More Information

http://www.cisco.com/go/storagenetworking

Cisco MDS 9200 Series Multilayer Switches



The Cisco MDS 9222i Multiservice Modular Switch delivers high-performance storage-area-network (SAN) extension solutions, distributed intelligent fabric services, and cost-effective multiprotocol connectivity for both open and mainframe environments. Its compact form factor and modularity make it ideal for departmental and remote branch-office SANs. It enables virtual fabric isolation with virtual SANs (VSANs), Fibre Channel routing with Inter-VSAN Routing (IVR), and high availability with In-Service Software Upgrade (ISSU), stateful process restart, and PortChannels. The Cisco MDS 9222i provides for cost optimization through Small Computer System Interface over IP (iSCSI) connectivity to Ethernet-attached servers.

Sharing a consistent architecture with the Cisco MDS 9500 Series and powered by Cisco MDS 9000 NX-OS Software, the Cisco MDS 9222i offers 18 4-Gbps Fibre Channel ports and 4 Gigabit Ethernet IP storage services ports in a fixed base configuration with a single application engine, and a modular expansion slot to host the optional Cisco MDS 9000 Family switching and multiservices modules—allowing it to scale up to a 66-port Fibre Channel switch with various 10, 8, or 4-Gbps Fibre Channel Switching Modules or to host and accelerate storage applications such as network-hosted volume management, network-assisted data protection, data migration, and backup with the Cisco MDS 9000 Family 18/4 single engine or SSN-16 quad engine Multiservice Services Module. The Cisco MDS 9222i is also capable of high-density connectivity through 8-Gbps Fibre Channel ports—the Cisco MDS 9222i also supports the 4/44-port 8-Gbps host-optimized Fibre Channel switching module. The switch:

- Scales up to 66 Fibre Channel ports
- Offers 18 4-Gbps Fibre Channel interfaces for high-performance SAN connectivity
- Offers 4 Gigabit Ethernet IP storage services ports
- Supports iSCSI, Fibre Channel, Fibre Channel over IP, and Fiber Connection (FICON)

Selected Part Numbers and Ordering Information

Cisco MDS 9200 Base Configuration	
DS-C9222i-K9	Cisco MDS 9222i 18-port FC and 4-port GE + 1-slot Modular Switch

For More Information

http://www.cisco.com/go/mds

Cisco MDS 9100 Series Multilayer Fabric Switches



The Cisco MDS 9100 Series Multilayer Fabric Switches are cost-effective, scalable, easy-to-install, and highly configurable Fibre Channel switches that are ideal for small to medium-sized businesses. The fabric switches are also available as blade-switch form factors for market-leading blade servers, specifically IBM and HP blade servers.

The Cisco 9100 Series portfolio includes:

- Cisco MDS 9148 Multilayer Fabric Switch
- Cisco MDS 9124 Multilayer Fabric Switch

Cisco MDS 9148 Multilayer Fabric Switch

The Cisco MDS 9148 Multilayer Fabric Switch is a high-performance, flexible, cost-effective 1-rack unit (1RU) platform providing the highest density of line-rate 8-Gbps Fibre Channel ports in the industry. It is fully compatible with the Cisco MDS 9500 Series Multilayer Directors, MDS 9200 Series Multilayer Switches, and MDS 9100 Series Multilayer Fabric Switches for transparent, end-to-end service delivery in large data center core-edge deployments. Its ready-to-use capabilities, including Quick Configuration and Task wizards, allow for easy deployment in any size network. The Cisco MDS 9148 is competitively priced with enterprise-class capabilities: virtual storage area networks (VSANs), PortChannels, nondisruptive code upgrade, comprehensive security (authentication, authorization, and accounting [AAA], role-based access control [RBAC], etc.), troubleshooting, and diagnostics. It is fully optimized to accommodate virtualized server environments. Scalability is provided for virtual machines through N-Port ID Virtualization (NPIV) and VSAN technology. Virtual machine granularity is provided for quality of service (QoS) and management together with flexibility for virtual machine mobility and security. The switch:

- Provides 8-Gbps nonblocking throughput on all 48 ports
- Offers FlexAttach technology to enable transparent server deployment without the need to reconfigure the SAN
- Offers N-Port Virtualization (NPV) technology and N-port ID virtualization (NPIV) support for virtual environments
- Supports VSAN for security and fault isolation
- Provides PortChannels for aggregating up to 16 physical ports into one logical channel
- Offers In-Service Software Upgrade (ISSU) to enable firmware upgrades without removing the switch from service
- Supports high availability with dual hot-swappable power supplies and fans
- Supports RADIUS and TACACS+ port security, Fibre Channel Security Protocol, Secure FTP, Secure Shell (SSH) Protocol Version 2, and RBAC for comprehensive security controls
- Like all MDS switches and directors, blocks corrupted and malformed frames from entering a fabric, protecting servers and applications

Cisco MDS 9124 Multilayer Fabric Switch

The Cisco MDS 9124 supports 4-Gbps dedicated Fibre Channel ports. It shares common features and the same Cisco MDS 9000 NX-OS Software with the Cisco MDS 9500, MDS 9200, and MDS 9100 Series Multilayer Switches and directors. It is competitively priced with enterprise-class capabilities: virtual storage area networks (VSANs), PortChannels, nondisruptive code upgrade and comprehensive security (AAA, RBAC, etc.), troubleshooting, and diagnostics. The Cisco MDS 9124 can be used as the foundation of small standalone SANs or as an edge switch in larger core-edge SAN infrastructures.

The Cisco MDS 9124 has ready-to-use capabilities, including Quick Configuration wizard support and Task wizards, which allow for easy deployment in any size network. The "on-demand" port activation license makes port activation faster.

- Offers 1-, 2-, and 4-Gbps performance
- Scales up to 24 Fibre Channel ports
- Offers simplified management
- Offers easy configuration and deployment
- Provides highly available platform for mission-critical deployments
- Provides comprehensive security framework
- Ordering and serviceability flexibility with either single or dual-redundant hot-pluggable AC or DC power supplies

Selected Part Numbers and Ordering Information

DS-C9124-K9	Cisco MDS 9124 8-port base with single AC Power Supply
DS-C9124DC-K9	Cisco MDS 9124 8-port base with single DC Power Supply
DS-C9148-16P-K9	Cisco MDS 9148 16-port base with dual AC Power Supplies/Fans
DS-C9148-32P-K9	Cisco MDS 9148 32-port base with dual AC Power Supplies/Fans
DS-C9148-48P-K9	Cisco MDS 9148 48-port base with dual AC Power Supplies/Fans

For More Information

http://www.cisco.com/go/mds

Cisco MDS 9000 Intelligent Fabric Applications

Cisco offers a collection of software applications designed to optimize your data center resources by providing integrated, high-performance applications to Cisco storage networks. These applications support remote disaster recovery, security, data mobility, and other heterogeneous storage requirements without adding appliances or using host or array resources. The Cisco MDS 9000 Family Services Nodes provide network-hosted services to Cisco storage networks such as storage-area-network (SAN) extension (Fibre Channel over IP [FCIP]), I/O Acceleration (IOA), XRC Acceleration (XRC), Storage Media Encryption (SME), and Data Mobility Manager (DMM).

Network-assisted applications are enabled through the open Intelligent Services API (ISAPI). Cisco makes this development platform available to original storage manufacturers (OSMs) and independent software vendors (ISVs) who want to develop storage applications on the Cisco storage networks platform.

For More Information

http://www.cisco.com/go/storagenetworking

Cisco MDS 9000 XRC Acceleration

Cisco MDS 9000 XRC Acceleration is a SAN fabric-based feature that improves the performance of IBM z/OS Global Mirror (formerly XRC) over WAN links, improving bandwidth usage and dynamic update performance. It is implemented on the Cisco MDS 9000 18/4-Port Multiservice Module and the Cisco MDS 9222i Multiservice Modular Switch. It requires Cisco MDS 9000 NX-OS Software Version 4.2 or later.

- XRC Acceleration maximizes parallelism by supporting multiple system data movers (SDMs) and multiple readers within each SDM. IBM Parallel Access Volumes (PAVs) and HyperPAVs are supported. Fibre Connection (FICON) Data Access Storage Devices (DASDs) from IBM, EMC, and HDS are supported to complete the ecosystem.
- XRC Acceleration runs on the same hardware as the underlying SAN Extension on Fibre Channel over IP (FCIP), and it takes advantage of the IP Security (IPsec) encryption and data compression MDS switches provide. Many customers experience compression ratios of 4:1 or better, and many report compression exceeding 5:1.

Selected Part Numbers and Ordering Information

M9500XRC=	Cisco MDS 9000 XRC Acceleration Package for one Cisco MDS 9500 Series Multilayer Director
M9200XRC=	Cisco MDS 9000 XRC Acceleration Package for one Cisco MDS 9200 Series Multilayer Switch

For More Information

http://www.cisco.com/go/storagenetworking

Cisco MDS 9000 Storage Media Encryption (SME)

The Cisco MDS 9000 Family Storage Media Encryption (SME) provides encryption as a SAN service. It encrypts data at rest on heterogeneous tape devices and virtual tape libraries. Cisco SME is completely integrated with Cisco MDS 9000 Family switches and Cisco Fabric Manager, enabling deployment and management of highly available encryption services without rewiring or reconfiguring SANs or installing additional software. Data stored in any virtual SAN (VSAN) can use Cisco SME. It employs clustering technology to enhance reliability and availability, enable automated load balancing and failover capabilities, and simplify provisioning. Secure key management is included, with essential features such as key archival and shredding.

- The Cisco MDS 9000 SME provides simple, non-disruptive installation and provisioning. Neither rewiring nor SAN reconfiguration is required.
- Encryption engines are integrated on Fibre Channel switching modules.
- The SME encrypts traffic from any VSAN.
- No additional software is required for provisioning, key, or user role management.

Selected Part Numbers and Ordering Information

M9500SME1MK9	Cisco Storage Media Encryption package for one MPS-18/4 or MPS-18/4 FIPS module in the Cisco MDS 9500 series
DS-SCR-K9=	Smart Card Reader for Cisco SME

For More Information

http://www.cisco.com/go/storagenetworking

Cisco MDS 9000 I/O Accelerator (IOA)

Cisco MDS 9000 Family I/O Accelerator (IOA) software improves remote I/O performance and bandwidth usage over MAN and WAN links. This fabric-based acceleration service is implemented on the Cisco SSN-16 Storage Services Node, Cisco MDS 9000 18/4-Port Multiservice Module, and Cisco MDS 9222i Multiservice Modular Switch. It requires Cisco MDS 9000 NX-OS Software Version 4.2 or later.

- IOA speeds up Small Computer System Interface (SCSI) disk writes and tape reads and writes over MANs and LANs.

- IOA service nodes can be located anywhere in the fabrics on each side of the remote link.
- FCIP links can take advantage of the encryption and compression (as much as 5:1) built into the supporting hardware.
- Inter-Switch Links (ISLs) between a pair of 8-Gbps line cards can use Cisco TrustSec Fabric Channel link encryption to help secure data sent between data centers, and IOA can also add compression to MAN traffic.
- A Fabric Manager wizard simplifies configuring the infrastructure on each side of the MAN or WAN link.
- Insertion of the acceleration service into the data path is transparent and non-disruptive.
- Installation and provisioning are simple and non-disruptive. Neither rewiring nor SAN reconfiguration is required.
- Encryption engines are integrated on Fibre Channel switching modules.
- The IOA encrypts traffic from any VSAN.
- No additional software is required for provisioning, key, or user role management.

Selected Part Numbers and Ordering Information

M92IOA184= M95IOA184=	Cisco MDS 9000 Family I/O Accelerator Package license for MSM-18/4 on Cisco MDS 9200 Cisco MDS 9000 Family I/O Accelerator Package license for MSM-18/4 on Cisco MDS 9500
M92IOASSN= M95IOASSN=	Cisco I/O Accelerator license (1 engine) for SSN-16 on Cisco MDS 9200 Cisco I/O Accelerator license (1 engine) for SSN-16 on Cisco MDS 9500
M9222IIOA=	Cisco I/O Accelerator license for Cisco MDS 9222i base switch

For More Information

http://www.cisco.com/go/storagenetworking

Cisco MDS Data Mobility Manager (DMM)

The Cisco Data Mobility Manager (DMM) is a fabric-based data migration solution that transfers block data across heterogeneous storage volumes and across distances, irrespective of whether the host is online or offline. With no host components to deploy, the time-consuming, costly, and sensitive task of installing and licensing hardware and software on servers is avoided. In addition, host CPU and bandwidth cycles are available to the application in their entirety, so applications do not experience any deterioration in performance.

It is implemented on the Cisco MDS 9000 18/4-Port Multiservice Module, Cisco MDS 9222i Multiservice Modular Switch of the Cisco MDS 9000 Series Switches. The Cisco MDS 9000 18/4-Port Multiservice Module and MDS 9222i Multiservice Modular Switch require Cisco MDS 9000 NX-OS Software Version 4.1 or later. Typically this capability addresses:

- Array lease expiration and decommissioning
- Capacity planning and tiered storage strategies
- Asynchronous and synchronous migration across heterogeneous arrays
- Unlimited support on the number of arrays and no restriction on the amount of data moved

Selected Part Numbers and Ordering Information

M92DMM184K9=	Cisco Data Mobility Manager (DMM) License for one 18/4 on Cisco MDS 9200
M95DMM184K9=	Cisco Data Mobility Manager (DMM) License for one 18/4 on Cisco MDS 9500
M9222IDMMK9=	Cisco Data Mobility Manager (DMM) License for Cisco MDS 9222i

For More Information

http://www.cisco.com/go/storagenetworking

Cisco MDS NX-OS Software

Cisco MDS 9000 NX-OS Software is designed to create a strategic data center platform with superior reliability, performance, scalability, and features. Formerly known as Cisco SAN-OS, Cisco MDS 9000 NX-OS Software is fully interoperable with earlier Cisco SAN-OS versions and enhances hardware platform and module support. Cisco NX-OS Software helps unify and simplify the next-generation data center. Cisco NX-OS currently runs on the following Cisco data center products:

- Cisco Nexus 7000 Series modular switches
- Cisco Nexus 5000 Series rack switches
- Cisco Nexus 4000 Series blade switches
- Cisco Nexus 1000V Series virtual switches
- Cisco MDS 9000 Series of Fibre Channel storage switches
- Cisco UCS 6100 Series Fabric Interconnects of the Cisco Unified Computing System

By allowing you to implement a single operating system across network, storage, and compute infrastructure, Cisco NX-OS greatly simplifies data center operations, producing a direct, positive effect on operation costs. Similarly, because it is designed for high system availability, enhanced manageability, and unified data center infrastructure, Cisco NX-OS further reduces both data capital and operating expenditures. Finally, because it is built on a modular, adaptable architecture, Cisco NX-OS provides forward investment protection with an inherent ability to easily incorporate additional innovations and new technologies.

For More Information

http://www.cisco.com/go/mds

Cisco Catalyst Blade Switch 3000 and 3100 Series



Cisco Catalyst Blade Switch 3100 Series and the Cisco Catalyst Blade Switch 3000 Series are specifically designed to meet the rigors of blade server application infrastructure. The Cisco Catalyst Blade Switch 3000 Series provides cost-effective gigabit Ethernet connectivity, while the Cisco Catalyst Blade Switch 3100 series provides high performance 10Gb Ethernet connectivity and innovative Virtual Blade Switch (VBS) technology. The Cisco Catalyst Blade Switches help address the problems of server sprawl within the data center infrastructure.

These servers allow mixing and matching of Gigabit Ethernet and 10 Gigabit Ethernet switches, providing customers with a cost-effective migration path. Switch capacity can be incrementally upgraded as server needs demand. Cisco blade switches are optimized for IBM, HP, Dell, and FSC storage environments. These products introduce an innovative new technology called the virtual blade switch (VBS), which allows up to 8 physical switches to be combined into a single logical switch. These products represent the foundation of the many additional functions that the Cisco Catalyst Blade Switch 3100 Series delivers.

Key Features and Benefits

- The VBS is self-managing and self-configuring—When switches are added or removed, the master switch automatically loads the Cisco IOS Software version running on the VBS to the new switch, loads the global configuration parameters, and updates all the routing tables to reflect changes. Upgrades are applied universally and simultaneously to all members of the VBS.
- The VBS is highly resilient—Each switch can operate both as master controller and as forwarding processor. Each switch in the VBS can serve as a master, creating a 1:N availability scheme for network control. In the unlikely event of a single-unit failure, all other units continue to forward traffic and maintain operation.
- The VBS offers industry-leading mechanisms for marking, classification, and scheduling to deliver superior performance for data, voice, and video traffic, all at wire speed.
- The VBS supports a comprehensive set of security features for connectivity and access control, including access control lists (ACLs), authentication, port-level security, and identity-based network services with IEEE 802.1x and extensions. This set of features not only helps prevent external attacks, but also defends the network against "man-in-the-middle" attacks. The VBS-enabled switch also supports the Cisco Network Admission Control (NAC) security framework.
- The VBS-enabled switch is managed as a single object and has a single IP address.

Selected Part Numbers and Ordering Information

WS-CBS3125G-S	Cisco Catalyst Blade Switch 3125G for HP w/ IP Base
WS-CBS3125X-S	Cisco Catalyst Blade Switch 3125X for HP w/ IP Base
WS-CBS3020-HPQ	Cisco Catalyst Blade Switch 3020 for HP
WS-CBS3130G-S	Cisco Catalyst Blade Switch 3130G for Dell M1000e with IP Base
WS-CBS3130X-S	Cisco Catalyst Blade Switch 3130X for Dell M1000e with IP Base
WS-CBS3032-DEL	Cisco Catalyst Blade Switch 3032 for Dell M1000e
WS-CBS3012-IBM-I	Cisco Catalyst Switch Module 3012 for IBM
WS-CBS3110G-S-I	Cisco Catalyst Switch Module 3110G for IBM BladeCenter w/ IP Base
WS-CBS3110X-S-I	Cisco Catalyst Switch Module 3110X for IBM BladeCenter w/ IP Base
WS-CBS3040-FSC	Cisco Catalyst Blade Switch 3040 for FSC

For More Information

http://www.cisco.com/go/bladeswitch

Unified Computing

Cisco Unified Computing System



The Cisco Unified Computing System is a next-generation data center platform that unites compute, network, storage access, and virtualization into a cohesive system designed to reduce Total Cost of Ownership (TCO) and increase business agility. The system integrates a low-latency, lossless 10GE unified network fabric with enterprise-class, x86-architecture servers. The system is an integrated, scalable, multichassis platform in which all resources participate in a unified management domain.

The UCS is managed as a single system whether it has 1 server or 320 servers with thousands of virtual machines; this approach decouples scale from complexity. The Cisco Unified Computing System accelerates the delivery of new services simply, reliably, and securely through end-to-end provisioning and migration support for both virtualized and non-virtualized systems.

The Cisco Unified Computing System is designed to deliver:

- Programmable infrastructure that transforms the physical infrastructure into a pool of resources that can be provisioned to support any workload in minutes.
- Unified, model-based management configures servers quickly and accurately, improving business agility and eliminating a major source of errors.
- Cisco Fabric Extender technology extends fabric interconnect ports directly to blades servers and individual virtual machines, eliminating unnecessary switches and management points.
- Cisco Unified Fabric integrates the system's compute resources with a single network that supports all I/O in the system, eliminating switches, ports, HBA, NICs, and their power/cooling/management costs.
- Reduced total cost of ownership (TCO) at the platform, site, and organizational levels
- Increased IT staff productivity and business agility through just-in-time provisioning and mobility support for both virtualized and non-virtualized environments
- A seamless integrated system that is managed, serviced, and tested as a whole
- Scalability through a design for up to 320 discrete servers and thousands of virtual machines, and the ability to scale I/O bandwidth to match demand
- Industry standards supported by a partner ecosystem of industry leaders

Cisco UCS Product Family of Products

The Cisco Unified Computing System is built from the following components:

- Cisco UCS 6100 and UCS 6248UP Series Fabric Interconnects are a family of line-rate, low-latency, lossless, 10-Gbps Cisco Data Center Ethernet and FCoE interconnect switches that consolidate I/O within the system. Both 20-port 1RU and 40-port 2RU and 48-port 2RU versions accommodate expansion modules that provide Fibre Channel and/or 10 Gigabit Ethernet connectivity. In addition, the UCS 6248UP Fabric Interconnect also has universal ports that can either be 10GB Ethernet or FCoE.
- Cisco UCS 6248UP Series Fabric Interconnects is a of line-rate, low-latency, lossless, 10-Gbps Cisco Data Center Ethernet and FCoE interconnect switches that consolidate I/O within the system. Both 20-port 1RU and 40-port 2RU versions accommodate expansion modules that provide Fibre Channel and/or 10 Gigabit Ethernet connectivity.
- Cisco UCS 5100 Series Blade Server Chassis supports up to eight blade servers and up to two fabric extenders in a 6RU enclosure without the need for additional management, SAN switching or LAN switching modules.
- Cisco UCS 2100 Series and UCS 2208XP Fabric Extenders bring unified fabric into the blade-server chassis, providing up to four or eight 10-Gbps connections each between blade servers and the fabric interconnect and simplifying diagnostics, cabling, and management.
- Cisco UCS B-Series Blade Servers offer an array of compute and memory choices to populate the a UCS 5100 Series Server chassis. The B-series spans both two socket and four socket servers based on Intel Xeon Processor 5600 and E7 product families. Nearly all workloads are accommodated beginning with full range of hardware choice that begin with the half-width, UCS B200 M2 Blade Server with up to 192 GB of memory to the extremely large memory footprints of the half-width UCS B230 M2 blade server with up to 512 GB of memory and ending with the four-socket UCS B440 M2 blade server supporting up to 40 processing cores.
- Cisco UCS C-Series Rack-Mount Servers offer another entry point to the Cisco Unified Computing System. In addition, Cisco C-Series Servers may also be deployed as stand-alone computing devices in traditional environments while providing many innovative features like enterprise-class RAS, Extended Memory and Adapter FEX and VM FEX technologies. The UCS C-Series accommodate nearly all workloads ranging from small infrastructure applications to large, memory and CPU-intensive databases and application servers.
- Cisco UCS Network Adapters are offered in a mezzanine-card and PCIe form factors. Three types of adapters offer a range of options to meet application requirements, including adapters optimized for virtualization, compatibility with existing driver stacks, or efficient, high-performance Ethernet.

Key Features and Benefits

- Reduced total cost of ownership at the platform, site, and organizational levels
- Increased IT staff productivity and business agility through just-in-time provisioning and mobility support for both virtualized and non-virtualized environments
- Enable scalability through a design for up to 320 discrete rack or blade servers and thousands of virtual machines in a single highly available management domain
- Industry standards supported by a partner ecosystem of innovative, trusted industry leaders

Selected Part Numbers and Ordering Information

N10-S6100	Cisco Unified Computing System 6120XP 20-port Fabric Interconnect/0 PSU/2 fans/no SFP+
N10-S6200	Cisco Unified Computing System 6140XP 40-port Fabric Interconnect/0 PSU/5 fans/no SFP+
N20-C6508	Cisco Unified Computing System 5108 Blade Server Chassis/0 PSU/8 fans/0 fabric extender
A01-X-0100	CPU Kits—3.33GHz Xeon X5680 130W CPU/12MB cache/DDR3 1333MHz (NOTE: other options include 2.93GHz, 2.66GHz, 2.40GHz and 2.26GHz Xeon configurable CPU selections)
N01-M304GB1	Memory Kits—4GB DDR3-1333MHz RDIMM/PC3-10600/dual rank 1Gb DRAMs (NOTE 2GB, 4GB, 8GB & 16GB memory options are available during configuration)

N20-AI0002	Mezzanine Cards—UCS 82598KR-CI 10-Gigabit Ethernet Adapter/PCIe/2-port 10Gb (NOTE Emulex, QLogic, and Virtual interface card options are available during configuration)
N20-D073GC	Hard Drive Options—73GB SAS 15K RPM SFF HDD/hot plug/B-series drive sled (NOTE 146GB, 300GB options available during configuration)
Operation systems	UCS blade servers can be preconfigured with Red Hat, SUSE, Microsoft, or VMware operating systems

For More Information

http://www.cisco.com/go/ucs

Cisco UCS B-Series Blade Servers



The Cisco UCS B-Series Blade Servers are designed to increase performance, energy efficiency, and flexibility for demanding virtualized and non-virtualized computing environments. Each Cisco UCS B-Series Blade Server incorporates converged network adapters (CNAs) for access to the unified fabric. This design reduces the number of adapters, cables, and access layer switches while still allowing traditional LAN and storage-area-network (SAN) connectivity. This Cisco innovation reduces capital expenditures (CapEx) and operating expenses (OpEx), including administrative overhead and power and cooling costs.

The Cisco UCS B-Series models featuring 2-socket designs help maximize performance, energy efficiency, and flexibility for demanding virtualized and non-virtualized applications. These 2-socket blade servers are based on the Intel Xeon 5600 Series processors and the E7-2800 Xeon processors product family.

- The Cisco UCS B200 M1 and Cisco UCS B200 M2 Blade Servers balance simplicity, performance, and density for production-level virtualization and other mainstream data center workloads.
- The Cisco UCS B250 M1 and Cisco UCS B250 M2 Extended Memory Blade Servers maximize performance and capacity for demanding virtualization and large-dataset workloads with up to 384 GB of industry-standard memory. They also offer a more cost-effective memory in a full-width footprint.
- The Cisco UCS B230 M1 and Cisco UCS B230 M2 Blade Servers combine the performance and reliability of Intel Xeon processor 6500 and 7500 and E7-2800 product families, respectively, with a unique combination of 32 DIMM slots in a half-width form factor.

The Cisco UCS B-Series 4-socket servers extend the agility and cost benefits of unified computing to the upper end of today's workloads.

- The Cisco UCS B440 M2 Blade Server is powered by the scalable performance and reliability features of up to four Intel Xeon E7-4800 processors, and it easily handles compute-intensive, memory-intensive, highly scalable, enterprise-critical applications.

Key Features and Benefits

- Service profile support—Embedded integration with Cisco UCS Manager for all infrastructure policies required to deploy applications and provision servers
- Autodiscovery—Automatic recognition and configuration of blades by Cisco UCS Manager
- Remote management through an integrated service processor that also executes policy established in Cisco UCS Manager software
- Keyboard, video, and mouse (KVM) access either locally through the front of each server or remotely by Cisco UCS Manager
- Out-of-band access by remote KVM, Secure Shell (SSH) Protocol, Serial over LAN, and virtual media (vMedia) as well as the Intelligent Platform Management Interface (IPMI)
- Increase capacity for virtualization and large-dataset workloads
- Flexibility and choice of either half- or full-width memory or CPU-intensive or both
- Improved virtualized and non-virtualized workload performance that enables more virtual machines per server
- Reduce CPU core and software licensing fees
- Nearly unmatched flexibility, adaptability, and agility when used in a UCS environment
- Better infrastructure management with complete compatibility to third-party management solutions

Selected Part Numbers and Ordering Information

B440-BASE-M2	Cisco UCS B440 M2 Blade Server w/o CPU, memory, HDD, mezzanine
N20-B6625-2	Cisco UCS B250 M2 Blade Server
N20-B6625-1	Cisco UCS B200 M2 Blade Server w/o CPU, memory, HDD, mezzanine

For More Information

http://www.cisco.com/go/ucs

Cisco UCS C-Series Rack-Mount Servers



The Cisco UCS C-Series Rack-Mount Servers extend the capabilities of the Cisco Unified Computing System, using Intel's latest Xeon 5600 Series and Intel Xeon E7 2800 and 4800 product families of multicore processors to deliver even better performance and efficiency. Each product in the series is designed to address varying workload challenges through a balance of processing, memory, I/O, and internal storage resources. The series includes the following models:

- The Cisco UCS C200 M2 server is a high-density, enterprise class 2-socket, 1-rack unit (1RU) rack-mount server. This server is built for applications such as network file and appliances, storage file and print, storage, small database and data warehouse, virtualization, email and collaboration servers and content delivery in a very dense environment, for both branch and remote office applications.
- The Cisco UCS C210 M2 Rack-Mount Server is a general-purpose, enterprise-class, 2-socket, 2RU server designed to balance performance, density, and efficiency for 2-socket workloads that demand larger internal disk and PCIe expansion capability. This server is built for applications such as network file and appliances, storage file and print, storage, small database and data warehouse, virtualization, email and collaboration servers and content delivery among others.
- The Cisco UCS C250 M2 Rack-Mount Server is a high-performance, enterprise-class, memory-intensive, 2-socket, 2RU server designed to increase performance, and it has the capacity for demanding virtualization and large-dataset workloads. The server also can reduce the cost of both small and large memory footprints.
- The Cisco UCS C260 M2 Rack-Mount Server is one of the industry's most expandable, high-performance, memory-intensive, 2-socket, 2RU servers designed to increase performance, and it has the capacity for the most demanding, 2-socket virtualization and large-dataset workloads. The Cisco UCS C260 M2 is based on the industry-leading Intel Xeon E7-2800 product family: the ideal and proven choice for the most data demanding applications.
- The Cisco UCS C460 M2 Rack-Mount Server is a 4-socket, 4RU server for the most scalable applications; enterprise-critical, standalone, and virtualized workloads. The Cisco UCS C460 M2 is based on the industry-leading Intel Xeon E7-4800 product family—the ideal and proven choice for your most mission-critical business solutions.

Key Features and Benefits

- Extends unified computing innovations and benefits to rack-mounted servers
- Nearly unmatched flexibility, adaptability, and agility when used in a UCS environment
- Better infrastructure management with complete compatibility to third-party management solutions
- Achieves new levels of rack server horizontal scalability by taking advantage of Service Profile technology over one set of access-layer switches and one instance of the Cisco UCS Manager management software.
- Offers industry-standard double-data-rate-3 (DDR3) memory
- Has a front-panel connection for physical keyboard, video, and mouse (KVM); USB devices; and serial console
- Offers serial and network access to the Cisco UCS Integrated Management Controller with up to 16 disk drives and 16 TB of internal storage
- Offers agent and agentless management with third-party tools through in-band, data-plane connections
- Provides Serial Advanced Technology Attachment (SATA) or Single Attachment Station (SAS) disk-drive types
- Helps reduce total cost of ownership (TCO) and increase business agility
- Balances simplicity, performance, and density for production-level virtualization, web infrastructure, and data center workloads

Selected Part Numbers and Ordering Information

UCSC-BASE-M2-C460	Cisco UCS C460 M2 Rack Server with DVD-RW and 1 PSU. CPUs, memory, HDD, PCIe cards, Rail Kit and Redundant PSU must be ordered below.
R250-2480805W	Cisco UCS C250 M2 Rack Server with DVD-RW and 1 PSU
R210-2121605W	Cisco UCS C210 M2 Rack Server with 1 Power Supply
R200-1120402W	Cisco UCS C200 M2 Rack Server with DVD-RW and 1 Power Supply

For More Information

http://www.cisco.com/go/ucs

Application Networking Services

Cisco Application Control Engine (ACE) Series Module

Cisco ACE30 Module must always be ordered as a set including the following components:

- ACE30 Module Hardware, which carries no cost
- ACE Software, which carries no cost
- ACE30 Module License, which carries the full cost of the ACE30 Module set

Selected Part Numbers and Ordering Information

SC6K-A41-ACE	ACE A4(1) Software Release
ACE30-MOD-16-K9	ACE30 Module with 16G, 6G Comp, 30K SSL TPS and 250VC
ACE30-SYS-AC-04-K9	ACE30 16G 6504-E 720-10G-3C 6716 AC System

For More Information

http://www.cisco.com/go/ace

Cisco ACE 4710 Appliance

With ACE Software Release 4.2, customers can order the ACE 4710 appliance from standard preconfigured bundles that bundle appliance hardware with appliance software licenses based on throughput. The customer enter a Product ID (PID) for each hardware/software bundle and receives the ACE 4710 Appliance hardware together with a pre-defined software license for the desired level of throughput. Other features such as SSL TPS, Compression and Virtual Contexts are now maximized on the 4710 platform and do not require any additional licensing.

Selected Part Numbers and Ordering Information

ACE-4710-0.5-K9	ACE 4710 appliance, 0.5 Gbps throughput, 7500 SSL TPS, 0.5-Gbps compression, 20-virtual devices, Cisco Embedded Device Manager
ACE-4710-04-K9	ACE 4710 appliance, 4 Gbps throughput, 7500 SSL TPS, 2-Gbps compression, 20-virtual devices, Cisco Embedded Device Manager

For More Information

http://www.cisco.com/go/ace

Cisco ACE Global Site Selector (GSS) 4400 Series

The Cisco ACE GSS (Global Site Selector) 4400 Series, along with Cisco ACE Modules, represents the next generation of application switches and Domain Name System (DNS) appliances. Together these devices form an application-fluent networking solution that maximizes availability, acceleration, and security for data center applications.

The Cisco GSS 4492R Global Site Selector is part of the Cisco ACE Application Control Engine product line and a crucial component of any data center architecture that requires an appliance-based, security-focused, universal global load balancer. Using a special protocol (Keepalive Application Protocol [KAL-AP]) facilitates the exchange of application load and availability between the Cisco ACE GSS 4492R and the Cisco ACE Application Control Engine Module.

Key Features and Benefits

- Provides resilient architecture critical for disaster recovery and multisite web applications deployments.
- Optional software supports full Domain Name System (DNS) and Dynamic Host Configuration Protocol (DHCP) services, allowing the GSS to be deployed as a DNS appliance.
- Offers advanced traffic management for multisite Web application deployments.
- Offers innovative DNS-focused distributed denial-of-service (DDoS) protection software to mitigate the effects of DNS-based DDoS attacks.
- Provides a centralized command and control of DNS resolution process for direct and precise control of global load-balancing processes.
- Offers site persistence for e-commerce applications.
- Supports a web-based GUI, role-based access, and a DNS wizard to simplify the DNS command and control.

Specifications

Feature	Cisco ACE GSS (Global Site Selector) 4400 Series
Ports	Two 10/100/1000 Fast Ethernet autosensing, one console port
DNS requests per second	Up to 30,000, depending on configuration

Network Management	Console port-CLI; Access to system through Telnet; Secure copy (SCP) or FTP; GUI-Secure HTTP (HTTPS) for Internet Explorer and Netscape Navigator; Network management MIBs; Read-only monitoring of network and device status, including RFC 1213; (MIB-II) and RFC 1514 (HOST-RESOURCES-MIB)
Storage	One 80-GB hard drive; Software image SF-GSS-V1.3-K9; 2 GB RAM; Pentium CPU
Physical	One-rack unit size chassis; 1 GB RAM; Prescott 3.2-GHz CPU
Power	Integrated AC power (autosensing 110V/60Hz)

Selected Part Numbers and Ordering Information

GSS-4492R-K9	Cisco GSS 4492R Global Site Selector
SF-GSS-V3.1-K9	Cisco Global Site Selector Software 3.1
SF-GSS-DDOSLIC	DDoS Mitigation software license

For More Information

http://www.cisco.com/go/gss

Cisco Wide Area Application Services (WAAS)

Cisco Wide Area Application Services (WAAS) delivers a comprehensive, cost-effective, cloud-ready WAN optimization solution available on a wide range of form factors, including data center and branch appliances, virtual appliances, Cisco IOS-integrated software (WAAS Express), as software for Cisco ISR-G2 Services-Ready Engine Service Modules, dedicated blades for Cisco ISR, and as client software for mobile users.

WAAS accelerates applications, optimizes bandwidth, provides local hosting of branch IT services, and enables a smooth evolution to cloud-based services. WAAS improves end-user productivity with fast application delivery while preserving IT staff productivity with network transparency, lowest total cost of ownership and increased business agility with network integration.

Key Features and Benefits

- Makes applications run faster
  - A better end-user experience increases productivity by doubling effective bandwidth and reducing latency on business applications, video, and virtual desktops.
- Increases collaboration and saves time
  - Accelerates office applications, medical applications, and engineering or design applications. WAAS enables employees in any branch to send and receive email fast and work with a global team as if they are in the same local network.
- Improves productivity
  - Enables IT organizations to deploy more applications faster without transferring the burden to IT staff or increasing the workload on network managers. WAAS reduces cost by enabling centralization of IT services and decreasing bandwidth expenses with lowest total cost of ownership and fast ROI.
- Enables the evolution to the cloud
  - Removes performance barriers that pose a challenge to data center virtualization, a step along the way to true cloud service. With transparent integration into network architectures, WAAS increases agility and provides seamless migration to cloud and SaaS services.

For More Information

http://www.cisco.com/go/WAAS

Cisco Wide Area Virtualization Engine Appliances

Cisco Wide Area Virtualization Engine (WAVE) appliances host Cisco Wide Area Application Services (WAAS), provide embedded virtualization for local hosting, and branch-office video delivery.

Cisco WAVE appliances enable local hosting of branch-office IT services using a network-embedded virtualization architecture. This architecture maintains native performance for WAN optimization while using the same hardware platform for additional hosted services and reducing the branch-office device footprint.



Key Features and Benefits

- Makes applications run faster
  - A better end-user experience increases productivity by doubling effective bandwidth and reducing latency on business applications, video, and virtual desktops.
- Increases collaboration and saves time

- Accelerates office applications, medical applications, and engineering or design applications. WAAS enables employees in any branch to send and receive email fast and work with a global team as if they are in the same local network.

- Improves productivity
  - Enables IT organizations to deploy more applications faster without transferring the burden to IT staff or increasing the workload on network managers. WAAS reduces cost by enabling centralization of IT services and decreasing bandwidth expenses with lowest total cost of ownership and fast ROI.
- Enables the evolution to the cloud
  - Removes performance barriers that pose a challenge to data center virtualization, a step along the way to true cloud service. With transparent integration into network architectures, WAAS increases agility and provides seamless migration to cloud and SaaS services.

Selected Part Numbers and Ordering Information

WAVE-294-K9	Cisco WAVE-294 with up to 8GB of SDRAM and 250-GB hard disk drive (HDD). Optional 4 port or 8 port Inline GE Copper module. Support for up to 2 virtual blades. Includes Enterprise license.
WAVE-594-K9	Cisco WAVE-594 with up to 12GB of SDRAM and 500-GB HDD with Optional 2nd 500 GB HDD for RAID 1 support. Optional 4 port or 8 port Inline GE Copper module. Support for up to 4 virtual blades. Includes Enterprise license.
WAVE-694-K9	Cisco WAVE-694 with up to 24GB of SDRAM and 2 x 600-GB HDD (RAID 1). Optional 4 port or 8 port Inline GE Copper module. Support for up to 8 virtual blades. Includes Enterprise license.
WAVE-7541-K9	Cisco WAVE-7541 with 24GB of SDRAM and 6 x 450-GB HDD (RAID 5). Optional GE Copper, GE Fiber or 10GE modules. Includes Enterprise license.
WAVE-8541-K9	Cisco WAVE-8541 with 96GB of SDRAM and 8 x 600-GB HDD (RAID 5). Optional GE Copper, GE Fiber or 10GE modules. Includes Enterprise license.

For More Information

http://www.cisco.com/go/WAAS

Virtual Blade Options for Cisco WAVE Appliances

Solutions available for Cisco WAVE appliance Virtual Blades include:

- Windows Server on WAAS can reduce the cost and complexity of providing IT services in branch locations by provisioning Windows Server 20008R2 on a WAAS virtual blade. It combines accelerated access to centralized applications with highly secure, reliable, local Windows Server services. It also adds additional application servers supported by the Microsoft Server Virtualization Validation Program (SVVP).
- Cisco Prime Network Analysis Module (NAM) for WAAS Virtual Blade delivers visibility into Cisco Wide Area Application Services (WAAS) deployments. Network administrators obtain actionable visibility to optimize network resources, troubleshoot performance issues, and help ensure a consistent end-user experience.
- Cisco Enterprise Content Delivery System (ECDS) Service Engine provides edge content streaming, caching, and download to various endpoint devices such as PCs, MACs, digital signs, and smartphones.

Selected Part Numbers and Ordering Information

WAAS-VB-W2K8-LIC	WAAS VB + Win2K8 for AD, DNS, DHCP, Print only, unlimited users
WAAS-VB-NAM5.1-K9	Cisco Prime NAM Software 5.1 for WAAS 574/674
MDE-50WVB-SW253-K9	Base ECDS Software License for WAAS Virtual Blades
MDE-50WVB-ML50-200	ECDS Media License for 50Mbps and 200 concurrent connections

Cisco Virtual Wide Area Application Services (vWAAS)

Cisco virtual WAAS (vWAAS) is a virtual appliance that accelerates business applications delivered from private and virtual private cloud infrastructure ensuring optimal user-experience.

vWAAS is the industry's first cloud ready WAN Optimization solution and the only WAN Optimization service that supports on-demand orchestration on a per application basis using policy based operations. It allows customers to migrate business applications and mitigate poor application performance over the cloud. vWAAS also offers rapid delivery of WAN Optimization service with minimal network configuration in cloud environments. vWAAS runs on VMWare ESX/ESXi hypervisor and Cisco Unified Compute Systems (UCS) x86 servers allowing for an agile, elastic and multi-tenant deployment. Virtual WAAS Central Manager (vCM) provides common management of physical and virtual WAAS instances.

Selected Part Numbers and Ordering Information

WAAS-ENT-VIRTK9	Virtual WAAS includes WAAS Enterprise License. It requires one of the following vWAAS software licenses · License for 750 optimized connections (-750) · License for 6000 optimized connections (-6000) · License for 12000 optimized connections (-12000)
WAAS-CM-VIRT-K9	Virtual WAAS CM requires one of the following licenses · License to manage 100 WAAS devices (-100) · License to manage 2000 WAAS devices (-2000)

For More Information

http://www.cisco.com/en/US/products/ps11231/index.html

Cisco Wide Area Application Services (WAAS) Mobile

Cisco Wide Area Application Services (WAAS) Mobile extends application-acceleration benefits to mobile workers. It addresses the unique challenges of mobile networks and offers a wide range of benefits:

- Because mobile workers experience a greater percentage of first-time traffic than branch-office users, Cisco WAAS Mobile applies aggressive application-acceleration techniques to deliver first-time download performance.
- Cisco WAAS Mobile optimizes cellular, satellite, Wi-Fi, WiMAX, and DSL networks to reduce timing variations, high latency, and noisy connections and increase link resiliency.
- Bidirectional history of data on both the mobile device and the Cisco WAAS Mobile server minimizes bandwidth consumption because history is shared across all protocols, across different VPN sessions, and even after a reboot.
- Application protocol optimizers reduce application round trips for file transfers, Microsoft Outlook, enterprise web applications, and web browsing.

Selected Part Numbers and Ordering Information

WAAS-MBL-SRV-SW	Cisco WAAS Mobile Server Software (Software Microsoft Windows Server hardware required)
WAAS-MBL-LIC25	Cisco WAAS Mobile 25 Concurrent User License
WAAS-MBL-LIC100	Cisco WAAS Mobile 100 Concurrent User License
WAAS-MBL-LIC500	Cisco WAAS Mobile 500 Concurrent User License

For More Information

http://www.cisco.com/en/products/ps6474/index.html

Cisco Network Analysis Module (NAM)



Cisco Prime Network Analysis Module (NAM) delivers application aware traffic and performance analysis capabilities that integrate with Cisco switching and routing platforms to simplify operational manageability. It empowers network administrators to quickly troubleshoot performance issues, ensure optimal use of network resources, and deliver a consistent end-user experience. Cisco NAM portfolio includes cost-effective form-factor choices ranging from integrated service blades, virtual service blades and standalone appliances. The portfolio offers deployment flexibility ensuring consistent performance visibility across the network and at the same time addressing troubleshooting and optimization demands specific to the places in the network, namely branch, campus, WAN and data center.

Key Features and Benefits

- Interactive reports with advanced filters and contextual navigation allows quick access to critical network information to improve operational efficiency and boost productivity
- Site-based monitoring facilitates tracking site-specific service-level objectives, resolving performance issues, or enforcing optimization policies
- Application performance intelligence helps characterize the end-user experience and isolate application response time problems
- Cisco Performance Agent (PA) reporting enables multi-branch performance visibility from centralized NAM deployment
- Flow- and packet-based traffic monitoring combines broader network performance view with deeper packet analysis for rapid troubleshooting
- Historical analysis with embedded performance database helps address unanticipated performance issues and assess optimization needs
- Web-based packet capture, decode, and error scan expedites resolution of complex performance problems
- REST/XML-based API based integration preserves investments in existing management assets

Selected Part Numbers and Ordering Information

WS-SVC-NAM3-6G-K9	Cisco Catalyst 6500 Series NAM-3 600GB
WS-SVC-NAM3-6G-K9=	Cisco Catalyst 6500 Series NAM-3 600GB
SC-SVC-NAM-501T-K9	Cisco NAM 5.0(1T) for Cat6500 NAM-3
N1K-C1010NAM51-K9	Cisco Prime NAM VSB Software 5.1 for C1010
N1K-C1010NAM51-K9=	Cisco Prime NAM VSB Software 5.1 for C1010 Spare
SM-NAM-SW-5.1-K9	Cisco Prime NAM Software 5.1 for ISR G2 SRE SM
WAAS-VB-NAM5.1-K9	Cisco Prime NAM Software 5.1 for WAAS 574/674
WAAS-VB-NAM5.1-K9=	Cisco Prime NAM Software 5.1 for WAAS 574/674 Spare
NAM2220	NAM2220 Chassis, 2x10GbE (no HDD or Memory)
NAM2204-RJ45	Cisco NAM 2204 Appliance, 4x1GbE, RJ45
NAM2204-SFP	Cisco NAM 2204 Appliance, 4x1GbE, SFP
NAM-APPL-SW-5.1-K9	Cisco NAM 5.1 for Appliances w/Recovery CD

For More Information

http://www.cisco.com/go/nam

Data Center Security

Cisco ASA 5585-X Adaptive Security Appliance

Designed for mission-critical data centers that require exceptional flexibility and security, the Cisco ASA 5585-X delivers 8X the performance density of competitive products and spans multiple platforms, technologies, and deployment scenarios. The ASA 5585-X supports the highest VPN session counts and twice as many connections per second as competitive firewalls to meet the growing needs of today's most dynamic organizations – all in a compact 2RU footprint. Unlike most security providers that force you to choose between a high quality firewall and effective IPS, the Cisco ASA 5585-X combines the world's most proven firewall with the industry's most comprehensive, effective IPS for a powerful, effective security solution.



Key Features and Benefits

- The Cisco ASA 5585-X delivers superior investment protection with twice the connections per second and four times the session count in hardware of competitive firewalls.
- The Cisco ASA 5585-X is the only security appliance delivering best-of-breed firewall, IPS, and VPN services in a compact chassis
- The Cisco ASA 5585-X has the broadest deployment flexibility, with proven security technology that ranges across physical, virtual, and switch module platforms.
- The Cisco ASA 5585-X integrates a full-featured IPS with market leading reputation technology backed by Cisco Global Correlation and guaranteed coverage

Selected Part Numbers and Ordering Information

ASA5585-S60P60SK9	Cisco ASA 5585-X Integrated Edition SSP-60 IPS SSP-60 Bundle with firewall services, IPS services, 10,000 IPsec VPN peers, 10,000 SSL VPN peers, 12 Gigabit Ethernet interfaces, 8 10 Gigabit Ethernet SFP+ interfaces, 4 management interfaces, 3DES/AES license
ASA5585-S60P60-K9	Cisco ASA 5585-X IPS Edition SSP-60 IPS SSP-60 bundle includes firewall services, 12 Gigabit Ethernet interfaces, 8 10 Gigabit Ethernet SFP+ interfaces, 4 Gigabit Ethernet management interfaces,10,000 IPsec VPN peers, 2 SSL VPN peers, dual AC power, 3DES/AES license
ASA5585S60-10K-K9	Cisco ASA 5585-X SSL/IPsec VPN Edition SSP-60 includes 10,000 IPsec VPN peers, 10,000 SSL VPN peers, firewall services, 6 Gigabit Ethernet interfaces, 4 10 Gigabit Ethernet SFP+ interfaces, 2 management interfaces, 3DES/AES license

For More Information

http://www.cisco.com/go/asa

Cisco Catalyst 6500 Series ASA Services Module



The Cisco ASA Services Module seamlessly integrates with Cisco Catalyst 6500 Series switches to provide unmatched security, reliability, and performance. Based on the Cisco ASA platform, the most widely deployed firewall in the industry, the ASA Services Module supports the highest throughput, five times the concurrent connections, and twice as many connections per second as competitive network security modules, to meet the growing needs of today's most dynamic organizations—all in a single blade architecture. The ASA Services Module makes it easy to add full firewall capabilities to an existing infrastructure by sliding a blade into an empty slot in an existing Catalyst 6500 Series switch—no additional rack space, cabling, power, or physical interface is required.

Key Features and Benefits

- The ASA Services Module seamlessly integrates with Cisco Catalyst 6500 Series switches, which greatly simplifies the addition of security services by dramatically reducing the time required for installation and configuration
- The ASA Services Module enables high-performance network security services to be added to an existing infrastructure at a fraction of the maintenance and management required by a standalone security appliance
- The ASA Services Module minimizes environmental costs by utilizing the power and cooling from the switch. It also consumes far less power than competitive modules, and a fraction of what is required by standalone appliances.

Selected Part Numbers and Ordering Information

WS-SVC-ASA-SM1-K9	ASA Services Module for Catalyst 6500-E, 3DES/AES
WS-SVC-ASA-SM1-K8	ASA Services Module for Catalyst 6500-E, DES
WS-SVC-ASA-SM1-K7	ASA Services Module for Catalyst 6500-E, NPE

For More Information

http://www.cisco.com/go/asasmc

Cisco Virtual Security Gateway (VSG)

Cisco VSG for Cisco Nexus 1000V Series Switches is a virtual appliance that delivers security and compliance for virtual computing environments. Cisco VSG uses virtual network service data path (vPath) technology embedded in the Cisco Nexus 1000V Series virtual Ethernet module (VEM), offering transparent insertion, efficient deployment, and very high performance with vPath-based distributed enforcement of packets.

Cisco VSG works with the Cisco Nexus 1000V virtual supervisor module (VSM) and with the new Cisco Virtual Network Management Center (VNMC). Together they allow security, network, and server teams to collaborate while simultaneously helping ensure administrative segregation to meet compliance and audit requirements and reduce administrative errors. Security team continues to be responsible for creating and managing security profiles through the Cisco VNMC.

Cisco VSG supports dynamic virtualization environments. Security profiles are bound to Cisco Nexus 1000V Series port profiles. The Cisco Nexus 1000V Series manages and enforces port and security profiles for each virtual machine virtual Ethernet port. A virtual machine can be repurposed by assigning a different port and security profile. Similarly, as VMware vMotion operations move virtual machines across physical servers, the Cisco Nexus 1000V Series helps ensure that port and security profiles follow them. Security enforcement and monitoring remain transparent to VMware vMotion events.

Key Features and Benefits

- Reduced IT costs by enabling secure virtualized workloads across multiple tenants on a shared computing infrastructure for virtual data centers or for private or public cloud computing environments
- Enhanced compliance with industry standards and government regulations
- Non-disruptive administration maintains separation of roles between security and server teams, while increasing compliance and reducing administrative errors
- Simplified auditing processes for virtualized environments

Selected Part Numbers and Ordering Information

Initial Order of Base Image and Licenses (eDelivery of Licenses)	
L-VSG-VNMC-BASE	VSG and VNMC eDelivery plus one CPU License (Base)
Incremental Order of Licenses	
L-VSG-VNMC-04-P2=	VSG and VNMC eDelivery CPU License Promo2 Qty 4 (Increment)
L-VSG-VNMC-16-P2=	VSG and VNMC eDelivery CPU License Promo2 Qty 16 (Increment)
L-VSG-VNMC-32-P2=	VSG and VNMC eDelivery CPU License Promo2 Qty 32 (Increment)

Virtual Security Gateway & Network Mgmt Center on a CD (no licenses):	
VSG-VNMCP1K9-CD	VSG and VNMC software on a CD
Initial Order of Base Image and Licenses (Paper Delivery of Licenses)	
VSG-VNMC-BASE=	VSG and VNMC Paper plus one CPU License (Base)
Incremental Order of Licenses	
VSG-VNMC-04-P2=	VSG and VNMC Paper CPU License Promo2 Qty 4 (Increment)
VSG-VNMC-16-P2=	VSG and VNMC Paper CPU License Promo2 Qty 16 (Increment)
VSG-VNMC-32-P2=	VSG and VNMC Paper CPU License Promo2 Qty 32 (Increment)

For More Information

http://www.cisco.com/go/vsg

Cisco Security Manager

Cisco Security Manager is an enterprise-class security management solution that helps organizations easily configure, monitor, and troubleshoot any Cisco security deployment. Cisco Security Manager can be used to manage network services such as firewall, intrusion prevention system (IPS), site-to-site virtual private network (VPN), and remote-access VPN services. Cisco Security Manager also supports security features across a wide range of Cisco devices, including firewalls, IPS sensors, integrated services routers (ISRs), and aggregation services routers (ASRs), as well as Cisco Catalyst switches and service blades such as the Firewall Services Module (FWSM) and the Intrusion Detection System Services Module (IDSM).

Key Features and Benefits

- Cisco Security Manager enables consistent policy enforcement, quick troubleshooting of security events, and summarized reports from across the security deployment.
- Cisco Security Manager integrates a powerful suite of capabilities, including policy and object management, event management, reporting, and troubleshooting.
- Cisco Security Manager supports role-based access control and an approval framework for proposing and integrating changes.
- Cisco Security Manager enables custom reports to be created using advanced filters, as well as reports that can be viewed on-demand and scheduled for email delivery.

Selected Part Numbers and Ordering Information

L-CSMPR250-4.1-K9	Cisco Security Manager 4.1 Professional with 250 Device License
L-CSMPR100-4.1-K9	Cisco Security Manager 4.1 Professional with 100 Device License
L-CSMPR50-4.1-K9	Cisco Security Manager 4.1 Professional with 50 Device License

For More Information

http://www.cisco.com/go/csmanager

Data Center Management

Cisco Data Center Network Manager (Converged)



The newly converged Cisco Data Center Network Manager provides visibility into LAN and SAN data center networks covering Cisco Nexus, Cisco MDS, Cisco Catalyst, and Cisco UCS product families. With introduction of VMware and Cisco UCS discovery, Cisco now offers end-to-end path monitoring from virtual infrastructure and compute through the fabric and down to the storage port. Storage and network teams will now have a unified solution for troubleshooting and managing port and bandwidth capacity across the Cisco portfolio of the data center network and compute products. Both teams will still maintain individual controls for monitoring and provisioning of their respective domains through role-based access controls of the MDS and Cisco Nexus lines of switches.

- Capacity Management
  - Cisco DCNM helps track port inventory and port usage. IT staff can identify available ports for provisioning from a single dashboard. SAN administrators can also see where more ports are needed and make buying decisions based on this information.
  - By looking at port usage, SAN administrators can identify orphaned ports by looking at their statistics over time. Reclaiming underused ports leads to power and cooling savings and increases port usage.
- Fault Management
  - The Cisco DCNM event forwarding mechanism will notify data center support staff of events based on their severity and type in real time through a trap or email. The descriptive events help IT staff identify

bottlenecks and error conditions on the network in real time, leading to quicker root-cause analysis and long-term fixes.

- Configuration and Provisioning
  - Wizard- and template-based configuration and provisioning facilitates deployment and maintenance of Cisco MDS and Cisco Nexus switches. IT staff can configure the network components in a few minutes across multiple switches.
- Reporting
  - The reporting feature of Cisco DCNM consists of canned reports as well as the ability to generate custom reports summarizing health and performance of the fabric. These reports can be exported as comma delimited files for use in Excel or as HTML pages. The reports can also be scheduled to run at certain times and forwarded through email.
- Backup, Compare, and Restore
  - Cisco DCNM also serves as a configuration backup repository for Cisco Nexus and MDS switches with the ability to compare, edit, and copy back switch configurations. The feature simplifies recovery of the switch configuration files as well as pushing saved configurations to newly deployed switches, leading to quick deployments.
- Licensing
  - Cisco DCNM can be licensed as DCNM for SAN or DCNM for LAN.
  - FMS licenses are grandfathered in, so there is no need to move to a DCNM license model if the customer already purchased FMS licenses. However, Cisco DCNM will not support any new purchase of FMS licenses starting mid-2011 with Cisco NX-OS 5.2 and later.
- Integration
  - The Cisco DCNM is also highly integrated solution providing SMI-S and web services APIs for integration with other management applications. In addition, Cisco DCNM publishes its database schema for direct extract, load, and transform (ETL) into other databases and business intelligence solutions.
- Scalability
  - The Cisco Data Center Network Manager converged solution is highly scalable through the use of the federation and server load balancing. On the SAN side the solution can scale up to 200 switches or 15,000 ports per server for a total of 150,000 ports when deployed in a federated mode.

Offering an unprecedented level of visibility and control through a single pane of glass for Cisco Nexus, Cisco MDS, and Cisco UCS product families, Cisco Data Center Network Manager is the Cisco recommended solution for operating mission-critical data centers.

Selected Part Numbers and Ordering Information

DCNM-NXACC-100-K9	DCNM for LAN Essential Edition (FREE) for up to 100 Nexus Access Series Switches (N1K through N5K).
DCNM-NXACC-250-K9	DCNM for LAN Essential Edition (FREE) for up to 250 Nexus Access Series Switches (N1K through N5K).
DCNM-NXACC-K9	DCNM for LAN Essential Edition (FREE) for Nexus Access Series Switches (N1K through N5K).
DCNM-N7K-K9	DCNM for LAN Advanced Edition for Nexus 7000 Series Switches
DCNM-SAN-M91-K9	DCNM for SAN Advanced Edition for MDS 9100 Series Switches
DCNM-SAN-M92-K9	DCNM for SAN Advanced Edition for MDS 9200 Series Switches
DCNM-SAN-M95-K9	DCNM for SAN Advanced Edition for MDS 9500 Series Switches
DCNM-SAN-N7K-K9	DCNM for SAN Advanced Edition for Nexus 7000 Series Switches
DCNM-SAN-N5K-K9	DCNM for SAN Advanced Edition for Nexus 5000 Series Switches

Cisco Application Control Engine (ACE) Family

Cisco Application Control Engine (ACE) delivers the next generation of application switches for increasing availability, acceleration, and security of data center applications.

Cisco ACE solutions allows enterprises to accomplish four primary IT application delivery objectives:

- Increase application availability
- Accelerate application performance
- Secure the data center and critical business applications
- Facilitate data center consolidation through the use of fewer servers, load balancers, and firewalls.

Cisco ACE helps achieve these goals through a broad set of intelligent Layer 4 load-balancing and Layer 7 content-switching technologies integrated with leading-edge acceleration and security capabilities. A crucial design element of Cisco ACE is the capability to use virtualized architecture and role-based administration capabilities that streamline and reduce the cost of operations involved in deploying, scaling, accelerating, and protecting applications.

Cisco ACE unique virtualization capabilities enables IT to provision and deliver a broad range of applications from a single appliance or module, increasing data center application provisioning scalability.

Cisco ACE increases application availability with best-in-class application switching algorithms coupled with highly available system software and hardware.

Server efficiency increases with Cisco ACE through flexible application traffic management as well as offloading CPU-intensive tasks such as SSL encryption and decryption processing and TCP session management.

Cisco ACE is designed to serve as the last line of defense for servers and applications in data centers, with deep packet inspection and blocking malicious attacks. Integrated security helps secure high-value applications in the data center and facilitates consolidation.

For More Information

http://www.cisco.com/go/ace

Data Center Converged Infrastructure Services

Converged infrastructure solutions comprise pre-validated, pre-sized, and fully tested virtualized data center resources including compute, storage, virtualization, networking, and management.

Converged Infrastructure Solutions are ideal for customers who want to accelerate their journey to pervasive virtualization and cloud computing. Customers can use converged infrastructure solutions to quickly, confidently, and predictably deploy best-of-breed data center infrastructure.

Cisco's philosophy is to ensure that our customers always have a choice of solutions, so we work with a range of best-of-breed partners that provide a range of converged infrastructure solutions designed to maximize the advantages of Cisco UCS, Cisco Unified Networking Services, and Cisco Unified Fabric.

Vblock Infrastructure Platforms



VCE integrates industry leading virtualization, networking, computing, storage, security, and management technologies to deliver Vblock Infrastructure Platforms—a unique, converged infrastructure that supports a vast array of business critical applications. Vblock platforms revolutionize IT by unifying industry-leading technology from Cisco, VMware, and EMC to dramatically reduce IT costs while improving time to market.

Fast and Available

A standardized infrastructure for business critical applications delivers the level of availability and performance customers need. The platform's fully redundant, autonomous system contains and manages failure scenarios. Advanced storage technology dynamically optimizes performance while servers adapt to application demands and intelligently scale energy use. Integrated product roadmaps ensure interoperability and balanced I/O, bandwidth, and storage performance at scale.

Secure

Security is designed-in at every level of the stack. Interoperability of each individual component's security configurations is confirmed prior to shipping. Hardened configurations and best practices ensure that Vblock platforms support third-party, validated secure solutions such as PCI-DSS compliance.

Simple

ITIL-based management and inherent scalability simplify operations and protect investments. With Vblock platforms, customers can:

- Configure resources using a common user interface
- Implement service catalogs and self-service portals
- Access components for troubleshooting and fault management
- Configure to achieve compliance, availability, and fault isolation objectives
- Aggregate as a single pool of shared capacity or segment into isolated pools
- Expand from hundreds to tens of thousands of VMs

Vblock platforms are fundamentally changing data centers operations.

For More Information

http://www.vce.com/solutions/vblock/

FlexPod

FlexPod is a pre-validated data center solution built on a flexible, shared infrastructure that can scale easily, be optimized for a variety of mixed application workloads, or be configured for virtual desktop or server infrastructure, secure multi-tenancy, or cloud environments.

FlexPod is a predesigned, base configuration built on leading computing, networking, storage, and infrastructure software components from Cisco, NetApp and VMware. It provides an ideal virtualized data center solutions through:

- Validated technologies from three industry leaders in computing, storage, networking, and server virtualization
- A single platform, built from unified compute, fabric, and storage technologies, plus the most popular and trusted software virtualization platform
- Integrated components that enable you to centrally manage all your infrastructure pools
- An open design management framework that integrates with your existing third-party infrastructure management solutions

FlexPod can scale up for greater performance and capacity or scale out for environments that need consistent, multiple deployments. Customers can size and optimize FlexPod to accommodate different use cases, including application workloads such as:

- Microsoft SQL Server
- Exchange 2010
- Microsoft SharePoint
- VDI (VMware View)
- Secure Multi-tenancy (SMT) environments

For More Information

http://www.netapp.com/us/technology/flexpod/

Storage Reference Architecture



The Storage Reference Architecture from Cisco, Hitachi, and VMware is a tested, flexible, cost-effective framework for creating cloud network-ready, virtualized infrastructure solutions. It is comprised of storage from Hitachi Data Systems, computing and networking components from Cisco, and virtualization from VMware. As industry leaders in storage, server, network, and virtualization infrastructure software solutions, Hitachi Data Systems, Cisco, and VMware have the expertise to create a comprehensive virtualization solution that can be deployed quickly and effectively.

The Storage Reference Architecture gives customers the opportunity to take advantage of products from these industry leaders in a tested configuration. This speeds deployment and reduces risk, all while providing the performance, resilience, and scalability needed to handle large, dense, and growing virtual machine workloads.

The Storage Reference Architecture incorporates the following products from Hitachi, Cisco, and VMware:

- Hitachi provides a scalable, high-performance, high-availability storage system
  - Hitachi Adaptable Modular Storage (AMS) 2500
- Cisco provides a data center platform that unites computing, networking, and storage access in a single system; and switches for physical, virtual, and storage networks
  - Cisco Unified Computing System (UCS)
  - Cisco Nexus Switches
  - Cisco MDS 9000 Switches
- VMware provides the industry's most complete virtualization platform and a scalable platform for virtualization management
  - VMware vSphere 4.1
  - VMware vCenter Server

For More Information

http://www.cisco.com/go/hds

Data Center Professional Services

Cisco Data Center Services

Cisco Data Center Services Cisco Services help you transform and optimize your data center infrastructure so you can reduce costs, deliver high availability and application performance, and better meet your service level agreements.

Increase Business Agility with Strategic IT and Architecture Services

Identify gaps and determine what changes are needed in your data center architecture. Take full advantage of an end-to-end architectural framework and best practices to evolve your data center to meet your business needs. Cisco offers a broad array of data center strategic IT and architecture services to help you increase business responsiveness and lower costs.

These include:

- Application Services—Understand application dependencies, migrate and modernize applications, and accelerate application performance
- Architecture Services—Identify gaps in your current data center architecture and provide recommended changes that align with business goals
- Cloud Enablement Services—Strategize, design and deploy a secure, agile, and highly automated infrastructure-as-a-service cloud environment, enabling cost-effective services and organizational growth
- Efficiency and Facilities Services—Understand how your IT organization can create a more energy-efficient and cost-effective data center environment
- Virtualization Services—Virtualize servers, extend virtualization across your data center, or implement a desktop virtualization solution using a comprehensive architectural approach that helps reduce costs, protect application performance, and secure the virtualized infrastructure

Advance Your Data Center Initiative with IT Infrastructure Planning and Deployment Services

Speed the execution of your IT organization's data center strategy and mitigate the risks of data center projects with Cisco Data Center IT Infrastructure Planning and Deployment Services. Cisco and our partners offer a

broad array of planning, design, and implementation services to help accelerate your deployment of Cisco data center technologies and successfully execute your data center strategies.

Increase Uptime and Quickly Resolve Issues with Data Center Mission Critical Support Services

Get Cisco´s highest level of data center support that can include personalized technical account management, expedited technical support, and expert field engineering support.

Optimize Your IT Infrastructure As Your Data Center Evolves with Data Center Optimization Services

Evolve your Cisco data center solutions to support business growth, deliver next-generation services, and maintain competitive advantage. Cisco offers optimization services for data center technologies and end-to-end architecture that can increase the agility and performance of your data center infrastructure.

For more information about Cisco Data Center Services, visit http://www.cisco.com/go/dcservices.

Chapter 7: Video and Broadband Cable

This chapter provides only a subset of Cisco products and part numbers.

Video and Broadband Cable At-a-Glance

Product	Features	Page
VIDEO		
Cisco Digital Media Suite	· Comprehensive offering of webcasting and video sharing, digital signage, and business IPTV applications that can help transform how organizations learn, grow, communicate, and collaborate · Suite comprised of Cisco Digital Signs, Cisco Show and Share, and Cisco Cast solutions · Support from the broad Cisco partner ecosystem of deployment, solution-development, and content-creation partners helps ensure a successful digital media implementation	7–2
Cisco Digital Media Encoders	· Integrated components of the Cisco Digital Media Suite for Cisco Show and Share · Provides live and on-demand streaming digital media across an IP network · Cisco Digital Media Encoder 1100 is a portable encoder, and Cisco Digital Media Encoder 2200 is a multiprocessor, studio-quality audio and video encoding appliance	7–3
Cisco Digital Media Manager	· Integrated component of the Cisco Digital Media Suite for webcasting and video sharing, digital signage, and business IPTV applications · Web-based application allows content authors to easily manage and publish content to Cisco Show and Share, Cisco Digital Signs, Cisco Cast, or other endpoints	7–4
Cisco Digital Media Players	· Highly reliable, IP-based hardware endpoints that enable digital signage and business IPTV through the ability to play high-definition live and on-demand video, motion graphics, Web, and dynamic content on digital displays	7–5
Cisco LCD Professional Series Displays	· Large-format professional-quality displays ideally suited for digital signage and business IPTV solutions · 32-, 42-, 47-, and 55-inch models and offer full 1080p resolution	7–8
Cisco Show and Share	· Integrated component of the Cisco Digital Media Suite for webcasting and video sharing · Provides the ability to create live and on-demand video content and define who can watch specific content · Offers viewer collaboration tools such as commenting, rating, and word tagging; and it provides comprehensive access reporting.	7–9
Cisco Enterprise Content Delivery System (EDCS)	· Solution for distributing and delivering video across the network that helps organization easily scale live and on-demand delivery over their existing WAN infrastructure.	7–11
Cisco Media Delivery Engine	· Flexible form factors for the deployment of Cisco Enterprise Content Delivery System solution · Can be combined with Cisco WAAS for a complete WAN optimization solution	7–14
Cisco Unified Communications	For product information on Cisco's Unified Communication products, refer to Chapter 4, "Collaboration."	See 4–1
Cisco TelePresence	For product information on Cisco's TelePresence products, refer to Chapter 4, "Collaboration."	See 4–1
Cisco WebEx	For product information on Cisco's WebEx products, refer to Chapter 4, "Collaboration."	See 4–1
Cisco Physical Security	For product information on Cisco Video Surveillance products, refer to Chapter 5, "Security."	See 5–1
MEDIA EXPERIENCE & ANALYTICS		
Cisco TelePresence Content Server ***NEW PRODUCT***	· Network appliance that enables organizations to record and stream meetings and multimedia presentations · Organizations can share knowledge and enhance communication through high-quality, user-generated video content	7–16
Cisco Media Experience Engine (MXE) 3500	· Advanced media processing appliance that enables media sharing from any source to any type of endpoint · Post-production capabilities enable in-house video team to perform many of the expensive processing tasks that are normally outsourced to video professionals · Includes option for Cisco Pulse Video Analytics, which makes video more navigable and searchable with speaker identification and keyword tagging	7–18
Cisco Media Experience Engine (MXE) 5600	· Modular, highly scalable media processing platform that combines advanced media processing features with high performance and scalability to extend the reach of collaboration. · Enables integration of collaboration tools, such as WebEx, and recording and streaming into meetings between diverse video endpoints.	7–20

BROADBAND CABLE		
Cisco uBR7225 Series Universal Broadband Router	· Low-cost entry and midlevel cable modem termination system (CMTS), offering cable operators, multiunit businesses, and Internet service providers (ISPs) an excellent and cost-effective platform for the delivery of high-speed data, voice, and video services	7–21
Cisco uBR7246VXR Universal Broadband Router	· Modular, standards-based communications-grade Cable Modem Termination System (CMTS) integrated router is ideal for high-growth broadband cable deployments	7–22
Cisco uBR10012 Universal Broadband Router	· Delivers the services, performance, scale, and carrier-class reliability that large cable operators and Internet service providers (ISPs) demand	7–23
Cisco uBR3x10 RF Switch	· Delivers the services, performance, scale, and carrier-class reliability that large cable operators and Internet service providers (ISPs) demand	7–26
SERVICES		
Realize the full business value of your video technology investments faster with smart, personalized services from Cisco and our partners.		7–27

FOR MORE INFORMATION

Product Ordering
To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml.

End-of-Life and End-of-Sale
Please visit the end-of-life and end-of-sale website for a complete and up-to-date listing of products that are no longer being sold or supported, what replacement products are available, and information about product support.
http://www.cisco.com/en/US/products/prod_end_of_life.html

NOTE: This chapter provides only a subset of Cisco products and part numbers. For the most up-to-date and comprehensive information, refer to the Cisco website at http://www.cisco.com, the Cisco ordering website at http://www.cisco.com/en/US/ordering/index.shtml, or reference the URL listed in the "For More Information" section of each product.

Video

Cisco Digital Media Suite

The Cisco Digital Media Suite (DMS) is a comprehensive offering of webcasting and video sharing, digital signage, and business IPTV applications that can help transform how organizations learn, grow, communicate, and collaborate. Support from the broad Cisco partner ecosystem of deployment, solution-development, and content-creation partners helps ensure a successful digital media implementation.

Digital Signage: Cisco Digital Signs

Cisco Digital Signs provides scalable, centralized management and publishing of high-quality content to networked, on-premise displays

As part of the Cisco Digital Media Suite, Cisco Digital Signs leverages the same hardware and management platform as and can interoperate with Cisco Cast, or can operate as a standalone application.

Business IPTV: Cisco Cast

Cisco Cast is an interactive application that enables organizations to deliver on-demand video and broadcast live TV channels over an IP network to digital displays.

On-screen menus and program guides give users access to Cisco Cast content, and organizations can customize lineups and create their own content libraries. Users can navigate through channel menus and select from on-demand content with a remote control or other remote devices.

Built on the power of the Cisco Digital Media Suite, Cisco Cast leverages the same hardware and management platform as and can interoperate with Cisco Digital Signs, or can operate as a standalone application.

Webcasting and Video Sharing: Cisco Show and Share

Cisco Show and Share is a webcasting and video sharing application that helps enterprise organizations create highly secure video communities to share ideas and expertise. Cisco Show and Share provides the ability to create live and on-demand video content and define who can watch specific content. It offers viewer collaboration tools such as commenting, rating, and word tagging, and it provides comprehensive access reporting.

Key Features and Benefits

- Communicate richly and effectively with targeted customers, investors, partners, and media. In addition, deliver crucial information and training to employees, suppliers, and partners.
- Target consumers with tailored content directly to their desktop or mobile devices.
- Offer live and on-demand events and content to geographically dispersed audiences.

The Cisco Digital Media Suite provides applications and solutions for a variety of industries, including financial services, retail, education, and healthcare.

Integrated Components of the Cisco Digital Media Suite

The Cisco Digital Media Suite includes:

- Creation with Cisco Digital Media Encoders (DMEs)
- Management with the Cisco Digital Media Manager (DMM)
- Content publishing to the Cisco Digital Media Players (DMPs)

- Access through the Cisco Show and Share
- Display with the Cisco LCD Professional Series Displays

In addition to the products in the DMS product line, the Cisco Media Experience Engine (MXE) allows users to further extend the reach of their media content. As a complimentary solution to your DMS deployment, the MXE enables any-to-any media transformation in the network, enabling users to create content once to be played on all DMS applications as well as mobile devices.

For More Information

http://www.cisco.com/go/dms

Cisco Digital Media Encoders



Cisco Digital Media Encoders provide live and on-demand streaming digital media across an IP network. Organizations can schedule and manage live events from multiple encoders from a single administration interface. The encoders can be locally managed or remotely managed through the Cisco Digital Media Manager. The Cisco Digital Media Encoder can be used as a standalone encoder or as an integrated component of the overall Cisco Digital Media Suite for Cisco Show and Share.

The studio-level (Cisco DME 2200) and portable (Cisco DME 1100) encoders provide live and on-demand streaming digital media across an IP network in a variety of encoding formats, inputs, and monitoring functions.

Key Features and Benefits

The Cisco Digital Media Encoder 1100 offers the following features:

- Designed for both professionals and novices, the rugged-design, lightweight encoder is ideal for outdoor venues, classrooms, and conference rooms because it can extend Webcasting "outside of the studio".
- Lightweight, single channel
- Encoding of video live for live network distribution
- Local management; or remote management through the Cisco Digital Media Manager

The Cisco Digital Media Encoder 2200 offers the following features:

- Designed for advanced users who require multiple audio and video input options and a variety of encoding formats and functions.
- Studio-level, duel channel— a good choice for the corporate office or data center
- Live encoding/transcoding of media from analog and digital sources into standard formats (WMV, FLV, H.264, and so on.)
- Local management via an embedded LCD; or remote management through the Cisco Digital Media Manager

Specifications

Feature	Cisco Digital Media Encoder 1100	Cisco Digital Media Encoder 2200
Supported live streaming formats	Microsoft Windows Media 9 MPEG-4/H.264	Microsoft Windows Media 9 MPEG-4/H.264 Product parameter—Supported live-streaming formats for the DMM Live Event Manager (PC only) Specification—Microsoft Windows Media
Supported on-demand formats	Adobe Flash (.flv) Microsoft Windows Media MPEG-4/H.264	Adobe Flash (.flv) Microsoft Windows Media MPEG-4/H.264
Video inputs	Composite; S-Video	2 composite; 2 S-Video; 2 SDI (SMPTE - 259M) Video with embedded audio inputs (AES/EBU)
Audio inputs	1 balanced stereo (XLR3) Unbalanced stereo (RCA)	2 balanced stereo (XLR); 2 Unbalanced stereo (RCA); 2 digital audio (AES/EBU) inputs through SDI inputs
Ethernet ports	1 GB; 10/100 Mb	2 10/100/1000 Mbps
Hard disk space	100 GB	100 GB
RAM	1 GB	4 GB
Processor	Single 21.19-Ghz Intel Core 2 Duo CPU	Dual AMD Opteron Quad Core, 2.2 GHz
Additional ports	2 USB 2.0 and VGA monitor	2 USB 2.0 and VGA monitor
Dimensions (H x W x D)	4.5 x 7.75 x 12 in. (11.43 x 19.67 x 30.48 cm)	3.5 x 19 x 23 in. (8.89 x 48.26 x 58.42 cm)
Weight	7.5 lb. (3.41 kg)	48.62 lb. (19.05 kg)
Power	110-220V; 50-60 Hz	110-220V; 50-60 Hz

Selected Part Numbers and Ordering Information

DMS-DME-1100	Cisco Digital Media Encoder 1100
DMS-DME-2200	Cisco Digital Media Encoder 2200

For More Information

http://www.cisco.com/go/dms

Cisco Digital Media Manager

The Cisco Digital Media Manager allows content authors to manage, schedule, and publish compelling digital media for live or on-demand playback across digital signage displays for Cisco Digital Signs and Cisco Cast, and to the Cisco Show and Share for social video. An integrated part of the Cisco Digital Media Suite, the web-based Cisco Digital Media Manager is the single, central management application for all Cisco Digital Media Suite products.

Content managers can:

- Manage content assets and create playlists for Cisco Digital Signs and Cisco Show and Share
- Schedule instant and future content deployments and playback schedules for Cisco Digital Signs, Cisco Cast, and Cisco Show and Share
- Report on playback schedules for Cisco Digital Signs and on video usage for Cisco Show and Share
- Manage Q&A for live Cisco Show and Share broadcasts
- Synchronize slides for both live and video on demand events

Content designers can:

- Customize signage screen layouts and zones for Cisco Digital Signs
- Customize and brand Cisco Cast, skins and menus
- Customize and brand the Cisco Show and Share interface

IT users can:

- Manage user accounts for role-based access control, and configure user-specific content restrictions for Cisco Show and Share users via LDAP/Active Directory
- Configure and manage Cisco Digital Media Encoders for Cisco Show and Share
- Remotely configure, manage, and monitor digital signage networks
- Manage event-based alerts and server appliances

Specifications

Features	**Cisco Digital Media Manager**
Product compatibility	Compatible with Cisco Application and Content Networking System (ACNS), the Cisco Wide Area Application Services (WAAS) Network Module, Cisco Show and Share and the Cisco Show and Share Reports tool, Cisco Digital Media Players, and Cisco Digital Media Encoders
Programming interface	Web-based management
Requirements	**Cisco Digital Media Manager Client**
Browser	Microsoft Windows — Internet Explorer 7.0 or 8.0 recommended, or Firefox 3.6x required; Apple Macintosh—Safari 2.0 minimum; Safari 2.0 or Firefox 1.5 through 3.x recommended

Selected Part Numbers and Ordering Information

Part Number	**Product Name**	**Required or Optional**
DMM-BASE-52-K9	Cisco Digital Media Manager	Required
DMM-SVR-C210-K9	Cisco UC Server Appliance	Required
DMM-SIGNSM52-K9	Cisco Digital Signs Module	Required for Cisco Digital Signs implementations
DMM-DVM52-K9	Cisco Show and Share Module	Required for Cisco Show and Share implementations
DMM-CAST52-K9	Cisco Cast Module	Required for Cisco Cast implementations
DMM-LEM52-K9	Cisco Show and Share Live Event Module	Optional
DMM-SNMP52-K9	Cisco DMM SNMP Module	Optional
Software Upgrades and Add-Ons		
DMM-DVM52-K9=	DMM Show and Share Module V5.2 Perpetual Software License, Spare	
DMM-SIGNSM52-K9=	DMM Digital Signs Module V5.2 Perpetual Software License, Spare	
DMM-LEM52-K9=	DMM Show and Share Module Live Event Module Perpetual Software License	
DMM-SNMP52-K9=	Digital Media Manager Ver. 5.2 SNMP Module Perpetual Software License	
DMM51-U52-K9	Cisco Digital Media Manager V5.2. Upgrade from V5.1	

DMP-SW52-U-K9	Digital Media Player V5-V5.2 Perpetual Software Upgrade
DV-WKGP-U52-K9	Show and Share Module 5.2. Upgrade from V5.1 - Workgroup
DV-ENT-U52-K9	Show and Share Module 5.2. Upgrade from V5.1 - Enterprise
DMP-FL-10=	Cisco Digital Media Manager, Feature License for Up To 10 DMPs
DMP-FL-50=	Cisco Digital Media Manager, Feature License for Up To 50 DMPs
DMP-FL-500=	Cisco Digital Media Manager, Feature License for Up To 500 DMPs
DMP-FL-1000=	Cisco Digital Media Manager, Feature License for Up To 1000 DMPs

For More Information

http://www.cisco.com/go/dms

Cisco Digital Media Players



Cisco Digital Media Players (DMPs) are highly reliable, IP-based hardware endpoints that enable Cisco Digital Signs and Cisco Cast through the ability to play high-definition live and on-demand video, motion graphics, Web, and dynamic content on digital displays. The DMP hardware options include support for standard-definition and high-definition MPEG-2 and MPEG-4/H.264, Flash, RSS, and other Web formats and dynamic data.

Using the Cisco Digital Media Suite's Cisco Digital Media Manager, organizations can flexibly and remotely publish centralized content over the Web to networked digital signs, Cisco Digital Media Players can be attached to virtually any on-premise digital signage display at any location, including branch-office banks, retail stores, break rooms, or lobbies, helping organizations reach their primary audiences anywhere, anytime.

Cisco Digital Media Players deliver flexible and real-time publishing; low ongoing operational costs and ease of use; speed of deployment; and leverage the scalability and power of the network.

The Cisco Digital Media Player 4305G includes such features as:

- Support for MPEG 1/2/4 Part 2 video in standard definition and high definition as well as graphics, Web content, Adobe Flash 7 or less, animation, mp3 audio, and tickers.
- 2-GB local storage for reliability and performance
- IP-enabled delivery of live broadcasting and on-demand video content
- Small form factor: 7.5 x 5 x 1.5 in. at 1 lb
- Low power consumption
- IP-enabled delivery of live broadcasting and on-demand video content

The Cisco Digital Media Player 4310G includes such features as:

- Support for MPEG 1/2/4 Part 10 in standard definition and high definition as well as graphics, Web content, Adobe Flash Lite animations, Windows Media 9 and VC-1, mp3 audio, and rolling and scrolling tickers.
- 32-GB local storage for reliability and performance
- Touchscreen technology support
- 802.1 1af Power over Ethernet
- Small form factor: 7.5 x 5 x 1.5 in.; weighs 1 lb.
- Low power consumption
- IP-enabled delivery of live broadcasting and on-demand video content

The Cisco Digital Media Player 4400G includes such features as:

- Support for MPEG 1/2/4 Part 10 video in standard definition and high definition as well as graphics, Web content, and Adobe Flash 9 animation, Windows Media 9 and VC-1, mp3 audio, and tickers.
- 4-GB local storage for reliability and performance
- Touchscreen technology support
- 802.1 1 B/G wireless network support
- Small form factor: 10 x 8 x 2 in.; weighs 4.5 lb.
- Low power consumption
- IP-enabled delivery of live broadcasting and on-demand video content

Integrated with the Cisco Digital Media Manager, the Cisco Digital Media Players provide:

- Remote management of display (on and off, volume, contrast, and brightness)
- Full-screen video playback or "on-screen zoning" of multiple content types on a single display
- Customizable onscreen presentation templates and playlists

Specifications

Feature	Cisco Digital Media Player 4305G	Cisco Digital Media Player 4310	Cisco Digital Media Player 4400G
Supported protocols	FTP and secure FTP (SFTP); HTTP and HTTPS; User Datagram Protocol (UDP); Real-Time Transport Protocol (RTP) over Real-Time Streaming Transport Protocol (RTSP)	FTP and Secure FTP (SFTP) HTTPS (for management interface) User Datagram Protocol (UDP) Real-Time Transport Protocol (RTP) over Real Time Streaming Protocol (RTSP)	FTP and secure FTP (SFTP); HTTP and HTTPS; User Datagram Protocol (UDP); Real-Time Transport Protocol (RTP) over Real-Time Streaming Transport Protocol (RTSP)
Video containers	MPEG Transport Stream (TS, TP, TRP, M2T, M2TS, and MTS)	MPEG Transport Stream (TS, TP, TRP, M2T, M2TS, and MTS) ASF: WMV	MPEG Transport Stream (TS, TP, TRP, M2T, M2TS, and MTS); ASF: WMV
Video codecs	Video MPEG 1; Video MPEG 2: Main Profile at High Level; Video MPEG 4 part 2: Advanced Simple Profile at Level 5; Aspect ratio: 4:3 and 16:9; HD (up to 1080 at 16:9) progressive and interlace video resolution; Video data rate up to 82 Mbps; Overall delay 1–3 sec Note: Please consult other Cisco documentation or your Cisco representative for exact audio codec, video codec, resolution, bit rate, and encapsulation combinations.	Video MPEG1 Video MPEG2: Main Profile at High Level Video MPEG4 Part 10 Baseline and Main profiles Video Windows Media 9 and VC-1 - VoD only Aspect ratio: 4:3 and 16:9 HD (up to 1080p at 16:9) progressive and interlace video resolution Video data rate up to 28 Mbps Internal Hardware Decoder delay configurable to < 1 sec	Video MPEG 1; Video MPEG 2: Main Profile at High Level; Video MPEG 4 part 10 Baseline and Main profiles; Video Windows Media 9 and VC-1 VoD only; Aspect ratio: 4:3 and 16:9; HD (up to 1080P at 16:9) progressive and interlace video resolution; Video data rate up to 28 Mbps; Overall delay 1–3 sec Note: Please consult other Cisco documentation or your Cisco representative for exact audio codec, video codec, resolution, bit rate, and encapsulation combinations.
Audio codecs	Audio MPEG 1 Layers 1 and 2; mp3; MPEG 4 AAC Low Complexity; AC-3; Audio data rate: 64–320 kbps Note: Please consult other Cisco documentation or your Cisco representative for exact audio codec, video codec, resolution, bit rate, and encapsulation combinations.	Audio MPEG1 Layers 1 and 2 MP3 MPEG4 AAC Low Complexity AC-3 Audio data rate: 64-320 kbps	Audio MPEG 1 Layers 1 and 2; mp3; MPEG 4 AAC Low Complexity; AC-3; Audio data rate: 64–320 kbps Note: Please consult other Cisco documentation or your Cisco representative for exact audio codec, video codec, resolution, bit rate, and encapsulation combinations.
Remote control	Transmitter Type and Maximum Supported Distance—Infrared (IR), 15 ft.	Transmitter Type and Maximum Supported Distance—Infrared (IR), 15 ft.	Transmitter Type and Maximum Supported Distance—Infrared (IR), 15 ft.
Flash memory	32 MB for OS; 2 GB for internal storage	32 GB for local storage	4GB CF-card with endurance of 1,000,000 Write/Erase Cycles for OS and application storage
Physical connectors	Ethernet copper 10/100 BASE-T, RCA Video, S-Video, RCA Audio Left, RCA Audio Right, HDMI, and RS-232 and USB Cable Type* and Maximum Supported Length—Composite/RCA cable, 10 ft.; HDMI 1.1**, 16 ft.; S-Video, 10ft. * Cable quality can be a factor **An HDMI extender product can be used to extend the cable to 150 ft.	Ethernet copper 10/100 BASE-T, RCA Video, S-Video, Mini 3.5 mm Stereo Audio Jack, HDMI, and RS-232 Mini 3.5mm and USB Cable Type* and Maximum Supported Length; HDMI 1.3, 16 ft.; S-Video, 10ft.; USB 2.0, 15 ft.	Ethernet copper 10/100 BASE-T, RCA Video, S-Video, Mini 3.5 mm Stereo Audio Jack, HDMI, and RS-232 and USB Cable Type* and Maximum Supported Length; Composite/RCA cable, 10 ft.; HDMI 1.1**, 16 ft.; S-Video, 10ft.; USB 2.0 (2), 15 ft.; SPDIF, 10 ft. * Cable quality can be a factor **An HDMI extender product can be used to extend the cable to 150 ft.
Wireless connectivity			Wireless Radio: 802.11 B/G; Security protocols: WPA, WPA2, EAP+FST, and WEP

Touchscreen support			Vendor: 3M Supported Systems: Touchscreen Sensor and Systems: 3M Micro Touch; ClearTek II touch sensor; 3M MicroTouch System SCT3250CX; 3M Micro Touch Sensor SCT7650; 3M MicroTouch System SCT3250SX; 3M Micro Touch Capacitive TouchSense System; 3M MicroTouch DST touch system Display Systems: 3M Micro Touch Display M1500SS (15 in.); 3M MicroTouch Display M1700SS (17 in.); 3M MicroTouch CT150 15-in. LCD Touch Monitor; 3M MicroTouch ChassisTouch 17 in. LCD Touch Monitor Vendor: ELO Supported Systems: All Acoustic Pulse Recognition systems Vendor: Zytronics Supported Systems: Zybrid Screen systems Vendor: General Touch Supported Systems: All systems supported by the ST6001S controller
Power	Input voltage—5V Input current—3 ADC Power consumption—Peak: 12W; average: 5W	Power consumption: 12W	Input voltage:—12V Input current—3 ADC Power consumption—Peak: 30W; average: 15W
Environmental	Operating temperature—41ºF to 122ºF (5 to 50ûC; Passed 500-hour test of the uninterrupted video playback in 125.6ºF (52ºC) dry-heat environment Humidity—20 to 80% noncondensing		Operating temperature—41ºF to 104ºF (5 to 50ºC); Passed 500-hour test of the uninterrupted video playback in 125.6ºF (52ºC) dry-heat environment Humidity—20 to 80% noncondensing
Functional	Video in—MPEG 1, MPEG 2, and MPEG 4 part 2 Audio in: Transport stream: Up to 6 audio packet IDs (part numbers) in transport stream Video out: Analog video (composite, S-Video); Digital video (HDMI) Audio out: Analog unbalanced audio (mono and stereo); MPEG 1 Layer 2: Selected; packet IDs in transport stream (1 of 6); MPEG 4 AAC and AC-3—Selected elementary audio (1 of 6)		Video in: MPEG 1, MPEG 2, and MPEG 4 part 10, Windows Media 9, and VC-1 Audio in: Transport stream: Up to 6 audio packet IDs (part numbers) in transport stream; mp3 Video out: Analog video (composite, S-Video); Digital video (HDMI 1:1) Audio out: Analog unbalanced audio (mono and stereo); MPEG 1 Layer 2: Selected; packet IDs in transport stream (1 of 6); MPEG 4 AAC and AC-3; Selected elementary audio (1 of 6)

Selected Part Numbers and Ordering Information

DMP-4305G-52-K9	Cisco Digital Media Player 4305G (Note: Includes Cables Accessory Kit)
DMP-SW52-K9	Digital Signage User Lic. for DMP 4305G
DMP-RM-K9=	Cisco Digital Media Player Remote Spare
DMP-SW52-U-K9	Digital Media Player V5-V5.1 Perptl. SW Upgrade
DMP-ACC-KIT	Cisco Digital Media Player 4305G, Cables Accessory Kit, Spare. (Note: A Cables Accessory Kit is already included with the Cisco Digital Media Player 4305G. This Spare Kit is an additional cost.)

DMP-RM-K9=	Cisco Digital Media Player Remote Spare
DMP-4310G-52-K9	Cisco Digital Media Player 4310G (Note: Includes Cables Accessory Kit)
DMO-4310G-SW52-K9	Digital Signage User Lic. For DMP 4310G
DMP-RM-K9	Cisco Digital Media Player Remote Spare
DMP-4310G-PWR	Digital Media Player 4310G Power Brick
DMP-4400G-52-K9	Cisco Digital Media Player 4400G (Note: Includes Cables Accessory Kit)
DMP-SW52-K9	Digital Signage User Lic. for DMP 4400G
DMP-RM-K9=	Cisco Digital Media Player Remote Spare
DMP-SW52-U-K9	Digital Media Player V5-V5.1 Perptl. SW Upgrade
DMP4400-ACC-KIT	Cisco Digital Media Player 4400G, Cables Accessory Kit, Spare. (Note: A Cables Accessory Kit is already included with the Cisco Digital Media Player 4305G. This Spare Kit is an additional cost.)
DMP-RM-K9=	Cisco Digital Media Player Remote Spare

For More Information

http://www.cisco.com/go/dms

Cisco LCD Professional Series Displays

Cisco LCD Professional Series Displays form an integral part of the overall Cisco Digital Media Suite (DMS) suite of products. Offering a complete end-to-end solution for digital signage and business IPTV, these displays are available in 32-, 42-, 47-, and 55-inch models and offer full 1080p resolution.

Cisco LCD Professional Series Displays offer:

- An end-to-end Cisco solution
- Centralized, remote management through the Cisco Digital Media Manager (on and off, volume, contrast, and brightness)
- Cisco support and service offerings

Specifications

Feature	Cisco LCD 100L Pro 32N	Cisco LCD 110L PRO 42	Cisco LCD 110L PRO 47	Cisco LCD 110Q PRO 55
Diagonal Size	32 inches	42 inches	47 inches	55 inches
Native Resolution	1366 x 768 (WXGA) 1920 x 1080 (HDMI)	1080p (1920*1080)	1080p (1920*1080)	1080p (1920*1080)
Resolutions Supported	180p, 1080i, 720p	1080p, 1080i, 720p	1080p, 1080i, 720p	1080p, 1080i, 720p
Brightness	500 cd/m2	700 cd/m2	700 cd/m2	700 cd/m2
Contrast Ratio	3000:1 (Dynamic Contrast Ratio)	1200:1	1300:1	1300:1
Viewing Angle (H/V)	178/178 degrees	178/178 degrees	178/178 degrees	178/178 degrees
Response Time (G-to-G)	8 ms	10 ms	10 ms	10 ms
Video Inputs	HDMI, VGA, and DVI (composite, component, and S-video also exist)	HDMI, RGB, Composite, and Component	HDMI/DVI, RGB, Composite, and Component	HDMI, DVI, RGB, Composite, S-Video, and Component
Power Supply	AC 100 - 240 V, 50/60 Hz	100~240V, 50/60 Hz	100~240V, 50/60 Hz	100~240V, 50/60Hz
VESA Mount	200 x 200 mm	600 x 400 mm	800 x 400 mm	400 x 400mm
Weight (Set/Package)	31.7/39.2 Kg	18.64kg/21.87kg	22.2kg/29.6kg	37.6kg/47.0kg
Dimension	31.61 x 19.41 x 3.93 mm	96.7 x 55.98 x 12.37 cm	107.95 x 62.46 x 12.29 cm	125.21 x 72.29 x 13.01 cm
Bezel Width	40 mm	16.9 mm	17.9 mm	19.5 mm

Selected Part Numbers and Ordering Information

LCD-110Q-PRO-55	Cisco LCD Q-Series 55" Display, 1080p, w/Remote Control
LCD-110-PRO-52S	Cisco LCD 52" Display, 1080p, Bezel S, w/Remote Control

LCD-100-PRO-STD	Leg Stand for Displays (Note: Optional)
LCD-100L-PRO-47	Cisco LCD L-Series 47" Display, 1080p, w/Remote Control
LCD-100L-PRO-42	Cisco LCD L-Series 42" Display, 1080p, w/Remote Control
LCD-100-PRO-40N	Cisco LCD 40" Display, 1080p, Bezel N, w/Remote Control
LCD-100L-PRO-32N	Cisco LCD L-Series 32" Display, 1080p, Bezel N, w/Remote Control

For More Information

http://www.cisco.com/go/dms

Cisco Show and Share

An integrated component of the Cisco Digital Media Suite for webcasting and video sharing, Cisco Show and Share helps organizations create secure video communities to share ideas and expertise, optimize global video collaboration, and personalize the connection between customers, employees, and students with user-generated content. Cisco Show and Share provides the ability to create live and on-demand video content and define who can watch specific content, it offers viewer collaboration tools such as commenting, rating, and word tagging, and it provides comprehensive access reporting.

Cisco Show and Share fits into your organization's existing IP network and helps ensure that your video content is stored securely within your IT infrastructure. It supports established video formats including Windows Media, Flash, and the MPEG-4/H.264 standard for Video on Demand (VoD) files. The Windows Media format is supported for PC playback for live streams.

When an MXE 3500 is available on the network, Show and Share provides the ability to have all files that are uploaded by Show and Share automatically transcoded to an optimal window-size and bit rate via the Flash format. These files are automatically sent from the Show and Share server to the MXE 3500, where they are transcoded and then retrieved by Show and Share for editing and publishing.

Key Features and Benefits

- Creating
  - Capture of video directly with Cisco Show and Share—You do not need to install any special software on your PC or Macintosh. Cisco Show and Share works with Adobe Flash player to support a wide variety of built-in and USB-based cameras and microphones that you can use to capture video.
  - Assigned authors—Cisco Show and Share systems administrators can define by username those who can capture and upload content. Organizations can provide initial access to a small set of content authors and add additional authors as needed.
- Publishing
  - Content viewing security—Publishers can define "who can watch what" for each video for secure content viewing needs.
  - Optional viewer collaboration—Commenting, rating, and tagging. Publishers can choose per title what type of view collaboration functions are available, such as commenting, rating, and tagging.
- Browsing and search
  - Public and private categories—Viewers can browse both private and public categories based on their login credentials.
  - Keyword tags—Viewers can use popular keyword tags that are displayed to help them find content.
- Viewing and sharing
  - Video playback controls—Viewers have complete playback controls for on-demand content, including start and stop controls.
  - Commenting options—Authors can optionally provide the ability for viewers to leave multiparty comments and collaborate with other viewers with two levels of commentary; page comments can be created for general commentary and timeline comments can be placed at any point in the video timeline for topical discussions. Viewers can report abusive comment language, and systems administrators can search for and delete offensive comments.
- Live webcasting
  - Managed webcast—Live webcast authors can set up and produce real-time streaming webcasts for events such as executive presentations, conferences, teacher lectures, and so on.
  - View questions—Viewers can optionally post text-based questions to the live webcast authors at any time during an event.
- Reporting
  - Systemwide reporting—Systems administrators have access to a wide variety of activity and content usage reports across the entire Cisco Show and Share content catalog, including: Sitewide traffic, page views, unique visitors, video content viewing activity, report options include date ranges, viewers, authors, and content titles.

For a full listing of product features, see the Cisco Show and Share data sheet at the following URL: http://www.cisco.com/en/US/prod/collateral/video/ps9339/ps6681/data_sheet_c78-565776.html.

Show and Share Reports is an integrated function within Cisco Show and Share that allows you to track the access and use of video content by end users. With this tool you can:

- Specify time periods—Run reports based on specific dates.
- Analyze content use—Access unique traffic metrics and repeat traffic metrics for each available video or as an aggregated total.

- Monitor referrals—Track top referring pages and links with the corresponding views they generate.
- Understand visitors—Acquire vital statistics about visitors, including operating system, browser, and media plug-in used.
- Receive viewer usage details—Identify what videos have been played by individual users and videos.

With the Cisco Show and Share Reports tool, Cisco Digital Media Suite (DMS) administrators and Cisco Show and Share authors can access a variety of usage information that can facilitate tracking content effectiveness and required user access as part of a larger training compliancy effort, and help shape future content development based on content trends.

Support and Compatibility

Cisco Show and Share is shipped with the software preloaded on select Cisco server appliances and models. Upgrade and server support information is available at http://www.cisco.com in the Cisco Show and Share Upgrade Guides.

Licensing

Cisco Show and Share is purchased as a perpetual license with no restrictions on the number of potential viewers.The application introduces new authoring capabilities that require enabling licenses for each system user defined as an author. The base Cisco Show and Share system has five preinstalled Author licenses. You can purchase additional licenses with various options, including:

- Cisco Show and Share Feature License for up to 10 Authors
- Cisco Show and Share Feature License for up to 50 Authors
- Cisco Show and Share Feature License for up to 500 Authors
- Cisco Show and Share Feature License for up to 1000 Authors
- Cisco Show and Share Feature License for up to 25,000 Authors

You can purchase additional licenses and install them after the initial implementation.

Specifications

Cisco Show and Share Viewer Requirements	
Browser software	• Windows • Internet Explorer 7.0 or 8.0 • Mozilla 3.6.3 • Apple Macintosh (support only for Flash and MPEG4/Part 10 VOD files only. Windows Media format not currently supported with the Apple Macintosh). • Safari 3.1.2 minimum • Safari 3.1.2 or Firefox 3.5.3 or later recommended
Adobe Flash plug-in	Adobe Flash v.9, upgrade 3 plug-in or later recommended, v. 10 recommended
Windows Media plug-in	Windows Media 9 or later (required if Windows Media content is offered)
Java Client	v. J1.6.0_13 or later
Minimum supported resolution	1024 x 768
Cisco Show and Share Content Format Support	
Windows Media	Content encoded in the Windows Media format through the Cisco Live Event Module or other third-party applications can be uploaded and viewed with Cisco Show and Share. This content is decoded and played by the Windows Media plug-in. Third-party applications are required to edit content encoded with the Windows Media format. Windows Media content is not currently supported with the Apple Macintosh.
Adobe Flash (.flv)	Content encoded in the Adobe Flash (.flv) format can be uploaded and viewed with Cisco Show and Share. This content is decoded and played by the Adobe Flash plug-in. The integrated Cisco Show and Share Video Editor can be used to edit uploaded Adobe Flash (.flv) content. Content created with the Cisco Show and Share Record a Video function is encoded in the Adobe Flash (.flv) format and is also editable with the Cisco Show and Share Video Editor.
MPEG4/Part 10 (also known as MPEG4/H.264)	Content encoded in the MPEG4/Part 10 format can be uploaded and viewed with Cisco Show and Share. This content is decoded and played by the Adobe Flash plug-in. Additional MPEG4 file support playable by the Adobe Flash player can be obtained at http://www.adobe.com. Third-party applications are required to edit content encoded with the MPEG4/Part 10.File types supported include .mp4, .m4v, and .mp4v.
Cisco Show and Share Server Appliance Options	
Workgroup	The Cisco Show and Share Workgroup server appliance supports up to 50 simultaneous authors and is ideal for a variety of use cases that feature smaller workgroups within an organization.
Enterprise	The Cisco Show and Share Enterprise server appliance supports organizations that want to enable large numbers of authors to create and publish a variety of content that will be accessed organization-wide.

Selected Ordering Information

Cisco Digital Media Manager	
Cisco Digital Media Manager	Required

Cisco UCS C210 M2 Server Appliance (DMS-specific model)	Required
Cisco Show and Share Live Event Module	Optional
Cisco DMM SNMP Module	Optional
Cisco Show and Share Workgroup	
Cisco Show and Share Workgroup	Required
Cisco UCS C-200 M2 Server Appliance (DMS-specific model)	Required
Cisco Show and Share Reports	Required
Cisco Show and Share Enterprise	
Cisco Show and Share Enterprise	Required
Cisco MCS 7835-H3 Server Appliance	Required
Cisco Show and Share Reports	Required

For More Information

http://www.cisco.com/go/dms

Cisco Enterprise Content Delivery System

As the demand for enterprise video technologies increases, organizations are facing more demands on their network capacity and complexity in delivering video applications.

The Cisco Enterprise Content Delivery System (ECDS) is a media delivery system that helps organizations easily scale video and media delivery over their existing WAN infrastructure. For both data and video optimization, Cisco ECDS can be deployed with Cisco WAAS, providing a complete WAN optimization solution.

Cisco ECDS helps customers:

- Scale delivery of applications such as e-learning, training, corporate communications, live webcasts, and digital signage, among others, for large audiences and remote sites
- Deliver live and video-on-demand media in various formats to multiple endpoints throughout the enterprise network
- Reduce capital spending in large-scale streaming server and data center infrastructure
- Reduce operational costs through integration with media applications and also optimize storage requirements and bandwidth for streaming
- Extend the reach and quality of the media experience through the enterprise while maintaining a predictable WAN network behavior.

Cisco ECDS consists of a distributed system of components, including the Service Engine, the Content Delivery System Manager (CDS Manager), and the Service Router, to efficiently provide live video streaming scalability, video on demand (VoD), content prepositioning, and dynamic caching of video content over the corporate WAN to remote sites.

Cisco ECDS is a versatile media delivery platform with support for Adobe Flash, Windows Media, Apple QuickTime, and the H.264 video compression standard. With support for seamless scalability and resiliency through its service routing capability, Cisco ECDS offers various choices to support a range of sites, from those with fewer than 25 users to large campuses with thousands of users.

Cisco Enterprise Content Delivery System Applications

The Cisco ECDS consists of three main applications.

- Service Engine
  The Service Engine provides edge content streaming, caching, and download to various endpoint devices such as PCs, Macs, and digital signs, among others. Content streaming support includes live and video on demand (VoD) for Adobe Flash, Windows Media, Apple QuickTime, and H.264 formats. The Service Engine also provides the point of entry into ECDS for ingesting live streams. Through the optional content acquisition subsystem, the platform dynamically fetches content on demand using prefetch and prepositioning options.
- Service Router
  The Service Router mediates requests from the endpoint clients. It is responsible for choosing the most appropriate service engine based on location and load conditions of individual service engines.
- Content Delivery System Manager

The Content Delivery System Manager is a graphical, browser-based application designed to manage the elements of a Cisco ECDS network. It offers a workflow-based approach, automating and centralizing the major system management functions, including configuration, monitoring, troubleshooting, system reporting, and maintenance.

Key Features and Benefits

- Scales bandwidth-heavy media applications without the need to upgrade the WAN network
- Scales across the enterprise without the need to turn on multicast
- Provides centralized management and system reporting
- Supports various endpoints and formats through a single-vendor solution
- Provides service-routing-based architecture to support hierarchical deployments, load balancing, and redundancy
- Provides protocol-based redirects without requiring any configuration on routers and end clients
- Minimal operation complexity in scaling number of sites or number of users on a site
- Supports out-of-band access to devices and comes integrated with recovery image
- Support for Adobe Flash, Windows Media, Apple QuickTime (live and VoD)
- Support for Real-Time Streaming Protocol (RTSP) over User Datagram Protocol/Transmission Control Protocol (UDP/TCP)
- Live stream splitting for Adobe Flash, Windows Media Video (WMV), Apple QuickTime, MPEG2-Transport Stream/Real-Time Transport Protocol (MPEG2-TS/RTP)
- Unicast-to-multicast streaming conversion and vice versa for Windows Media and QuickTime
- Dynamic pull caching for objects by HTTP and RTSP
- Content prefetch and prepositioning through HTTP, HTTPS, FTP, or Common Internet File System (CIFS)
- Service-routing-based, scalable, hierarchical distribution topology
- Support for Cisco Digital Signs for delivering VoD content
- Support for Cisco Show and Share
- Compatible with other Cisco video solutions

Specifications

Feature	Specification
Protocols	Content acquisition: · HTTP/HTTPS · FTP · CIFS · RTSP/RTP Content delivery: · Web content via HTTP · Adobe Flash streaming via RTMP (E) · Windows Media VC-1 via RTP/RTSP, via MMS over HTTP, or via HTTP Progressive Download · Streaming MP3, MP4 (H.264), MOV and M4V, content via RTP/RTSP
Components	Cisco ECDS components involved in a minimal setup: · CDSM · Service Router · Service Engine with or without Content Acquirer Optional components include: · Standby CDSM · Additional Cisco Service Routers for load balancing and failover · Additional Cisco Content Acquirer or Service Engines for load balancing and failover
MIBS	· Supports SNMP v1, v2, v3 · Supports ENTITY-MIB, CISCO-ENTITY-ASSET-MIB, CISCO-CONFIG-MAN-MIB, EVENT-MIB, HOST-RESOURCES-MIB, CISCO-SMI & v2-SMI, SNMP-FRAMEWORK-MIB, MIB-II, sr-tc, v2-TC, SR-COMM, v2-ADM, v2-MIB, v2-ARCH, v2-tm, Coex, v3-ACM, V3-MPD, V3-proxy
Network management	Cisco CDS Manager, which supports: · Secure GUI over HTTPS · Configuration of ECDS component applications and devices · Provisioning of delivery services · Provisioning of managed live programs · Traffic statistics and system health monitoring · Authentication, authorization, and accounting (AAA) and role-based management · Management failover using a warm standby · Device group for easy management of thousands of Cisco Service Engines · Centralized system upgrade manager for easy upgrading of thousands of Service Engines · Out of band platform access and integrated remote system recovery

Integration	Supports integration using XML-based "Manifest" files that describe content ingest tasks APIs are provided to: · Check the content replication and listing status · Provision the delivery system · Obtain statistics · Protocol: HTTPS · Input: URL and XML body · Output: XML response
Service routing	Service Router supports the following routing methods: · Load-based routing (least loaded) · Service-aware routing · Content-aware routing · Last resort (when all eligible streamers are overloaded or for requests from outside the defined coverage zone) Service Router avoids routing to Service Engines with: · Disk failure · Application failure · CPU, memory, and disk overload Service Router supports multiple redirection methods based on the protocol and the user-agent of the client: · HTTP ASX Redirection · HTTP 302 Redirection · RTSP 302 Redirection · RTSP REDIRECT Redirection · RTMP Redirection
Web engine	· Progressive rendering of MPEG, Advanced Systems Format (ASF), and QuickTime movie format files · Wi-Fi streaming via HTTP Progress Download · Option to support pre-ingested content delivery and dynamic caching · Flexible rules template for cache policies and rules · Service rules · Option to support hierarchical caching
Flash streaming	· Adobe Flash streaming · Precreated application for VoD · Multiple bit-rate streaming over RTMP for live streaming and VoD · H.264 VoD and live streaming · Content authorization using URL Signing · HTTP-based hierarchical caching · Support for RTMP, RTPME, · Formats: Sorenson Spark, On2 VP, Nellymoser, MP3, AMF0, AMF3 · Client-side playlist
Cisco Movie Streamer	· Support for content delivery using RTP/RTSP · Clients: QuickTime, 3GPP-compatible, VLC · Codecs: MPEG1/2, H.264, H.263, AMR, AAC, MP3 · Container files: MOV, MP4, 3GPP · Support for live streaming application · Managed live events and rebroadcast of scheduled events · Encoder failover · SMIL-based client-side playlists · Live-stream splitting, including: - Multicast in and multicast out - Multicast in and unicast out - Unicast in and multicast out - Unicast in and unicast out · Hierarchical caching proxy
Content acquisition and storage	Acquisition modes supported: · Pre-ingest of content ahead of the delivery time · Dynamic ingest of content the end-user requests · Pre-ingest via HTTP, HTTPS, FTP, CIFS · Dynamic ingest via HTTP and RTSP Centralized content removal Distribution modes supported: · Hierarchical live streaming routing within Cisco ECDS · Option for caching proxy from the origin server · Option of hierarchical caching within Cisco ECDS

Windows Media	• Windows Media Technology (WMT) server and proxy:
	  - Codec WM 7, WM 8, WM 9, VC-1
	• Protocols:
	  - RTP/RTSP UDP
	  - RTP/RTSP TCP
	  - MMS over HTTP, or HTTP progressive download
	• Container files: ASF, WMV, WMA
	• Client-side playlist
	• Fast start and fast cache
	• Managed live events
	• Live channel priming
	• Live channel fast start
	• Live-stream splitting, including:
	  - Multicast in and unicast out
	  - Unicast in and multicast out
	  - Unicast in and unicast out
	• Option to support hierarchical caching
	• Encoder failover
	• Pass-through authentication
	• Wi-Fi streaming of VC-1

The ECDS solution is currently available in an appliance form factor called the Cisco Media Delivery Engine (MDE) in the following models:

- Cisco Media Delivery Engine 50 WVB
- Cisco Media Delivery Engine 1100
- Cisco Media Delivery Engine 3100

Solution Requirements

At a minimum, a Cisco ECDS deployment requires the following:

- Service Engine
- Content Delivery System Manager
- Service Router

The MDEs may be used to run any of the above three main applications. Please note that Content Acquisition is an additional license that is required for using a Service Engine as a Content Acquirer.

Selected Parts and Ordering Information

Ordering information for the Media Delivery Engine can be found on the respective data sheet.

For More Information

http://www.cisco.com/go/ecds

Cisco Media Delivery Engine

Cisco Media Delivery Engines (MDEs) are flexible form factors of the Cisco Enterprise Content Delivery System (ECDS) for media distribution and delivery. The MDEs are available as hardware appliances or as software running on the Cisco Wide Area Application Services on a virtual blade environment.



Using the Cisco MDE, organizations can run the three main applications for Cisco ECDS: Service Engine, Content Delivery System Manager, and Service Router.

Key Features and Benefits

Feature	Cisco Media Delivery Engine 3100	Cisco Media Delivery Engine 1100	Cisco Media Delivery Engine 50WVB
Live stream splitting	Offers ability to efficiently split a single stream entering the Cisco ECDS network to serve multiple users, allowing the administrator to offer live streaming in a manner that scales	A single media stream entering the Cisco ECDS network can be efficiently split to serve multiple users, allowing the administrator to offer live streaming in a manner that scales.	Enables scalable live video delivery over non-multicast-enabled WAN
Content prepositioning	Uses off-hours bandwidth and delivers a consistent experience for video and other applications	Utilizes off-hours bandwidth and delivers consistent experience for video and other applications	Uses off-hours bandwidth and delivers consistent experience for video and other applications
Content ingest	Ingests content for live video, video on demand, and other web components for efficient media delivery and offloading of the origin server	Ingests content for live video, video on demand, and other web components for efficient media delivery and offloading of the origin server	n/a

Dynamic caching	Reduces the WAN usage for Longtail video and other content over HTTP	Reduces the WAN usage for long-tail video and other content over HTTP	Reduces WAN usage for media that is not prepositioned earlier
Dedicated Cisco Integrated Management Controller (IMC) port for device management	Manages the hardware and device environment specifics through a dedicated Cisco IMC port	Manages the hardware and device environment specifics through a dedicated Cisco IMC port	n/a
Built-in storage for hosting recovery software	Uses 4 GB of internal memory to support recovery of the system and configuration from a remote, centralized management station	Uses 4 GB of internal memory to support recovery of the system and configuration from a remote, centralized management station	n/a
Footprint	Provides a robust 2-rack-unit (2RU) footprint that is ideal for data center and campus deployments	Provides a small 1 rack unit (1RU) footprint that is ideal for remote location deployments	Leverage existing investment in Cisco WAAS technology at remote sites for comprehensive WAN Optimization solution

Specifications

Feature	Cisco Media Delivery Engine 3100	Cisco Media Delivery Engine 1100	Cisco Media Delivery Engine 50WVB
Size	2RU (fits standard Telco racks with additional kit)	1RU (fits standard Telco racks with additional kit)	n/a
Weight (set)	~35 lbs	14.6 Kg	n/a
Dimensions (H x W x D)	3.45 x 17.2 x 28.4 in. (8.76 x 43.69 x 72.14 cm)	1.7 x 16.9 x 27.8 in. (4.3 X 42.9 X 70.6 cm)	n/a
CPU	2.40GHz Xeon E5620 x2	Intel 2.13GHz Xeon E5506 80W	n/a
Hard drive	Eight 500-GB Serial Advanced Technology Attachment (SATA), 7200 rpm	Two 500-GB SATA 7.2K RPM	100 GB on Cisco WAVE 574 200 GB on Cisco WAE-674
Total HDD bays	16	Four	n/a
Memory	16-GB DDR3	8-GB DDR3	Maximum memory on Cisco Wave 574 and Cisco WAE-674 required
Redundant Array of Independent Disks (RAID)	No	No	no
Data network interfaces	Four Gigabit Ethernet ports	Two Gigabit Ethernet ports	Virtual (two Gigabit Ethernet)
Other interfaces	One serial console; Cisco Integrated Management Console	One serial console; Cisco Integrated Management Console	None
Power	650W PSU	650W PSU	n/a
Backup power supply	Yes (optional)	Yes (optional)	n/a
Power rating	100 to 240 VAC, 10 to 5A, 50 or 60 Hz	100 to 240 VAC, 10A to 5A, 50/60 Hz	n/a
CD-ROM or DVD drive	Yes	Yes	n/a
Internal USB drive	4 GB	4 GB	n/a
Operating temperature	50 to 95°F (10 to 35°C)	50 to 95°F (10 to 35°C)	n/a
Nonoperating temperature	-40 to 149°F (-40 to 65°C)	-40 to 149°F (-40 to 65°C)	n/a
Operating altitude	0 to 10,000 ft (0 to 3000m); maximum ambient temperature. Decreases by 1°C per 300m) (984 ft)	0 to 10,000 ft (0 to 3000m); maximum ambient temperature Decreases by 1°C per 300m) (984 ft)	n/a
Nonoperating altitude	40,000 ft (12,000m)	40,000 ft (12,000m)	n/a
Operating humidity	5 to 93% noncondensing	5 to 93% noncondensing	n/a
Nonoperating humidity	5 to 93% noncondensing	5 to 93% noncondensing	n/a

Selected Part Numbers and Ordering Information

MDE-3100-K9	Media Delivery Engine 3100, 2RU, 16GB, HW
MDE-HDDSTA2-500GB	500 GB Hard Drive for MDE 3100, 2 RU
MDE-3100-SW253-K9	ECDS Software for MDE 3100, 2 RU
MDE-3100-ML1G-2000	ECDS Base Media license for MDE 3100 - 1 Gbps/2000 concurrent connections
MDE-3100-CALIC	Optional Content Acquisition license for MDE 3100
MDE-MGMTSW-LIC	Management Software License for ECDS System, MDE 3100
MDE-3100-CALIC-UP	Optional Media Acquirer Software License Upgrade for MDE 3100
MDE-3100-ML1G-3000	ECDS Media License MDE-3100- 1Gbps/3000 streams upgrade License
MDE-1100-K9	Media Delivery Engine 1100, 1RU, 8GB, HW
MDE-HDDSTA-500GB	500 GB Hard Drive for MDE 1100, 1 RU
MDE-1100-SW253-K9	ECDS Software for MDE 1100, 1 RU
MDE-1100-ML100-200	ECDS Base Media license for MDE 1100 - 100 Mbps/200 streams
MDE-1100-CALIC	Optional Content Acquisition license for MDE 1100
MDE-MGMTSW-LIC	Management Software License for ECDS System, MDE 1100
MDE-1100-CALIC-UP	Optional Media Acquirer Software License Upgrade for MDE 1100
MDE-1100-ML100-300	ECDS Media License MDE-1100- 100Mbps/300 streams upgrade license
MDE-50WVB-K9	Media Delivery Engine 50WVB on WAAS VB
MDE-50WVB-SW253-K9	Media Delivery Engine 50WVB Base Software
MDE-50WVB-ML50-200	Media Delivery Engine 50WVB Media License 50 Mbps/200 concurrent users

For More Information

http://www.cisco.com/go/ecds

Media Experience & Analytics

Media Experience & Analytics (MXA) solutions help organizations capture, transform, and share rich media.

Media Experience & Analytics powers breakthrough video experiences by connecting people and media across any device and application. As enterprises grow and become more geographically distributed, the need to effectively communicate across all boundaries—geography, organizational, or medium—is increasingly important.

Media transformation delivers:

- Any to any video communication and media transformation at scale and in real time;
- The ability to extend investments in video communications devices to new use cases;
- Media search and analytics services to unlock the business value of video; and
- An open platform to enable video ecosystems and accelerate revenue growth

MXA delivers the benefits of embedding the intelligence for unfettered collaboration into the fabric of the network. Information in any form or format—person, video, documents—is discovered in real time and seamlessly shared across the enterprise.

Cisco TelePresence Content Server



The Cisco TelePresence Content Server (Content Server) is a network appliance that enables organizations to share knowledge and enhance communication by recording their video conferences and multimedia presentations for live and on-demand access.

The Cisco TelePresence Management Suite (Cisco TMS) can automatically include the Content Server in any scheduled or impromptu event. The Cisco TelePresence Content Server workflow automatically produces high quality videos of any standards-based conference from a multipoint control unit (MCU), from a Cisco TelePresence Server, or directly from a Cisco TelePresence System endpoint, including the video participants and any secondary content, such as a presentation.

Key Features and Benefits

- Creates business-quality multimedia content easily from any H.323 or SIP videoconferencing endpoint
- Supports live and on-demand streaming
- Manages and distributes live or recorded content to any PC and leading portable media devices in Flash, Microsoft Windows Media, MPEG-4 and Real Media formats.
- Compatible with major distribution servers and leading corporate and education web 2.0 portals

- Streamlines the production and distribution of professional video podcast across the organization
- Integrates with Cisco Show and Share and the Cisco MXE 3500

Specifications

Storage	Large-capacity internal storage (500-GB hard disk) Support for external network storage using network-attached storage (NAS)
Language support	English, French, Chinese, and Japanese
Power	100-240 VAC, 50-60 Hz, 350W maximum
Approvals and compliance	· CE Declaration to EU Low Voltage Directive 2006/95/EC (Europe - EN60950-1) · Directive 89/336/EEC (EMC Directive) · Standard EN 55022, Class A · Standard EN 55024 · Standard EN 61000-3-2/-3-3 · Approved according to UL 60950-1 and CAN/CSA C22.2 No. 60950-1-03 · Compliance with FCC15B Class A
Environmental Operating Ranges	
Temperature	50 to 86ºF (10 to 30ºC) Storage and transport temperature: -4 to 140ºF (20 to 80ºC) (noncondensing)
Relative humidity	10 to 90% relative humidity (RH)
Altitude	10,000 ft (3000m); this value may be limited by the type and number of options installed; maximum allowable altitude change rate is 1500 ft/min (457m/min)
Shock	2 Gs
Vibration	Random vibration at 0.000075 G^2/Hz, 10 to 300 Hz, (0.15 Gs nominal)
Acoustic noise	40 dBA
Video and Audio Specifications	
Bandwidth	H.323 and SIP up to 4 Mbps
Video standards	· H.261 · H.263 · H.263+ · H.264
Live video resolutions	· QCIF (176 x 144 pixels) · CIF (352 x 288 pixels) · VGA (640 x 480) · 4CIF (704 x 576) · SVGA (800 x 600) · XGA (1024 x 768) · 448p (576 x 448) · w288p (512 x 288) · w448p (768 x 448) · w576p (1024 x 576) · 720p (1280 x 720): Supported for H.264 only
Audio standards	· G.711 · G.722 · G.722.1 · AAC-LD
Frame rates	Up to 60 frames per second (requires premium resolution option)
Network, Security, and Management Specifications	
System management and scheduling	· Allows for easy configuration using serial port management console · Allows for total management through embedded web server · Provides application programming interface (API) for customized integration · Allows for one click to record scheduled conferences with Cisco TelePresence Management Suite · Allows for simple addition of audio-only outputs for recording of scheduled conferences with Microsoft Outlook or IBM Lotus Notes · Uses Cisco TelePresence Management Suite to monitor Content Server status, such as free disk space · Allows administrators to set maximum streaming bandwidth limits to fit their network rules
Network interfaces	· Two Ethernet (10/100/1000 Mbps) (one for future use)

Firewall traversal	· Cisco TelePresence Expressway technology · Auto Network Address Translation (NAT) · H.460.18 · H.460.19 Firewall Traversal
Quality of service (QoS)	· Dynamic jitter buffering · Packet-loss concealment
Security features	· Secure management through Secure HTTP (HTTPS) · Integration with Active Directory through LDAP for access · Password-protected conferences · Full access control lists (ACLs) on all content library items
Physical Specification	
Form factor	1 rack unit (1RU) - Rack-mount
Dimensions (H x W x D)	1.7 x 16.9 x 20 in. (44 x 430 x 508 mm)
Weight	13.89 lbs (6.30 kg); packaging and accessories weight 6.39 lbs (2.9 kg); total shipping weight 20.28 lbs (9.2 kg)

Selected Part Numbers and Ordering Information

CTI-TCS-PROBUN-K9	Cisco TelePresence Content Service Premium Resolution bundle (hardware and software)
LIC-TCS-CLUSTER	Cisco TelePresence Content Service cluster option
LIC-TCS-PRO	Cisco TelePresence Content Service Premium Resolution Option (software only)

For More Information

http://www.cisco.com/go/mxe

Cisco Media Experience Engine 3500



Cisco Media Experience Engine 3500 (Cisco MXE 3500) is a powerful media-processing platform that helps organizations streamline operating costs associated with live media streaming, production, and distribution by delivering a rich set of any-to-any media-processing. For live media streaming, the Cisco MXE 3500 delivers a scalable and reliable way to easily leverage an organization's existing IP infrastructure to broadcast live events. It does so by delivering live transcoding and transrating to live IP streams and pushing the processed content out to a variety of Content Delivery Network (CDN) devices for scalable distribution.Comprehensive live and video on demand (VoD)-based transcoding services that allow you to share video content across your network to virtually any type of endpoint

- Innovative postproduction features that transform ordinary video content into studio-quality output
- Cutting-edge speech-to-text transcription services
- Pulse Video Analytics to make video searchable and navigable
- Innovative collaboration with other applications delivered by the Cisco suite of media products

The result is a powerful media-processing platform that allows IT administrators to significantly streamline operating costs associated with live media streaming, media production, and distribution.

Key Features and Benefits

- Exceptionally high-quality media transcoding and transrating for file-based and live multimedia assets for any-to-any capture and playback on the network and end devices
- Powerful workflow automation for processing source multimedia streams and files
- Professional array of video and audio enhancement options including studio-quality editing, graphic overlays, and watermarking
- Pulse video analytics for finding videos based on what's spoken and who's speaking
- An easy-to-use browser-based interface for managing content makes it easy for end users to transform videos without training or administrative assistance.
- Clustering option for high scalability and transcoding redundancy
- Support for live streaming formats including Windows Media and live MPEG-2 Transport Stream (MPEG-2 TS) so users can deliver live streams content to Cisco Digital Signs for communications, training, events or other applications.

Specifications

Supported input formats	Editing systems—Avid: Final Cut Pro: Adobe Premiere AVI: DVD VoB (Video over Broadband) files: QuickTime: All supported formats: MPEG-1: Elementary Stream, System Stream, and Layer II Audio: MPEG-2: Elementary, Program, and Transport Stream: PCM Audio: Layer II Audio: and AC3 Audio: MPEG-4: 3GPP and 3GPP2: AVI: Limited supported formats: DirectShow: All supported formats, WAV, Windows Media, VC-1, and H.264: Live input formats: MPEG2ts: Speech-to-text audio formats: wav, mp3, mp4, H264, and QuickTime

Supported output formats	· Windows Media: V7, V8, V9, MPEG-4V3, and ISO-MPEG4-V1 · Windows Media Audio: V2/V7/V8, ACELP.net, RealVideo10, RealVideo 9, RealVideo 8, and RealAudio 10 · RealAudio 8 QuickTime: All supported codecs, MPEG-4, On2 Flash 8, MP3, and WAV · Live output formats: WMV, FLV, and Real Media · Speech-to-text output formats: Text-only transcripts, text with time stamps transcripts, and XML
Preprocessing and media preparation	· Video: Blur, bumpers, and trailers; color space conversion; contrast enhancement; cropping; de-interlacing and interlacing; fade-in; and fade-out · In/out trimming: Field frame control, gamma correction, hue rotation, inverse telecine, noise reduction, saturation, support for 16 x 9 and other aspect ratios, add and remove letter boxing and curtaining, temporal smoothing, video frame-rate conversion and resizing with anti-alias filtering watermarking, automated thumbnail extraction, and speech-to-text captioning
Workflow automation	· Job submission: - Profile building: An automated system that allows you to quickly apply customized processing settings to new jobs - Monitoring: A summary screen that provides insight into the status of queued jobs - Automated Folder Attendant: A program that facilitates integration between external systems and the Cisco MXE 3500 platform
Dimensions and Environmental Operating Ranges	
Physical dimensions (H x W x D)	(1 rack unit [1RU]) 1.7 x 16.9 x 27.8 in. (4.3 X 42.9 X 70.6)cm
Operating temperature	50 to 95°F (10 to 35°C)
Nonoperating temperature	-40 to 149°F (-40 to 65°C)
Operating humidity	5 to 93% noncondensing
Nonoperating humidity	5 to 93% noncondensing
Operating altitude	0 to 10,000 ft (0 to 3,000m); maximum ambient temperature decreases by 1°C per 300m) (984 ft)
Nonoperating altitude	40,000 ft (12,000m)
Regulatory and Standards Compliance	
Safety	UL 60950-1 No. 21CFR1040; CAN/CSA-C22.2 No. 60950-1; NOM-NYCE; NOM-10-SCFI-10993; IRAM IEC60950-1; CB IEC60950-1; EN 60950-1; IEC 60950-1; GOST IEC60950-1; SASO SABS/CB IEC6095-1; CCC*/CB GB4943-1995; CNS14336; CB IEC60950-1; AS/NZS 60950-1; GB4943
EMC: Emissions	47CFR Part 15 (CFR 47) Class A; AS/NZS CISPR22 Class A; CISPR2 2 Class A; EN55022 Class A; ICES003 Class A; VCCI Class A; EN61000-3-2; EN61000-3-3; KN22 Class A; CNS13438 Class A
EMC: Immunity	· EN50082-1; EN61000-6-1; EN55024; CISPR24; EN300386; KN 61000-4 Series

Selected Part Numbers and Ordering Information

MXE-3500-K9	Cisco MXE 3500 Media Experience Engine Appliance (hardware only)
MXE-3500-3.0LIC-K9	Cisco MXE 3500 Media Experience Engine Software Version 3.0 (software only)
Optional Software Add-Ons	
MXE-3500-GR-LIC	Graphics
MXE-3500-STT-LIC	Speech to Text
MXE-3500-LIV-LIC	Live Ingest
MXE-3500-LIC-BUN	Graphics, Speech to Text & Live Bundle
MXE-3500-RM-LIC	Resource Manager
MXE-3500-RN-LIC	Resource Node

The MXE 3500 has limited availability and a New Product Hold (NPH) process has been implemented. The details of the NPH process are as follows:

- MPBU and WW Channels have implemented a New Product Hold on MXE products
- NPH is an instrument for MPBU to understand orders and focus resources appropriately on target markets
- NPH was chosen over ATP or Restricted Specialization programs to reduce sales cycles while ensuring successful deployments
- NPH does **not** signal quality or supply chain issues
- NPH will be released when orderability assurance and supportability requirements are met

For More Information

http://www.cisco.com/go/mxe

Cisco Media Experience Engine 5600

The Cisco Media Experience Engine 5600 (Cisco MXE 5600) is a modular, media processing platform that combines advanced media processing features with high performance and scalability to extend the reach of collaboration.

Based on the latest digital-signal-processor (DSP) and CPU architectures, the Cisco MXE 5600 comprises a modular architecture that allows you to grow your media-processing infrastructure incrementally as your needs increase. The modular design allows easy integration of new services and capabilities. The result is high-performance, high-density, highly scalable, and cost-effective processing of live media.

Key Features and Benefits

- Standards compliance—The media-processing capabilities of the Cisco MXE 5600 support a broad range of media codecs and formats, complying with industry standards to simplify interoperability with a range of systems and endpoints. The Cisco MXE 5600 supports standard SIP signaling for use in diverse communication and collaboration scenarios.
- Flexible transcoding—Both video and audio are converted among different standards, depending on the use case and the requirements of the source and destination endpoints. Using state-of-the-art DSP technologies, the Cisco MXE 5600 performs real-time transcoding of media, adapting to network bandwidth and endpoint requirements, while introducing negligible latency and maintaining the quality of the user experience even in live, interactive use cases.
- Automatic detection of endpoint capabilities—The Cisco MXE 5600 can detect the media format requirements (for example, codec, encapsulation, bit rate, frame rate, and so on) of a given endpoint without having to manually specify this information.
- Broad use case support—As a network-based system, the Cisco MXE 5600 can be accessed by endpoints and applications anywhere in the network. Support for a rich set of media and signaling standards allows you to use the Cisco MXE 5600 in a broad range of applications and use cases.
- Gateway functionality—The Cisco MXE 5600 has the ability to connect diverse sets of video endpoints, Cisco TelePresence systems, video conferencing endpoints, and unified communication devices, into shared environments while maintaining a consistent viewing experience.
- Media quality improvements—Through unique algorithms and the use of DSP-based architecture, the Cisco MXE 5600 has the ability to digitally upscale standard-definition video streams to ensure consistent video quality and experience across video endpoints.
- Cisco TelePresence WebEx One-Touch support—The Cisco MXE 5600 extends Cisco TelePresence WebEx OneTouch to bring Cisco TelePresence System endpoints and standards-based video conferencing endpoints into a WebEx meeting. Endpoints such as Tandberg, Polycom, Lifesize room systems, and a host of other standards based codecs can not only hear WebEx participants and see the content shared by a WebEx user, but these endpoints can also be seen and heard by WebEx participants, and can initiate a content sharing session with the WebEx participants.

Specifications

Note: Product features and specifications are subject to change.

Supported Standards	Description
Media Codecs	
H.264 base profile	Industry-standard video codec, high quality at low bit rates, commonly used in video conferencing
H.264 enhanced	As implemented by Cisco TelePresence conferencing application
Advanced Audio Codec (AAC) LD	Industry-standard low-bit rate audio codec; very low delay
G.711 (a- and mu-law)	Telephony-standard audio codec
G.722	Low-bit rate, high-quality audio codec
Transport Protocols	
RTP (RFC 3550)	Real-Time Transport Protocol: Standard video transport protocol
HTTP/HTTPS (RFCs 2616 and 2818)	Hypertext Transport Protocol (Secure)
TLS (RFC 5246)	Transport Layer Security
Signaling and Control Protocols	
SIP (RFC 3261)	Call-control signaling protocol for control of rich-media sessions
RTCP (RFC 3550)	Real-Time Control Protocol for media control

Selected Part Numbers and Ordering Information

The MXE 5600 has limited availability. Please check the website for latest orderability information.

For More Information

http://www.cisco.com/go/mxe

Broadband Cable

Cisco uBR7225VXR Universal Broadband Router



The Cisco uBR7225VXR is a low-cost entry to midlevel CMTS in a 2RU modular chassis, offering cable operators, multiunit businesses, and Internet service providers (ISPs) an excellent and cost-effective platform for the delivery of high-speed data, voice, and video services. This CMTS platform requires exceptionally low capital investment and minimal setup time, and it supports up to 5000 subscribers. The Cisco uBR7225VXR Universal Broadband Router is a service-enabling, communications-grade CMTS that offers high reliability, modular scalability, and significant investment protection. UBR7225VXR can be easily upgraded to DOCSIS3.0 with the latest UBR-MC88V line card.

Ideal for Companies That Need These Features

Cisco uBR7225VXR	· Low entry-level pricing · Modularity for capacity growth and minimal setup time · A higher-capacity platform without the need for the additional capacity of the Cisco uBR10012 or the larger form factor of the Cisco uBR7246VXR

Key Features and Benefits

- The Cisco uBR7225 Universal Broadband Router supports PacketCable 1.1, DOCSIS 1.1, Euro-DOCSIS 2.0, and PacketCable Multimedia, increasing return on investment for converged services and speeding deployment of advanced IP services.
- Supports DOCSIS3.0 and Euro-DOCSIS3.0 through the use of 8x8 line card
- This low-cost entry-level CMTS makes efficient use of capital expenditures while maintaining modularity for capacity growth.
- The Cisco uBR7225 provides up to 4 downstream and 16 upstream ports in a 2RU form factor.
- The router provides DOCSIS, Euro-DOCSIS, and J-DOCSIS support on one line card for operational savings and lower capital expenditures.

Specifications

Compact Design suitable for rack-mount (2-RU) pr desktop installation	Dimensions: H x W x D 3.5 x 17.32 x 21.8 in. (8.89 x 44.9 x 55.37 cm); 45 lb (20.4 kg) Front, mid, and rear mountable in a 19 in. EIA standard rack Depth fully loaded from the tip of cable management bracket to the tip of the UBR-NPE-G1 handle is 26.1 in. (66.29 cm)
Modulation	Downstream—64-QAM, 256-QAM Upstream—QPSK 8-, 16-, 32-, 64-QAM
Downstream frequency range	uBR-MC88V (uBR7200 Series MC88V Broadband Processing Engines): DOCSIS—6 MHz Annex B, 70–1G Hz; Euro-DOCSIS—8 MHz Annex A, 70–1G Hz uBR-MC28U (uBR7200 Series MC28U Broadband Processing Engines): DOCSIS—6 MHz Annex B, 88–860 MHz; Euro-DOCSIS—8 MHz Annex A, 85–860 MHz; J-DOCSIS—6 MHz Annex B extension, 70–860 MHz
Upstream frequency range	UBR-MC88V: DOCSIS—6 MHz Annex B, 5–42 MHz; Euro-DOCSIS—8 MHz Annex A, 5–65 MHz UBR-MC28U: DOCSIS—6 MHz Annex B, 5–42 MHz; Euro-DOCSIS—8 MHz Annex A, 5–65 MHz; J-DOCSIS—6MHz Annex B extension, 5–55 MHz
Included AC power supply	Single or dual redundant power supplies · 100 to 240 VAC input, 50/60 Hz frequency; 5.5 A maximum AC input current; 300W (maximum) output DC or 25 @ 11.28V; AC-input cable: 18-QEG4 3-wire cable with 3-lead IEC-320 receptacle on power supply end and country-dependent plug on power source end
Software Compatibility	The Cisco uBR7225VXR is supported in Cisco IOS Software Release 12.2SB, which includes PacketCable Multimedia Specification (PCMM), admission control, advanced-mode DOCSIS Set-Top Gateway (DSG), and Cisco Service Independent Intercept (SII) features.
Compatible Cisco Network Processing Engines (NPEs)	The Cisco uBR7225VXR must contain one uBR7200-NPE-G2 processor that must have at least 1 GB of DRAM; there is an upgrade option of a 2GB memory module that can be configured to be shipped with uBR7200-NPE-G2 to ensure best performance. FE/GE ports availability—3 GE ports (UBR-NPE-G2). Cisco UBR-MC88V is only supported by UBR-NPE-G2.

Line cards with integrated upconverters/modulators (cable plant interfaces)	Line cards supported: • UBR-MC88V Physical: • Occupies a single slot in the Cisco uBR7225VXR chassis • Maximum 2 line cards per uBR7225VXR chassis • Hot-swappable; no slot dependency • Dimensions (H x W x D): 1.4 x 15.154 x 11.531 in. (3.55 x 38.49 x 29.29 cm) Weight: • 6.06lbs (2.749 kg) Power consumption: • 90 watts (307 BTUs per hour) at 25°C • Integrated upconverter specifications • High-level output—+62 dBmV • Optimized for 64 and 256 quadrature amplitude modulation (QAM) • Software configurable from 52 to 62 dBmV output power in units of dBmV • uBR-MC28U Physical: • Occupies a single slot in the Cisco uBR7225VXR chassis • Maximum 2 line cards per uBR7225VXR chassis • Hot-swappable; no slot dependency • Dimensions (H x W x D): 1.4 x 15.154 x 11.531 in. (3.55 x 38.49 x 29.29 cm) • Weight: • 6lbs (2.72 kg) Power consumption: • 80 watts (273 BTUs per hour) at 25ûC • Integrated upconverter specifications • High-level output—+61 dBmV • Optimized for 64 and 256 quadrature amplitude modulation (QAM)

For More Information

http://cisco.com/en/US/products/ps8474/index.html

Cisco uBR7246XVR Universal Broadband Router

The Cisco uBR7246VXR Universal Broadband Router, a member of the Cisco uBR7200 Series, provides a single, Layer 3 routing, multiservice, scalable platform that gives cable companies the ability to deliver IP data, voice, and video services to DOCSIS, Euro-DOCSIS, and PacketCable-compliant cable modems, set-top boxes, and multimedia terminal adapters. uBR7246VXR can be easily upgraded to DOCSIS with the latest uBR-MC88V line card.



Ideal for Companies That Need These Features

Cisco uBR7246VXR

- Flexible port expansion for multiservice deployment options
- Service support for up to 10,000 subscribers per chassis with 3.2 Gbps back plane (numbers are for reference only. Actual numbers for specific systems will vary depending on network/service loading, traffic, and other parameters.)
- Powerful processor and edge intelligence; field-proven and carrier-class reliability
- Support for multimedia services
- High tolerance to hybrid fiber coaxial (HFC) network and spectrum noise

Key Features and Benefits

- Modular design—1,000 to 10,000 subscribers supported based on different configurations
- High availability for low cost maintenance
- Advanced physical layer (PHY)
- Full DOCSIS3.0 and Euro-DOCSIS3.0 compliance; Euro-DOCSIS 2.0 (A-TDMA only); DOCSIS 1.1 qualified, and PacketCable 1.1 qualified; tComLabs qualified to Euro-DOCSIS 1.0, 1.1, and 2.0 (A-TDMA only) specifications; also supports Advanced Mode DSG.
- Powerful Layer 3 routing intelligence and sophistication
- Upgrade path to DOCSIS3.0 through the use of Cisco uBR-MC88V line card

Specifications

Number of Cable Line Card Slots	4
Supported Cable Line Cards (Cable Plant Interfaces)	uBR7200 Series MC28U Broadband Processing Engines; uBR7200 Series MC88V Broadband Processing Engines
Port Adapter Slots (LAN/WAN Interfaces)	2
Supported PA categories	Ethernet Serial, HSSI, ATM, POS, DPT
Power Supply Slots	2

Input/Output (I/O) controller	uBR7200-I/O-2FE/E, not required if uBR7200-NPE-G1 or uBR-NPE-G2 are installed in the system
I/O flash options for PCMCIA slots	Flash disk (48 MB); Flash disk (128 MB)
Network Processing Engines (NPE)	uBR7200-NPE-G2
Add-on processor memory options	1 GB or 2 GB for uBR7200-NPE-G2
Router Bandwidth	3.2 Gbps

For More Information

http://www.cisco.com/en/US/products/hw/cable/ps2217/index.html

Cisco uBR10012 Universal Broadband Router



The Cisco uBR10012 Universal Broadband Router addresses the volume, capacity, and complexity of large cable headends or distribution hubs. The router delivers the highest level of service availability and capacity of any production cable modem termination system (CMTS) available today. It employs a mix of distributed, centralized, and parallel processing to facilitate consistently high, real-world performance. The Cisco uBR10012 is CableLabs qualified to PacketCable 1.1 and DOCSIS 2.0 specifications. The product is also qualified for EuroDOCSIS 2.0, and DOCSIS 3.0 Bronze specifications and full DOCSIS3.0 compliance.

The Cisco uBR10012 Universal Broadband Router powers the world's largest DOCSIS 3.0 downstream channel bonding install base, with more than 1 million revenue-generating subscribers and counting. The combination of the 20 downstream cards, 20 upstream RF cards, the 24 downstream channel bonding cards (wideband shared port adapter [SPA]), and the DOCSIS Timing Interface (DTI) card on the Cisco uBR10012, allows the deployment of DOCSIS 1.1 and 2.0 modems along with the new DOCSIS 3.0 modems for downstream channel bonding over low-cost video-on-demand (VoD) edge quadrature-amplitude-modulation (QAM) ports.

The new Cisco uBR-MC3GX60V Broadband Processing Engine (BPE) is a high-capacity, DOCSIS 3.0-capable line card for the Cisco uBR10012 Universal Broadband Router. With 72 DOCSIS downstream and 60 upstream channels per card, the uBR-MC3GX60V BPE sets a new benchmark for scalable, faster, and cost-effective DOCSIS 3.0 Cable Modem Termination System (CMTS) solutions. With the addition of the uBR-MC3GX60V BPE, the Cisco uBR10012 platform scales to an unprecedented 576 modular DOCSIS downstream channels and 480 upstream channels, or approximately 24 Gbps of downstream throughput and 14.4 Gbps of upstream throughput, in a single, carrier- class chassis.

The Cisco uBR10012 CMTS with the uBR-MC3GX60V BPE delivers 10 times the capacity and 20 times the speed of DOCSIS 2.0 solutions at only a fraction of the cost. Because it bonds 24 DOCSIS channels (or 18 EuroDOCSIS channels) per bonding group, the solution allows cable operators to deliver ultra-broadband services with maximum downstream speeds approaching 1.0 Gbps per subscriber. A fully loaded Cisco uBR10012 CMTS with the Cisco uBR-MC3GX60V BPE can deliver 500 HDTV channels, video-on-demand (VoD), and ultra-broadband services to 20,000 homes.

With new hardware support of the Cisco 10000 Performance Routing Engine 4 (PRE4) processor, the 10 Gigabit Ethernet WAN card, and the 6-wideband SPA carrier starting in January 2009, the Cisco uBR10012 Universal Broadband Router provides a maximum of 304 downstream ports per chassis to meet ever-increasing IP data, voice, and video bandwidth needs.

Ideal for Companies that Need These Features

Cisco uBR10012

- Large subscriber bases
- Edge routing or aggregation of DOCSIS traffic
- High-end throughput, capacity, and service handling
- Advanced multimedia service delivery
- Sophisticated Layer 3 routing intelligence
- Complex network interface configurations

Key Features and Benefits

- Powerful processing and throughput
- Five 9's availability
- Highest density and capacity—5,000 to 64,000 subscribers
- Scalable, real-world proven performance
- A-TDMA and DOCSIS 2.0 support
- S-CDMA and full DOCSIS3.0, EuroDOCSIS3.0 support
- Advanced intelligence features
- With UBR-MC20x20V line card, Cisco offers pay-as-you-grow flexibility with software licensing for downstream channels (0DS, 5DS, 10DS, 15DS, and 20DS SW licenses are offered

Specifications

Modular Slots	Flash—48 MB; System—128 MB

Supported Cards	Cisco MC5X20H Broadband Processing Engine (BPE), Cisco MC20X20H Broadband Processing Engine (BPE); Cisco 24-port Wideband Downstream Shared Port Adapter; Cisco 5-Port Gigabit Ethernet Shared Port Adapter; Cisco 1-Port 10GE LAN-PHY Shared Port Adapter, and Gigabit Ethernet Half-Height (HH-1GE) network uplink card
Processor Type	Parallel Express Forwarding (PXF)
Flash Memory	64 MB (default); 128 MB (maximum)
DRAM Memory	1 GB DRAM minimum
Software Supported	Cisco IOS Software Release 12.2(33)SCD recommended; Cisco IOS Software Release 12.2(33)SCC; Cisco IOS Software Release 12.3(9)BC minimum to support the Cisco PRE-2, Cisco IOS Software Release 12.3(13)BC minimum to support the Cisco Gigabit Ethernet Half-Height Line Card, Cisco IOS Software Release 12.3(17)BC2 minimum to support the Cisco MC5X20H BPE; Cisco IOS Software Release 12.2(33)SCB minimum to support the Cisco Performance Routing Engine 4, Cisco 10000 Series SPA Interface Processor-600, Cisco 5-Port Gigabit Ethernet Shared Port Adapter, and Cisco 1-Port 10GE LAN-PHY Shared Port Adapter.
Power Supply	DC, AC
Hot-Swappable	Yes
Backplane Capacity	51.2 Gbps
Dimensions (H x W x D)	31.25 x 17.2 x 22.75 in. (79.4 x 43.7 x 57.8 cm)—18 rack units (RU) Mounting: 19 in. rack mountable (front or rear), 2 units per 7 ft. rack Note: Mounting in 23 in. racks is possible with optional third-party hardware
Weight	235 lb. (106.6 kg) fully-configured chassis

With the uBR-MC3GX60V line card, Cisco provides true cost flexibility for operators with licensing options that offer a pay-as-you-grow model. The software licensing capability combined with the adaptability of the modular CMTS architecture allows a customer to turn up and move ports and bandwidth to different service groups as needed, without fear of stranding downstream or upstream ports. The base hardware and 16 upstream and 16 downstream channel licenses constitute the minimum configuration supported. Additional optional licenses are available for purchase up to the full capacity of 72 DOCSIS downstream (or 54 Euro DOCSIS downstream) and 60 upstream channels.

Specifications

Physical	Occupies a single slot in the Cisco uBR10012 chassis Interface: line card single mode with intermediate reach connector Hot-swappable; no slot dependency Weight: 11.6 lb (5.26 kg) Dimensions (H X W X D): 21.5 x 1.38 x 17 in. (54.61x 3.51 x 43.18 cm)
Environmental	Operating altitude: -197 to 13,123 ft (-60 to 4000m) Storage temperature: -4 to 149°F (-20 to 65°C) Operating temperature, nominal: 41 to 104°F (5 to 4 0°C) Storage relative humidity: 5 to 95% Operating relative humidity: 10 to 90% Max heat dissipation: 190W, or 648 BTU/hr
Reliability and availability	Designed for five 9s of availability
Power	Unit Power: 246W
Software Release	Cisco IOS Software Release 12.2(33)SCE or later
LED	One power LED (green) One status LED (green/yellow): solid green indicates the processor has booted and passed its diagnostics; LED blinks green on a protect card, yellow when in one of the booting states Maintenance (yellow): indicates the line card can be removed One upstream-enabled LED on each upstream port (green): upstream path is configured and able to pass traffic One downstream-enabled LED on GE0 through GE5 (green): DEPI port is configured and able to pass traffic LK/ACT0-LK/ACT5 LED (blinking green) indicates port enabled with DEPI traffic and LED (Solid Green) indicates port enabled with no DEPI traffic Front panel display for licenses: First two digits signify downstream licenses and next two digits signify upstream licenses installed
Power Supply	Dual AC or DC PEMs must be installed at all times
Supported SFP	SFP-GE-T (1000BASE-T) GLC-SX-MM (1000BASE-SX) GLC-LH-SM (1000BASE-LX/LH) GLC-ZX-SM (1000BASE-ZX)
Hardware	Dual Cisco UBR10-DTCC are required
Flash Memory	At least 1 GB of Flash memory is required for Cisco IOS Software

Selected Part Numbers and Ordering Information

Cisco uBR10012 Series Chassis Bundles	
U10012-1D5X20H-C	UBR10012 with PRE-2, DTCC and 1 MC5X20H card
U10012-1M5X20H-C	UBR10012 with PRE-2, TCC and 1 MC5x20 Cards
U10012-2M5X20H-HA	UBR10012 with 2 PRE-2, 2 TCC and 2 MC5x20 Cards
U10012-2D5X20H-HA	UBR10012 with 2 PRE-2, 2 DTCC and 2 MC5X20H cards
Cisco uBR10012 Series Pricing Bundles	
UBR10-P2TG	Bundle incl. 1 PRE2, 1 TCC+, 1 HH-1GE, 1 HH-CARRIER
UBR10-P2TG-HA	Bundle incl. 2 PRE2, 2 TCC+, 2 HH-1GE, 1 HH-CARRIER
UBR10-P2DTG	Bundle incl. 1 PRE2, 1 DTCC+, 1 HH-1GE, 1 HH-CARRIER
UBR10-P2DTG-HA	Bundle incl. 2 PRE2, 2 DTCC, 2 HH-1GE, 1 HH-CARRIER
UBR10-P2DT5G	Bundle incl. 1 PRE2, 1 DTCC+, 1 4-SPA SIP, 1 5x1 GE SPA
UBR10-P2DT5G-HA	Bundle incl. 2 PRE2, 2 DTCC, 2 4-SPA SIP, 2 5x1 GE WAN SPA
UBR10-P4DT5G	Bundle incl. 1 PRE4, 1 DTCC+, 1 4-SPA SIP, 1 5x1 GE WAN SPA
UBR10-P4DT5G-HA	Bundle incl. 2 PRE4, 2 DTCC, 2 4-SPA SIP, 2 5x1 GE WAN SPA
UBR10-P4DT10G	Bundle incl. 1 PRE4, 1 DTCC+, 1 4-SPA SIP, 1 1x10 GE WAN SPA
UBR10-P4DT10G-HA	Bundle incl. 2 PRE4, 2 DTCC, 2 4-SPA SIP, 2 1x10 GE WAN SPA
UBR-5G-SIP-D3SPA	UBR10K bundle, includes 1 5 GE SPA, 1 DS SPA, 1 SPA carrier
UBR-10G-SIP-D3SPA	UBR10K bundle, includes 1 10 GE SPA, 1 DS SPA, 1 SPA carrier
UBR-4MC20X20V-5D	4 for 3 Bundle for 5x20V. Must order with 10K chassis
UBR-4MC20X20V-20D	4 for 3 Bundle for 20x20V. Must order with 10K chassis
Cisco uBR10012 Series Line Cards	
SPA-24XDS-SFP=	24-port uBR10012 Wideband Downstream Shared Port Adapter
UBR10-2XDS-SIP	Cisco uBR10012 Wideband Downstream-only SPA Carrier Card
UBR10-2XDS-SIP=	Cisco uBR10012 Wideband Downstream-only SPA Carrier Card
SPA-24XDS-SFP	24-port uBR10012 Wideband Downstream Shared Port Adapter
UBR10-MC5X20H-D	uBR10K High-Performance Card, 5DS w/upx, 20US, Spec An
UBR10-MC5X20H-D=	uBR10K High-Performance Card, 5DS w/upx, 20US, Spec An
UBR10-4MC5X20H-D	4 UBR10-MC5X20H-D Line cards
UBR-MC20X20V-20D	Cisco 20x20V DOCSIS 3.0 Broadband Processing Engine—Base hardware + 20 downstream and 20 upstream license
UBR-MC20X20V-5D	Cisco 20x20V DOCSIS 3.0 Broadband Processing Engine—Base hardware + 5 downstream and 20 upstream license
UBR-MC20X20V-0D	Cisco 20x20V DOCSIS 3.0 Broadband Processing Engine—Base hardware + 0 downstream and 20 upstream license
L-UBR-SWLIC-5DS	+5 downstream upgrade license
L-UBR-SWLIC-15DS	+15 downstream upgrade license
L-UBR-SWLIC-20DS	+20 downstream upgrade license
L-UBR-SWLIC-5DS	+5 downstream upgrade license
10000-SIP-600	Cisco 10000 Series SPA Interface Processor-600
10000-SIP-600=	Cisco 10000 Series SPA Interface Processor-600
SPA-5X1GE-V2	Cisco 5-Port Gigabit Ethernet Shared Port Adapter
SPA-5X1GE-V2=	Cisco 5-Port Gigabit Ethernet Shared Port Adapter
SPA-1X10GE-L-V2	Cisco 1-Port 10GE LAN-PHY Shared Port Adapter
SPA-1X10GE-L-V2=	Cisco 1-Port 10GE LAN-PHY Shared Port Adapter
Cisco uBR10012 Series Processors	

ESR-PRE2/R	Performance Routing Engine, 1GB DRAM, 64MB Flash
ESR-PRE2=	Performance Routing Engine
ESR-PRE4	Performance Routing Engine 4
ESR-PRE4=	Performance Routing Engine 4
Cisco uBR10012 Series Coax Cables	
CAB-RFSW520QTIMF2	Quad-shield RF cable bundle, MC520 to HFC plant, 3m
CAB-RFSW520QTIMF2=	Spare quad-shield RF cable bundle, MC520 to HFC plant, 3m
CAB-RFSW520QTPMF2	RF cable bundle, MC520/RFSW to HFC plant, 3m, with UCH2
CAB-RFSW520QTPMF2=	Spare RF cable bundle, MC520/RFSW to HFC plant, 3m, with UCH2
CAB-RFSW520QTIMM2	Quad-shield RF cable bundle, MC520 to RF switch, 1m, with UCH2
CAB-RFSW520QTIMM2=	Spare quad-shield RF cable bundle, MC520 to RF switch, 1m, with UCH2
Cisco uBR10012 3G60 Series RF Line Cards	
UBR-MC3GX60V(=)	Cisco 3GX60V DOCSIS 3.0 Broadband Processing Engine; Base HW
SWLIC-MC3GX60V-DS	1 Count of DS license (minimum 16)
SWLIC-MC3GX60V-US	1 Count of US license (minimum 16)
Cable Kits for 3G60 RF Line Cards	
CABRFSW3G60QTIMF2	3G60 to RF Plant
CABRFSW3G60QTIMF2=	3G60 to RF Plant
CABRFSW3G60QTPMF2	RF Switch to HFC Plant
CABRFSW3G60QTPMF2=	RF Switch to HFC Plant
CABRFSW3G60QTIMM2	3G60 to RF Switch
CABRFSW3G60QTIMM2=	3G60 to RF Switch

For More Information

http://www.cisco.com/en/US/products/hw/cable/ps2209/index.html

Cisco uBR 3x10 RF Switch

The Cisco uBR 3x10 RF Switch is an integral part of the Cisco uBR10012 High Availability solution. It offers a fully redundant system that helps cable operators exceed PacketCable system availability, minimize service disruptions, and simplify operations.



Ideal for Companies that Need These Features

Cisco uBR 3x10 RF

- Advanced services such as VoIP, DSG STB deployments, and highly available commercial services
- Carrier-class N+1 network and service architecture
- High-density high-availability service support
- Scalability to tens of thousands of subscribers

Key Features and Benefits

- N+1 redundancy
- Hot swap capability of all RF switch modules with no RF service disruption
- Support for DOCSIS and Euro-DOCSIS RF performance specifications
- Comprehensive set of high availability features
- Redundancy Readiness Verification, for proactive redundancy health monitoring and reporting
- Fully passive working path
- Position-sensing latching relays
- Unmatched port density and flexibility

Specifications

Input Power Requirements	AC—100 to 240 VAC, 50 to 60 Hz, operating range: 90 to 254 VAC; DC—-48 to -60 VDC, operating range: 140.5 to -72 VDC, 200 mVpp ripple/noise
Unit Control	10BaseT Ethernet—SNMP; Switching time from active (working) to standby (protect)—150 mS maximum after SNMP command

Connectors	RF connectors—MCX; AC power—IEC320 type; DC power—Three terminal block; Ethernet—RJ-45; RS-232 Bus—9-pin male D
RF Requirements	Input/output impedance: 75 ohms; maximum RF input power: +15 dBm (63.75 dBmV); Switch type: Electro-mechanical, absorptive for working path, non-absorptive on the protect path; Switch setting time per switch module: 20 ms maximum; Downstream frequency range: 54 to 860 MHz; Typical downstream insertion loss: +/- 1.1 dB from CMTS to cable plant; +/- 2.1 dB from protect to cable plant; 5.5 dB from working to output; 8.0 dB from, protect to output Downstream insertion loss flatness: +/- 1.1 dB from CMTS to cable plant; +/- 2.1 dB from protect to cable plant Downstream output return loss: > 15.0dB at <450 MHz, > 12.0 dB at >= 450 MHz; Downstream input return loss: > 15.0 dB; Downstream isolation: > 60 dB from channel to channel in working mode; > 52 dB from CMTS to protect when in protect mode; Upstream frequency range: 5 to 70 MHz; Typical upstream insertion loss: 4.1 dB from cable plant to CMTS; 5.2 dB from cable plant to protect; Upstream insertion loss flatness: +/- 0.4 dB from cable plant to CMTS; +/- 0.6 dB from cable plant to protect; Upstream input return loss: > 16 dB; Upstream isolation: >60 dB from channel to channel in working mode: > 60 dB from CMTS to protect when in protect mode; Protect mode: CMTS return loss > 10 dB, cable plant return loss: > 10 dB
Reliability	41,000 MTBF @ +50C as calculated by BellCore 5, 80 percent confidence factor
Dimensions (H x W x D)	5.25 x 17.5 x 14.8 in. (13.335 x 44.45 x 37.592 cm)
Environmental	Operational temperature range—0 to +40C; Operating temperature range—-5 to +55C
Weight	36 lbs.

Selected Part Numbers and Ordering Information

Cisco RF Switch Series	
UBR-RFSW	N+1 RF Switch for CMTS Routers
Cisco RF Switch Series Cables	
CAB-RFSW520QTPMF2	Cisco RF cable bundle, MC520/RFSW to HFC plant, 3m, with UCH2
CAB-RFSW520QTPMF2=	Spare RF cable bundle, MC520/RFSW to HFC plant, 3m, with UCH2
CAB-RFSW520QTIMM2	Quad-shield RF cable bundle, MC520 to RF switch, 1m, with UCH2
CAB-RFSW520QTIMM2=	Spare quad-shield RF cable bundle, MC520 to RF switch, 1m, with UCH2

For More Information

http://www.cisco.com/en/US/products/hw/cable/ps2929/index.html

Cisco Services

Realize the full business value of your video technology investments faster with smart, personalized services from Cisco and our partners.

Backed by deep networking expertise and a broad ecosystem of partners, Cisco Services enable you to successfully plan, build, and run your network as a powerful business platform.

Whether you are looking to quickly seize new opportunities to meet rising customer expectations, improve operational efficiency to lower costs, mitigate risk, or accelerate growth, we have a service that can help you.

For more information about Cisco Services, visit http://www.cisco.com/go/services/businessvideo.

Chapter 8: Optical Networking

This chapter provides only a subset of Cisco products and part numbers.

Optical Networking At-a-Glance

Product	Features	Page
Cisco ONS Multiservice Transport Platforms	· Solution delivers integrated, intelligent dense wavelength-division multiplexing (DWDM) functions, including fully reconfigurable optical add/drop multiplexer (ROADM) technology for metropolitan, regional networks, and long-haul networks (from 32 to 80 wavelengths per node) · Offers a compact 40 wavelengths ROADM solution 2 or 4 degrees, based on the Single Module ROADM technology and 2-slot / 6-slot compact chassis · Offers multiservice time-division multiplexing (TDM) and data aggregation over 2.5- and 10-Gbps wavelengths · Video services include D1 and high-definition television (HDTV)	8–1
Cisco ONS 15216 Metropolitan/Regional DWDM System	· Supports 32 ITU-grid wavelengths launched by the Cisco ONS 15454 MSTP, ONS MSPP, ONS 15600, ONS 15310, or alien wavelengths and creates a more desirable per-wavelength cost · Optical add/drop multiplexer (OADM) · Cisco ONS 15216 (EDFA3) Metropolitan/Regional DWDM System · Compact, modular design	8–5
Cisco ONS Multiservice Provisioning Platforms	· Integrates the functions of traditional SONET or SDH network elements with next-generation SONET/SDH transport and multiservice interfaces. · Solution combines multiplexing, optical networking, and switching functions for CPE, access, metro edge and metro core topologies while dramatically reducing initial turn-up costs · Provides switching, grooming, aggregation, and bandwidth-management capacity in a single shelf · Combines the functions of multiple metro systems, including SONET/SDH multiplexers and digital cross-connect network elements · Provides carrier-class availability, serviceability, and management · Offering includes Cisco ONS 15600, ONS 15454 MSPP, ONS 15310 MA, ONS 15310 CL, and ONS 15305.	8–7
Cisco Carrier Packet Transport (CPT) 50, CPT 200, and CPT 600 Series; Cisco Packet Transport 256G, four 10 Gigabit Ethernet Fabric; and Cisco Packet Transport Module, four 10 Gigabit Ethernet	· Carrier-Class Packet Transport technology · Technology Agility – MPLS-TP, IP/MPLS, and Carrier Ethernet in a single platform · Industry-first MPLS-TP-capable platform · Point-to-point and point-to-multipoint services · Industry-leading Ethernet access density up to 880 Gigabit Ethernet	8–10

Cisco ONS Multiservice Transport Platforms

The Cisco ONS 15454 Multiservice Transport Platform (MSTP) sets the industry benchmark for dense wavelength-division multiplexing (DWDM) solutions, delivering simple, fast, and intelligent DWDM capabilities and lowering capital and operating expenditures.



The Cisco ONS 15454 MSTP provides capital and operational efficiency by addressing the increasing demand for multiple services, greater transport capacity, networking flexibility, multiple distance options, and management simplicity in a single platform. With innovative technology, Cisco ONS 15454 MSTP introduces intelligence to DWDM transmission, thus allowing the optimization of next-generation networks across multiple layers and removing costly Optical-Electrical-Optical (OEO) devices for network segmentation or regeneration.

The Cisco ONS 15454 MSTP provides features such as multilayer graphical network, node, and card visibility; comprehensive network-based service provisioning; and graphical software wizards to simplify and speed user operations for such tasks as initial network turn-up; service provisioning; and network, node, and bandwidth upgrades. The Cisco ONS 15454 MSTP uses the embedded software architecture and control plane to introduce a level of operational simplicity exceptional in DWDM networks.

Ideal for Companies That Need These Features

Cisco ONS 15454 M12 MSTP	· 12-slot chassis · For metro and core applications where the integration of individual optical line cards within the platform allows the intelligent software engine to assist in installation and provisioning · Supports all ROADM, XPonder, transponder and muxponder, packet, and MSPP applications
Cisco ONS 15454 M6 MSTP	· 6-slot chassis · For edge aggregation solutions with the integrated AC power module to metro core applications with reconfigurable optical add/drop multiplexers (ROADMs) · Low power consumption · High-speed backplane for future applications
Cisco ONS 15454 M2 MSTP	· 2-slot chassis · From access aggregation solutions with the integrated AC power module to core applications such as optical line amplifiers the flexible Cisco ONS 15454 M2 supports a broad range of solutions. · Similar features as the Cisco ONS 15454 M6 MSTP

Key Features and Benefits

- Scalable C-band wavelength count (1–80) for superior cost-growth trade-off, on the same fiber pair.
- Transport of 150-Mbps to 40-Gbps wavelength services, as well as aggregated TDM, Ethernet, and storage data services, for maximum service flexibility and bandwidth optimization.
- Multiple chassis options: The classic 12-slot (17 slots total), 48 VDC, small-footprint M12 chassis is available with AC or DC power supply. The M6 chassis provides six available slots for traffic (eight slots total). Like the M12 chassis, it supports a multishelf configuration to extend the total node capacity. The M2 chassis provides two slots for traffic (three slots total). The M2 runs with a single node controller.
- Efficient Gigabit Ethernet and 10 Gigabit Ethernet transport over DWDM with Cisco XPonder service blades.
- MSPP-on-a-Blade Card, combining 10-Gbps add/drop multiplexer (ADM) and transport functions using multirate Small Form-Factor Pluggable (SFP) (client) and 10 Gigabit (XFP).
- 40-Gbps Enhanced FEC Full Band Tunable CP-DQPSK Muxponder Card and 40-Gbps continuous-phase (CP)-DQPSK Full C-Band Tunable Transponder Card provide exceptional performances for 40G transmission, allowing the Cisco ONS 15454 MSTP to transmit up to 3.20 Tbps over 80 channels at 40 Gbps at distances up to 3000 km.
- Flexible transmission capability up to 2000 miles (more than 3200 km) through the use of advanced Erbium-Doped Fiber Amplifier (EDFA) amplification, joint Raman and EDFA amplification, and FEC or EFEC technologies to support a wide range of networking applications.
- Fully reconfigurable ROADMs for superior network flexibility and reduced complexity.
- Mesh and multiring topology support in the optical domain with the capacity to manage nodes facing up to 8 degrees.
- Single-module ROADM solutions that dramatically improve system density and flexibility to support Degree-2 or mesh node configurations up to Degree-4 through the integration of ROADM and optical amplification into single-slot units
- Omnidirectional and colorless support for ROADM nodes to allow service creation and restoration in a fully automated way (software provisioning).
- Flexible add-drop capabilities, from 1- to full 112-channel granularity, supporting both band and channel optical add-drop multiplexers (OADMs).
- Fully automatic node and network setup with the capacity to use the intuitive DWDM network design tool (Cisco TransportPlanner) for PC-aided design, installation, commissioning, and evolution of the network.
- Network topology autodiscovery supported directly at the network element level (Craft interface), allowing Element Manager System (EMS)-like functions directly through the platform-embedded software.
- Network-level and node-level alarm correlation performed directly by the embedded network element software to allow a simpler and faster reaction to fault situations by providing only the root cause of the problem to the management interface.
- Virtual transponder operation for routers (such as the Cisco CRS-1 Carrier Routing System) equipped with a DWDM physical interface module (PLIM), allowing end-to-end service provisioning between routers through the complete DWDM network directly from the Cisco Transport Controller.
- Network-level functional view to give Cisco ONS 15454 MSTP customers the capability to manage and monitor optical circuits between source and destination nodes
- In addition to the integrated software features, the Cisco ONS 15454 MSTP is supported by an easy-to-use but powerful network design tool, the Cisco Transport Planner. Cisco Transport Planner is a user-friendly, Java-based application for modeling and optimizing DWDM networks based on the user's network parameters. Cisco Transport Planner also reduces operational expenditures by simplifying network deployments.

Specifications

Feature	Cisco ONS 15454 M12 MSTP	Cisco ONS 15454 M6 MSTP	Cisco ONS 15454 M2 MSTP
Service Slots	12	6	2
Maximum Capacity	Line cards: 6x 40Gb/s (240Gb/s) Ethernet: 120 GE's + 12x 10GE's	Line cards: 3x 40Gb/s (120Gb/s) Ethernet: 60 GE's + 6x 10GE's	Line cards: 1x 40Gb/s (40Gb/s) Ethernet: 20 GE's + 2x 10GE's

Redundant Processor card	Yes, dual redundant	Yes, dual redundant	No, single, has a built-in memory module to back up the software package
Internal Power Supply	No	AC or DC, dual option	AC or DC, dual option
Redundant Power Supply	Yes, dual DC	Yes, dual AC or DC	No, redundant A and B feeds
Power Requirements	Typical/Maximum Watts Terminal node 253W/403W 2-degree ROADM node 461W/641W 8-degree ROADM node 809W/1,118W 2-degree SMROADM node 265W/447W 4-degree SMROADM node 313W/561W Line Amplifier node 200W/307W	Fan tray 120W AC power module 500W DC power module 40W	Fan tray 40W AC power module 300W DC power module 30W
Chassis Height	ANSI 11 RU ETSI 14 RU	6 RU	2 RU
Rack Mountable	Yes, up to 3 per rack	Yes, up to 7 per rack	Yes, up to 21 per rack
Dimensions (H x W x D)	ANSI: 18.5 x 17.6 x 12 in. (469.9 x 447 x 304.8 mm) ETSI: 24.3 x 17.5 x 11 in. (616.5 x 445 x 280 mm)	10.5 x 17.5 x 11 in. (265.4 x 443.3 x 280 mm)	3.5 x 17.2 x 11 in. (87.9 x 436.4 x 280 mm)

Selected Part Numbers and Ordering Information

Cisco ONS 15216	
15454-SA-HD= 15454-SA-HD-DDR= 15454E-SA-ETSI=	Shelf assembly, Cisco ONS 15454
15454-TCC2P-K9= 15454E-TCC2P-K9= 15454-TCC3-K9= 15454E-TCC3-K9=	Timing, Communications, and Control Card, Version 2 Plus (TCC2P), 15454 chassis Timing, Communications, and Control Card, Version 2 Plus (TCC2P), 15454E chassis Timing, Communications, and Control Card, Version 3 (TCC3), I-Temp, 15454 chassis Timing, Communications, and Control Card, Version 3 (TCC3), I-Temp, 15454E chassis
15454-CC-FTA= 15454E-CC-FTA= 15454-FTA3-T= 15454E-FTA-48V=	Controlled cooling fan-tray assembly, includes fan-tray filter Fan-tray assembly, includes fan-tray filter
15454E-CTP-MIC48V=	Mechanical interface card, craft, timing, and power inputs, ETSI
15454E-AP-MIC48V=	Mechanical interface card, alarm, and power inputs, ETSI
15454-AIR-RAMP= 15454E-AIR-RAMP=	Air ramp (ships with ANSI 19-in. and 23-in. and ETSI 600mm mounting brackets)
15454-AIC-I= 15454E-AIC-I=	Alarm Interface Controller, international card
15454-BLANK= 15454E-BLANK= 15454E-BLANK-FMEC=	Shelf slot-filler panel, fits any slot in Cisco ONS 15454 ANSI shelf assembly Shelf slot-filler panel, fits any slot in Cisco ONS 15454 ETSI shelf assembly Shelf FMEC slot-filler panel, fits Cisco ONS 15454 ETSI shelf assembly
15454-MS-ISC-100T=	Integrated 100T Ethernet switch for multishelf management
15454-EAP-MF=	Mechanical frame for Ethernet adapter panel (ships with ANSI 19-in. and 23-in. and ETSI 600mm mounting brackets). Ships with 2x RJ-45/RJ-45 cables (0.15m) to connect MS-ISC units with the TCC2P units and with 1x RJ-45/RJ-45 cable (0.5m) to connect the MS-ISC units among themselves.
15454-EAP=	Ethernet adapter panel (to be used with MS-ISC-100T to allow proper cable management)
15454-MEC=	Multiple Ethernet cable to replicate the MS-ISC-100T Ethernet ports on the EAP unit
Cisco ONS 15454 M6 MSTP—Common Equipment	
15454-M6-SA=	6-service-slot MSTP shelf, includes M-SHIPKIT, M6-FTF
15454-M6-DC=	6-service-slot MSTP chassis DC power filter

15454-M6-AC=	6-service-slot MSTP chassis AC power supply
15454-M6-DR=	6-service-slot MSTP chassis door
Cisco ONS 15454 M6 MSTP—Common Equipment	
15454-M2-SA=	2-service-slot MSTP shelf, includes M-SHIPKIT, M2-FTF
15454-M2-DC=	2-service-slot MSTP chassis DC ANSI filter with memory
15454-M2-DC-E=	2-service-slot MSTP chassis DC ETSI filter with memory
15454-M2-AC=	2-service-slot MSTP chassis AC power supply with memory
15454-M2-DR=	2-service-slot MSTP chassis door
Cisco ONS 15454 M6 and M2 MSTP—Common Equipment	
15454-M-TNC-K9= 15454-M-TSC-K9=	Transport Node Controller for M2 and M6 chassis Transport Shelf Controller for M2 and M6 chassis
Common Equipment	
15454-PP-64-LC= 15454-PP2-64-LC= 15454-PP-80-LC=	64-port fiber patch-panel shelf, 1 rack unit (1RU) high, LC-to-LC connectors, 32 duplex LC adapters, supports up to 8 multifiber cable assemblies (1 MPO to 8x LC), includes 2 MPO to 8x LC 2.3-meter cable assemblies (uninstalled). Ships with ANSI 19-in. and 23-in. and ETSI 600mm mounting brackets. 64-port fiber patch-panel shelf, 2RU high, LC-to-LC connectors, 32 duplex LC adapters, includes 8 MPO to 8x LC 2.3-meter cable assemblies (precabled). Ships with ANSI 19-in. and 23-in. and ETSI 600 mm mounting brackets. 80-port fiber patch-panel shelf, 2RU high, LC-to-LC connectors, 40 duplex LC adapters, includes 10 MPO to 8x LC 2.3-meter cable assemblies (pre-cabled). Ships with ANSI 19-in. and 23-in. and ETSI 600 mm mounting brackets.
15454-PP-MESH-4= 15454-PP-MESH-8=	Degree-4 mesh patch panel, 2RU high, 1x LC and 1x MPO adapter per direction. Ships with ANSI 19-in. and 23-in. and ETSI 600 mm mounting brackets. Degree-8 mesh patch panel, 2RU high, 1x LC and 1x MPO adapter per direction. Ships with ANSI 19-in. and 23-in. and ETSI 600 mm mounting brackets.
15454-PP-4-SMR=	Degree-4 mesh patch panel for single-mode ROADM, 1RU high, 1x MPO adapter per direction. Ships with ANSI 19-in. and 23-in. and ETSI 600 mm mounting brackets.
15454-FBR-STRG=	Fiber-storage shelf, supports eight 2-meter ribbon cables (8-fiber) plus 40 2-meter 2-mm fiber cables. Ships with ANSI 19-in. and 23-in. and ETSI 600 mm mounting brackets.
Service Interfaces	
15454-10DME-C=	10-Gbps E-FEC data muxponder card, 8x SFP-based client interfaces, full C-band tunable on 50-GHz ITU wavelengths (Odd and Even), DWDM line with LC connectors
15454-10DMEX-C=	10-Gbps E-FEC data muxponder card, 8x SFP-based client interfaces, full C-band tunable on 50-GHz ITU wavelengths (Odd and Even), DWDM line with LC connectors. Extended version of 15454-10DME-C= leveraging on 2nd Generation Maximum Likelihood Sequence Estimation (MLSE)
15454-10E-L1-C=	10-Gbps E-FEC multirate transponder card, 1x XFP-based client interface, full C-band tunable on 50-GHz ITU wavelengths (Odd and Even), DWDM line with LC connectors
15454-10EX-L1-C=	10-Gbps E-FEC multirate transponder card, 1x XFP-based client interface, full C-band tunable on 50-GHz ITU wavelengths (Odd and Even), DWDM line with LC connectors. Extended version of 15454-10E-L1-C= leveraging on 2nd Generation MLSE
15454-10GE-XPE=	10GE E-FEC Ethernet Enhanced Crossponder, 2x XFP-based client interfaces, 2x XFP-based trunk interfaces
15454-10ME-L1-C=	4x OC-48/STM-16 E-FEC muxponder card, 4x SFP-based client interfaces, full C-band tunable on 50-GHz ITU wavelengths (Odd and Even), DWDM line with LC connectors
15454-10MEX-L1-C=	4x OC-48/STM-16 E-FEC muxponder card, 4x SFP-based client interfaces, full C-band tunable on 50-GHz ITU wavelengths (Odd and Even), DWDM line with LC connectors. Extended version of 15454-10ME-L1-C= leveraging on 2nd Generation MLSE
15454-ADM-10G=	10Gbps E-FEC ADM-On-A-Blade, 16x SFP-based client interfaces, 1x XFP-based interconnection interface, 2x XFP-based trunk interfaces
15454-GE-XPE=	GE E-FEC Ethernet Enhanced Crossponder, 20x SFP-based client interfaces, 2x XFP-based trunk interfaces
15454-OTU2-XP=	4x OTN E-FEC Multirate Xponder, 2x XFP-based trunk/client FEC interfaces, 2x XFP-based trunk/client E-FEC interfaces
15454-40E-MXP-C=	4x10GE/OC192/STM64/OTU2 Muxponder CP-DQPSK Extended Performance
15454-40ME-MXP-C=	4x10GE/OC192/STM64/OTU2 Muxponder CP-DQPSK Metro Edge Performance
15454-40E-TXP-C=	OC-768/STM-256/40GE Transponder CP-DQPSK Extended Performance
15454-40ME-TXP-C=	OC-768/STM-256/40GE Transponder CP-DQPSK Metro Edge Performance

Optical Transmission Elements	
15454-40-DMX-C=	40-channel demultiplexer 100-GHz (for use with 40-WSS-C, 40-MUX-C or 40-WXC-C), C-band, Odd grid, MPO connectors for drop path, LC connector for interconnection, includes one 2m LC/LC fiber-optic cables
15454-40-DMX-CE=	40-channel demultiplexer 100-GHz (for use with 40-WSS-CE), C-band, Even grid, MPO connectors for drop path, LC connector for interconnection, includes one 2m LC/LC fiber-optic cables
15454-40-MUX-C=	40-channel multiplexer 100-GHz (for use with 40-DMX-C or 40-WXC-C), C-band, Odd grid, MPO connectors for add path, LC connector for interconnection, includes one 2m LC/LC fiber-optic cables
15454-40-WXC-C=	40-channel wavelength cross connect 100-GHz, C-band, Odd grid, MPO connector for interconnection with Mesh Patch Panel, LC connectors for interconnection, includes one 2m LC/LC fiber-optic cable
15454-80-WXC-C=	80-channel wavelength cross connect 50-GHz, C-band, Odd and Even grid, LC connectors
15454-40-SMR1-C=	40-channel single-module ROADM, 100-GHz, C-band, LC connectors for interconnection and add path, includes one 2-meter LC/LC fiber-optic cable and one 0-dB LC/LC loopback (to be used if DCU is not required). Combines the OSC add/drop filter, a preamplifier and a 2x1 WSS-based ROADM core into a single slot unit.
15454-40-SMR2-C=	40-channel single-module ROADM, 100-GHz, C-band, LC connectors for interconnection, MPO connector for interconnection with Mesh Patch Panel, includes one 0-dB LC/LC loopback (to be used if DCU is not required). Combines the OSC add/drop filter, PRE and BST amplifiers and a 4x1 WSS-based ROADM core.
15216-MD-40-ODD=	40-Channel Multiplexer and Demultiplexer Passive Patch Panel, 100-GHz, C-band – Odd, 2RU high, 40 duplex LC add and drop ports, 3 duplex LC ports for internal and monitor connections, USB port for passive inventory. Ships with ANSI 19-in. and 23-in. and ETSI 600mm mounting brackets.
15454-OPT-AMP-17C=	Optical amplifier, 17dBm output power, 17dB gain, can be configured as preamplifier or booster, C-band, 80-channel, 50-GHz compatible, LC connectors, includes two 2-meter LC/LC fiber-optic cables
15454-OPT-AMP-C=	Enhanced optical amplifier, 20dBm output power, can be configured as preamplifier or booster, C-band, 80-channel, 50-GHz compatible, LC connectors, midstage access, includes one LC/LC loopback (to be used if DCU is not required) and two 2m LC/LC fiber-optic cables
15454-OPT-PRE=	Optical preamplifier, 17dBm output power, C-band, 80-channel, 50-GHz compatible, LC connectors, midstage access, includes one 4-dB LC/LC attenuated loopback (to be used if DCU is not required)
15454-OPT-RAMP-CE=	Extended Performance Optical Raman amplifier with embedded EDFA, 500mW total counter-propagating Raman pump power, 2 pump wavelengths, 20dBm EDFA output power, C-band, 80-channel, 50-GHz compatible, LC connectors, midstage access, includes one LC/LC loopback (to be used if DCU is not required) and two 2m LC/LC fiber-optic cables
15454-M-RAMAN-CTP	High Power Counter-Propagating, 1W optical pump output power, C-band, 96 channel 50GHz Raman unit with 2 LC-LC 2m cables and 2 ES 2000 PS LC 2m cables.
15454-M-RAMAN-COP	High Power Co-Propagating, 1W optical pump output power, C-band, 96 channel 50GHz Raman unit with 2 ES 2000 PS PC 2m cables.
15454-OPT-EDFA-17	Enhanced C-band 96 channel low cost amplifier 17 dB max gain, 50 GHz compatible, LC connector
15454-OPT-EDFA-24	Enhanced C-band 96 channel low cost amplifier 24 dB max gain, 50 GHz compatible, LC connector
15454-OSCM=	Optical service channel card, 1510-nm, LC connectors, includes two 2m LC/LC fiber-optic cables
15454-PSM=	Protection Switching Module, LC connectors

For More Information

http://www.cisco.com/en/US/products/hw/optical/ps2006/ps5320/index.html

Cisco ONS 15216 Metropolitan/Regional DWDM System



The Cisco ONS 15216 Metropolitan/Regional DWDM System is a suite of products that enable the Cisco ONS 15454 MSTP product line to address the very edge of the optical network in a cost-effective manner without sacrificing operational ease of use. The Cisco ONS 15216 edge product line contains the following filter options:

- Granular 4-channel Optical Add/Drop Multiplexer (OADM)
- Optical Supervisory Channel (OSC) OADM

- 8-channel CWDM multiplexer/demultiplexer

This mix of filter options enables the Cisco ONS 15454 MSTP to address edge DWDM network applications such as building simple point-to-point data center applications, enabling WDM into cell sites, and extending wavelength services out to the customer premises.

Ideal for Companies That Need These Features

Cisco ONS 15216 Metropolitan/Regional DWDM System

- Standard network topologies such as point-to-point and open rings
- For metro edge applications where low cost and simplicity are critical without sacrificing operational ease of use
- For use in nodes where there is a known maximum capacity and therefore ROADM is not required
- Can be deployed with the Cisco ONS 15454 MSTP for extended capabilities
- Best operational efficiency, with no power requirement

Key Features and Benefits

- Cost effective for both DWDM and CWDM applications
- 40 C-band 100GHz DWDM channels or 8 CWDM channels
- Best-in-class operational efficiency, with no electrical power requirements
- Low optical insertion loss for improved distance and performance
- USB port for passive inventory
- Cisco Transport Controller manageable for advanced fault isolation
- Cisco Transport Planner support for efficient network design verification

Specifications

Feature	15216-HD-EXT-PNL=	15216-FLD-4-xx.x= 15216-FLD-OSC=	15216-FLC-CWDM-8=
Number of Channels	-	40 DWDM channel on 100GHz grid	8 CWDM channels
Channel wavelengths		Minimum 1530.33 nm (195.9 THz) Maximum 1561.42 nm (192 THz) Spacing 0.8 nm (100 GHz) OSC Min. 1500 nm Max. 1520 nm	Minimum 1470 nm Maximum 1610 nm Spacing 20 nm
Connector Type	-	LC UPC II	LC UPC II
Power Supply	-	No, passive	No, passive
USB Port Power	-	400mW - 600mW	400mw – 600mW
Chassis Height	1 RU	-	-
Weight	0.5 pounds (0.23 kg)	2 pounds (0.91 kg)	3 pounds (1.36 kg)
Dimensions (H x W x D)	1.74 x 19.0 x 0.39 in. (44.3 x 482.6 x 10.0 mm)	0.67 x 7.05 x 6.50 in. (17.0 x 179.0 x 165.0 mm)	1.39 x 7.05 x 6.50 in. (35.2 x 179.0 x 165.0 mm)

Selected Part Numbers and Ordering Information

Cisco ONS 15454 M12 MSTP—Common Equipment	
15216-HD-EXT-PNL=	ONS 15216 Edge Mounting Bracket
15216-FLD-4-30.3=	Edge 4-Ch Bi-Directional OADM Mod 1530.33 to 1532.68
15216-FLD-4-33.4=	Edge 4-Ch Bi-Directional OADM Mod 1533.47 to 1535.82
15216-FLD-4-36.6=	Edge 4-Ch Bi-Directional OADM Mod 1536.61 to 1538.98
15216-FLD-4-39.7=	Edge 4-Ch Bi-Directional OADM Mod 1539.77 to 1542.14
15216-FLD-4-42.9=	Edge 4-Ch Bi-Directional OADM Mod 1542.94 to 1545.32
15216-FLD-4-46.1=	Edge 4-Ch Bi-Directional OADM Mod 1546.12 to 1548.51
15216-FLD-4-49.3=	Edge 4-Ch Bi-Directional OADM Mod 1549.32 to 1551.72
15216-FLD-4-52.5=	Edge 4-Ch Bi-Directional OADM Mod 1552.52 to 1554.94
15216-FLD-4-55.7=	Edge 4-Ch Bi-Directional OADM Mod 1555.75 to 1558.17
15216-FLD-4-58.9=	Edge 4-Ch Bi-Directional OADM Mod 1558.98 to 1561.42

15216-FLC-CWDM-8=	Edge 8-Ch CWDM Mux/Dmx Module
15216-FLD-OSC=	Edge Optical Service Channel Add / Drop

For More Information

http://www.cisco.com/en/US/products/hw/optical/ps1996/index.html

Cisco ONS Multiservice Provisioning Platforms



Cisco's range of SONET and SDH TDM multiservice provisioning and aggregation platforms provide a critical building block in today's optical networks. IThese platforms are capable of aggregating traditional facilities including DS-1, DS-3, STS-1, OC-3/STM-1, OC-12/STM-4, OC-48/STM-16 along with data services onto a single optical transport facility through OC-48/STM-16, OC-48/STM-16 DWDM, and OC-192/STM-64 line interfaces.

The Cisco ONS Multiservice Provisioning Platforms consist of the ANSI/SONET products Cisco ONS 15310CL, Cisco ONS 15310MA, Cisco ONS 15454, and Cisco ONS 15600, and the ETSI/SDH products, Cisco ONS 15310ME, Cisco ONS 15454E, and Cisco ONS 15600E.

Ideal for Companies That Need These Features

Cisco ONS 15310CL

- An economical, ultra-compact (1RU) delivery platform supporting PDH and Ethernet termination and optimized for use as the last network element, at the customer location (CL), in a service provider's network, or for use as an end node in enterprise or campus environments.

Cisco ONS 15310MA

- High-density Electrical PDH, Ethernet, or optical interface termination in a very compact 6RU chassis that optimizes use of expensive real estate at the central office or remote terminal cabinet.
- The efficient switching of Ethernet and TDM traffic to allow traffic aggregation at a central office or service collection at the customer premises.

Cisco ONS 15454

- Supercharged transport capability by combining the best of a traditional SONET TDM (time-division multiplexing) system along with statistical multiplexing in a single platform. Traditional services include DS-1, DS-3, STM-1, OC-3, STM-1, OC-12, STM-4, OC-48, and STM-64, while data services include 10BASE-T, 100BASE-T, or Gigabit Ethernet, with aggregation and support to/from OC-48, OC-48 DWDM, and OC-192 line interfaces. The platform flexibility enables drastically improved efficiencies in the transport layer and breakthrough cost savings for initial and lifecycle deployment.

Cisco ONS 15600

- A high capacity platform to simplify bandwidth management in the metro core by allowing service providers to integrate their metro core and metro edge networks, providing carrier-class availability, serviceability, software, and management throughout the network.

Key Features and Benefits

- The Cisco ONS Multiservice Provisioning Platforms enable service provider and enterprise customers to build robust, scalable, multiservice transport networks to support their metropolitan-area (metro) or regional, public, and private communication needs. Common management and features across the product family allow the realization of transparent transport networks from the customer premises to the core. The product family is ideal for the realization of:
  - Multiservice, SONET/SDH/WDM intra-office networks
  - Business access networks
  - Managed services networks
  - Bandwidth manager at interexchange carrier (IXC) offices
  - Voice switch interface
  - DSL access multiplexer (DSLAM) trunk aggregation and transport
  - High-speed router or ATM switch link extender
  - Wireless cell site traffic aggregation and transport
  - Cable TV backbone data and voice network
  - Storage transport networks
- Flexible optical networking—Many factors, including access to physical media (that is, fiber, coaxial, etc.), capital budget, time to market, etc. influence the final design of a network. To accommodate the wide deployment needs, the Cisco ONS Multiservice Provisioning Platforms are designed with flexible, ready-to-use card architecture and comprehensive optical operating software, enabling support for multiple capabilities from a single platform type.
- Resilient transport—SONET and SDH provide carrier-class circuit protection with sub-50-millisecond (ms) restoration and multilayer performance-monitoring statistics, which enable proactive maintenance and reduced communication downtime.
- Flexible bandwidth—Network bandwidth can be matched to user demand with plug-in optical cards, with support from 155 Mbps to 10 Gbps for SONET/SDH and 1.5 Mbps to 1 Gbps for Ethernet cards. In-service bandwidth upgrades help ensure that the network will meet current and future demands.
- Integrated multiservice aggregation—Cisco ONS Multiservice Provisioning Platforms consolidate SONET/SDH, DWDM transmission, Layer 2 and Layer 3 packet-processing functions, and storage area network (SAN) transport with the intelligence of an IP-based management plane in a single, cost-effective family.

- Integrated element management—Each of the Cisco ONS Multiservice Provisioning Platforms offers operational simplicity through an integrated, network-based GUI, the Cisco Transport Controller, which simplifies the setup, provisioning, and maintenance of the transport network.
- Optical transport domain manager—Cisco Transport Manager, the industry's most advanced optical transport domain manager, delivers the full power of the Cisco ONS 15000 Series Optical Networking System to the operations personnel and back-office systems of today's network operators.

Specifications

Feature		ANSI/SONET			
		15310CL	15310MA	15454	15600
Throughput (Gbits)		1.2	5	80	320
Rack units		1	6	13.5	14.5
Max. Ports	DS-1	21	336	224	
	DS-3	3	12	192	
	EC-1	3	12	192	
	FE	8	32	96	
	GE		24	20	128
	OC-3	2	2	32	128
	OC-12	2	2	32	128
	OC-48		2	24	128
	OC-192			4	32
Feature	ETSI/SDH				
		15310ME	15454E	15600	
Throughput (Gbits)		5	60	320	
Rack units		6	13.5	14.5	
Max. Ports	E1	252	252		
	E3	12	96		
	DS-3	12	96		
	FE	32	96		
	GE	24	20	128	
	STM-1	2	32	128	
	STM-4	2	32	128	
	STM-16	2	24	128	
	STM-64		4	32	

Selected Part Numbers and Ordering Information

Cisco ONS 15310CL	
15310-CL-DC-K9	ONS 15310 customer-located DC chassis subassembly
15310-CL-AC-K9	ONS 15310 customer-located AC chassis subassembly
15310-ML-100T-8	15310-CL ML series 8-port 10/100 Ethernet
15310-CL-100T-8	15310-CL CL series 8-port 10/100 Ethernet
Cisco ONS 15310MA	
15310-MA-SA	Metro access chassis, backplane, common BIC
15310-CTX-2500-K9	MA control, sync, x-connect 480 STS-1, 2128 VT1.5
15310-MA-FTA	Shelf Fan Tray Assembly, Includes Fan Tray Filter
15310-84WBE-3BBE	84-port DS1 and 3-port DS3E/EC-1
15310-28WBE-3BBE	28-port DS1 and 3-port DS3E/EC-1
15310-P-ML-100T-8	15310-CL & 15310-MA ML series 8 port 10/100 Ethernet
15310-P-CE-100T-8	15310-CL & 15310-MA CE series 8-port 10/100 Ethernet
15310-EXP-FILLER	15310 blank expansion module
Cisco ONS 15454	
15454-SA-HD	15454 SA HD NEBS3 ANSI w/ RCA and Ship Kit

15454-TCC3-K9	Timing, Communications, Control Three, I-temp,15454 chassis
15454-XC-VXC-10G	Cross-Connect Module, High Cap. Tributary
15454-AEP	15454 Alarm Expansion Panel - ANSI support only
15454-AIC-I	Alarm Interface Card Enh Intl, I-Temp
15454-CC-FTA	Shelf Controlled Cooling Fan Tray, ANSI, HPCFM, I-Temp
15454-10G-XR	10G, Any Reach, XFP compatible (Ordered Separately)
15454-MRC-I-12	OC3/12/48, 12 ports, IOF
15454-ML-MR-10	ML2 10-pt Multi-rate L2/RPR Card
15454-MRC-2.5G4	OC3/12/48, 2.5G Max, 4 ports, IOF
15454-ML100T-12	10/100Mbps Ethernet, 12 Ckt, L2/L3
15454-ML100X-8	100Mbps Fiber Ethernet ML-Series, 8 SFP Ckt, L2/L3
15454-CE-MR-10	Carrier Ethernet card - 10 port Multirate 10/100/1000 Mbps
15454-CE-100T-8	8x10/100T Carrier Ethernet
15454-FC-MR-4	Fibre Channel/FICON, 1-/2-Gbps, 4-Ckt, SL-Series
15454-DS1-14	DS1, 14 Ckt., I-Temp
15454-DS1E1-56	DS1/ E1, 1:N, 56 ports, I-Temp
15454-DS1N-14	DS1, 1:N, 14 Ckt, I-Temp
15454-DS3-12E	DS3, Enhanced PM, 12 Ckt, I-Temp
15454-DS3EC1-48	DS3, 48 Ckt., reqs SA-HD shelf assembly
15454-DS3N-12E	DS3, 1:N, Enhanced PM, 12 Ckt, I-Temp
15454-DS3XM-12	DS3, Transmux, 12 Ckt, I-Temp
15454-BLANK	Empty slot Filler Panel
Cisco ONS 15600	
15600-SA	Main Shelf Assembly
15600-PDU	Power Distribution Unit includes, PS-A, PS-B and Alarm
15600-FTA2	Fan Tray Assembly
15600-CAP2	Customer Access Panel
15600-SSXC	New SSXC Core Cross Connect, 6144 STS1
15600-TSC	Timing Shelf Controller
15600-ASAP-CC	Any Slot Any Port Carrier Card, plugs into any IO slots
15600-ASAP-1PIO	Single Any Slot, Any Port, IO Board w/ 1 Entry XFP/PPM
15600-ASAP-4PIO	Single Any Slot Any Port IO board with 4 empty SFP/PPM slots
15600-IO-FILLER	Input-Output filler card
Cisco ONS 15310ME	
15310E-MA-SA	15310E MA CHASSIS WITH 120 OHMS BITS TERMINATION
15310E-CTX-K9	MA CONTROL, SYNC, XCONNECT 160 AU4 5G LO
15310-MA-FTA	Shelf Fan Tray Assembly, Includes Fan Tray Filter
15310E-84WBE-3BBE	15310E E1/E3/DS3 TRIBUTARY CARD-HIGH DENSITY PORTS
15310E-28WBE-3BBE	15310E E1/E3/DS3 TRIBUTARY CARD-LOW DENSITY PORTS
15310E-P-CE-100T-8	15310E 8 PORT 10/100 ETHERNET L1 ONLY, ETSI VERSION
15310-EXP-FILLER	15310 blank expansion module
Cisco ON 15454E	
15454E-SA-ETSI	ONS 15454 SDH ETSI Chassis and Ship-Kit
15454E-TCC3-K9	Timing, Communications, Control Three, I-temp,15454E chassis
15454E-XC-VXC-10G	SDH HO/LO XC, 60G VC-4, 5G VC-12/11 - ANSI/ETSI Support
15454E-CC-FTA	48V Controlled Cooling Fan Tray with filter for ETSI Chassis
15454E-AIC-I	SDH Alarm Interconnect module - ANSI/ETSI Support
15454E-AP-MIC48V	ONS15454SDH Alarm,-48V PwrMgmt IF Conn
15454E-CTP-MIC48V	ONS15454SDH Craft, Timing, -48V PwrMgmt IF Conn
15454E-10G-XR	10G, Any Reach, XFP compatible (Ordered Separately)
15454E-MRC-I-12	STM1/4/16, 12 ports, IOF - ANSI/ETSI Support
15454E-MRC-2.5G12	STM1/4/16, 2.5G Max, 12 ports, IOF

15454E-ML-MR-10	ML2 10-pt Multi-rate L2/RPR Card
15454E-ML100T-12	Ethernet, 12Ckt.- ANSI/ETSI Support
15454E-ML100X-8	100Mbps Fiber Ethernet, 8 SFP Ckt, L2/L3- ANSI/ETSI Support
15454E-CE-MR-10	Carrier Ethernet card - 10 port Multirate 10/100/1000 Mbps
15454E-CE-100T-8	8x10/100T Carrier Ethernet - ANSI/ETSI Support
15454E-FC-MR-4	Fibre Channel/FICON, 1-/2-Gbps, 4-Ckt. - ANSI/ETSI Support
15454E-E1-42	15454 International ETSI chassis 42 part E1 module
15454E-E1-120PROA	HD E1 120 ohm FMEC, 1:3 protection Side A
15454E-E1-120PROB	HD E1 120 ohm FMEC, 1:3 protection Side B
15454E-E1-120NP	HD E1 120 ohm FMEC, No Protection
15454E-E3-12	12 port E3 Module (1:1 only) - need FMEC
15454E-DS3IN-12	12 port DS3 Module (1:N<=4) - need FMEC
15454E-E3DS3-FMEC	12 port E3/DS3 75ohm FMEC (T54)
15454E-BLANK	15454 ETSI Blank Module (Slot Filler)
15454E-BLANK-FMEC	15454 ETSI Blank Module for FMEC (Slot Filler)

For More Information

http://www.cisco.com/go/optical

Cisco Carrier Packet Transport (CPT) 600 Series, Cisco Packet Transport 256G, Four 10 Gigabit Ethernet Fabric, Cisco Packet Transport Module, Four 10 Gigabit Ethernet



The Cisco Carrier Packet Transport (CPT) 50, CPT 200, and CPT 600 set the industry benchmark as a carrier-class converged access and aggregation platform for Cisco Unified Packet Transport architectures. The Cisco CPT product family represents an exciting new paradigm in the world of packet transport, with exceptional pay-as-you-grow scalability, carrier-class reliability, incredible flexibility, and TDM-like ease of packet service provisioning, OAM, and protection capability.

The CPT platform has great revenue potential for service providers by providing TDM-like Ethernet private lines as well as multipoint capabilities for business, residential, mobile backhaul, data center, and video services. These next-generation services can be readily deployed at low operational costs using the Cisco Transport Controller and Cisco Transport Manager tools that allow fast and simple network turn-up, A-to-Z provisioning, and OAM features. First to market with advanced standards-based MPLS-Transport Profile (TP) management for Ethernet aggregation and transport, MPLS-TP combines the feature richness of MPLS with the simplicity of transport operational models.

The Cisco CPT 200 and CPT 600 can be configured with integrated DC or AC power inputs. The DC power module has inputs for redundant A and B feeds. The integrated AC power module has a single input, and is universal in that it accepts a power input ranging from 110 to 240 VAC, 50 to 60 Hz. With its front-facing connections, the Cisco CPT 200 and CPT 600 is ideal for cabinet installations and ETSI front connection requirements, making this platform truly global.

In addition to MPLS-TP, the CPT product portfolio can support IP/MPLS and native Ethernet-based transport solutions, giving customers data- and control-plane flexibility as the network evolves. Its small form, simplicity, unique set of integrated features, and low power consumption reduce capital and operational expenditures. The CPT Family reduces total cost of ownership based on its innovative satellite architecture that centralizes the management and allows scalable Ethernet fan-out.

The Cisco CPT 50 Series satellite panel can be an extension of the Cisco CPT 200 or CPT 600 Packet Transport Fabric and Modules, thereby extending the service interface up by a factor of 10. The Cisco CPT architecture is designed to provide a la carte options to deploy packet transport, MSTP, or OTN switched networks, allowing the customer to reduce day-one costs and grow capabilities as required.

Ideal for Companies That Need These Features

Cisco Carrier Packet Transport 600

- 6-slot chassis
- For edge Ethernet access and aggregation using packet transport
- In applications where a small footprint and simplicity are required
- Unique set of integrated features—MPLS-TP, IP/MPLS and Carrier Ethernet with DWDM integration
- Low power consumption
- High-speed backplane for future applications

Cisco Carrier Packet Transport 200	· 2-slot chassis · For edge Ethernet Access & Aggregation using Packet Transport · In applications where a small footprint and simplicity is required · Unique set of integrated features - MPLS-TP, IP/MPLS and Carrier Ethernet with DWDM Integration · Low power consumption · High speed backplane for future applications
Cisco Packet Transport 256G, four 10 Gigabit Ethernet Fabric	· Fits in with the Cisco CPT600 and CPT 200 platforms · For edge Ethernet access and aggregation using packet transport · In applications where a small footprint and simplicity are required · Unique set of integrated features—MPLS-TP, IP/MPLS, and Carrier Ethernet with DWDM integration · Low power consumption · Low-cost 10 Gigabit Ethernet SFP+ interfaces · High-speed backplane for future applications
Cisco Packet Transport, four 10 Gigabit Ethernet Module	· Fits in with the Cisco CPT 600 and CPT 200 platforms · For edge Ethernet access and aggregation using packet transport · In applications where a small footprint and simplicity are required · Unique set of integrated features—MPLS-TP, IP/MPLS, and Carrier Ethernet with DWDM integration · Low power consumption · Low-cost 10 Gigabit Ethernet SFP+ interfaces · High-speed backplane for future applications

Key Features and Benefits

- Carrier-class packet transport technology
- Technology agility—MPLS-TP, IP/MPLS, and Carrier Ethernet in a single platform
- Industry-first MPLS-TP-capable platform
- Point-to-point and point-to-multipoint services
- Industry-leading Ethernet access density up to 880 Gigabit Ethernet
- The Cisco CPT control cards have features such as multilayer graphical network, node, and card visibility; A-to-Z network-based service provisioning; and graphical software wizards to simplify and speed user operations for such tasks as initial network turn-up; service provisioning; and management of satellite panels
- Cisco CPT platform and cards provide both dense hierarchical QoS and support for Layer 2 services and features, using MPLS-TP, MPLS, or Layer 2 Ethernet-based technologies.
- Up to 64K queues per card, 16,000 service interfaces, 256K MAC addresses in a 6-RU NEBS/ETSI compliant chassis.
- The platform and control cards also contain synchronization circuitry, a Stratum-3 clock and dedicated backplane timing traces, enabling transport-class network timing and support for network-synchronized services and applications such as mobile backhaul and migration of TDM services.
- The Cisco CPT 600 chassis has two slots for redundant control cards and six slots for service cards. These six line card slots connect across the backplane to provide redundant aggregation and switching capability.
- The Cisco CPT 600 can be configured with integrated and redundant DC or AC power inputs. A single power module could be used for low-power and low-cost configurations.
- The Cisco CPT 200 chassis has one slot for software and database backup in the LCD panel and two slots for service cards. These two line-card slots connect across the backplane to provide redundant aggregation and switching capability.
- The Cisco CPT 200 can be configured with integrated and 0:1 nonredundant DC or AC power inputs.

Specifications

Feature	Carrier Packet Transport 600	Carrier Packet Transport 200
Service Slots	6	2
Maximum Capacity	Line cards: 3x 40Gb/s (120Gb/s) Ethernet: 60 GE's + 6x 10GE's	Line cards: 2x 40Gb/s (120Gb/s) Ethernet: 176 GE's + 4x 10GE's
Redundant Processor card	Yes, dual redundant	0:1 Redundant
Internal Power Supply	AC or DC, dual option	AC or DC, dual feeds
Redundant Power Supply	Yes, dual AC or DC	Yes, dual AC or DC
Power Requirements	Fan tray 120W AC power module 500W DC power module 40W	Fan tray 40W AC power module 300W DC ANSI power module 30W DC ETSI power module 30W

Chassis Height	6 RU	2 RU
Rack Mountable	Yes, up to 7 per rack	Yes, up to 7 per rack
Dimensions (H x W x D)	10.5 x 17.5 x 11 in. (265.4 x 443.3 x 280 mm)	3.46 in. (H) x 17.18 in. (W) x 11.02 in. (D) 87.9 mm (H) x 436.4 mm (W) x 280 mm (D)

Description	Specification
Interface Support	
Pluggable SFP+ (PTM) and XFP (PTF) Interfaces	SFP+ interfaces provide mix/match interface types across a single line card. For a complete list of supported interfaces, please see the Cisco CPT pluggable configuration guide.
Scalable and Integrated Multiservice Support	
Layer 2	Combined Carrier Ethernet, MPLS-Transport Profile (TP), & IP/MPLS
Point to Point Ethernet Virtual Circuit (EVC)	16K Point to Point EVC
Point to Multi-Point Ethernet Virtual Circuit (EVC)	4K Point to Multi-Point EVC with 8K members
Multicast Groups	2K
MAC Address	256K
MPLS-Transport Profile (TP) Tunnels	4K
Point to Point MPLS-Transport Profile (TP) Circuits	8K
VPLS Pseudowires over MPLS-TP LSP	8K
MPLS-Transport Profile (TP) LSPs	4K
MPLS-TP & MPLS-TE Multi-Segment Pseudowires	4K
Virtual Forwarding Instances (VFI's)	4K
Policers	8K Policers 2-rate 3-color (2R3C)
Egress queues	64K Queues (3-level H-QoS)
Evolutionary Monitoring	
Carrier-class Operations, Administration, and Maintenance (OA&M)	IETF MPLS-TP Continuity Checks (CC) Bidirectional Forwarding Detection (BFD) (RFC5860) IETF MLS-TP Continuity Verification (CV) LSP Ping and LSP Traceroute IP/MPLS OAM Virtual Circuit Connectivity Verification (VCCV), Ping, and Traceroute
Network Timing & Synchronization	
Synchronous Ethernet	Derive and provide synchronization from BITS and Ethernet interfaces on CPT 200 and 600
IEEE 1588v2	Derive, provide, and transparently passes timing and frequency information on all CPT 200 and 600 Ethernet interfaces
Functionality, Benefits, and Specifications	
Cisco Transport Software Support	· Cisco Transport Controller: End-to-End Network Point and Click Provisioning, Maintenance, & Alarm Correlation. · Integrated Robust Command Line Interface (CLI)
MPLS-Transport Profile (TP)	IETF Standard Based MPLS-Transport Profile: · RFC 5317 · RFC 5654 · RFC 5921 · RFC 5880 · RFC 5960 · RFC 5586 · RFC 5951 · RFC 5950

Flexible Ethernet services	· Ethernet Virtual Connections (EVCs): Ethernet services are supported using individual EVCs to carry traffic belonging to a specific service type or end user through the network. EVC-based services can be used in conjunction with MPLS-based L2VPNs and native Ethernet switching deployments. · Flexible VLAN classification: VLAN classification into Ethernet flow points (EFPs) includes single-tagged VLANs, double-tagged VLANs (QinQ and 802.1ad), contiguous VLAN ranges, and noncontiguous VLAN lists. · IEEE Bridging: The line cards support native bridging based on IEEE 802.1Q, IEEE 802.1ad, and QinQ VLAN encapsulation mechanisms. · Resilient Ethernet protocol (REP): The REP provides a resilient, fast-convergence mechanism for aggregating and connecting to Ethernet-based access rings.
L2VPN services	· MPLS-TP Circuit with Ethernet over MPLS-TP (EoMPLS-TP): EoMPLS-TP transports Ethernet frames across an MPLS-TP LSPs using pseudowires. Individual EFPs or traffic from an entire port can be transported over an MPLS-TP network using pseudowires to an egress interface or sub-interface. · Virtual Private LAN Services (VPLS): These services are included in a class of VPN that supports the connection of multiple sites in a single bridged domain over a MPLS-TP network. VPLS presents an Ethernet interface to customers, simplifying the LAN and WAN boundary for service providers and customers, and enabling rapid and flexible service provisioning, because the service bandwidth is not tied to the physical interface. All services in a VPLS appear to be on the same LAN, regardless of location. · Pseudowire redundancy: Pseudowire redundancy supports the definition of a backup pseudowire to protect a primary pseudowire in case of failure. · Multi-segment pseudowire stitching: Multi-segment pseudowire stitching is a method for interworking two pseudowires together to form a cross-connect relationship.
Multicast	· IGMP v2 and v3 snooping: This Layer 2 mechanism efficiently tracks multicast membership on an L2VPN network. Individual IGMP joins are snooped at the VLAN level or pseudowire level. In residential broadband deployments, this scenario enables the network to send only channels that are being watched to downstream users. · Multicast VLAN Registration (MVR): MVR optimizes the control plane (IGMP) load between the router and switch. MVR feature enables switch to aggregate different JOINs received on different VLANs (from the receivers) into one JOIN (on a single VLAN, which could be the same as or different from the VLANs of the receiving ports) towards the router. The switch then distributes (replicate) the received content into the relevant ports.
OA&M	· IP/MPLS OA&M: Virtual Circuit Connectivity Verification (VCCV), Ping, and Traceroute · MPLS-TP OAM: The line cards support MPLS-TP OAM with GACH/GAL support. MPLS-TP BFD OAM Support. · Ethernet OAM will be supported in a follow-up release as a software upgrade.
High Availability	· MPLS-TP: 1:1 MPLS TP LSP delivers Layer 1 protection switching for networks with sub-50ms APS switching for link, node, path failures. · Bidirectional Forwarding Detection (BFD): BFD is a detection protocol that is designed to provide fast forwarding path-failure detection times for all media types, encapsulations, topologies, and routing protocols. · 802.3ad Link Aggregation Bundles: The line cards support a bundle of multiple links to provide added resiliency and the ability to load balance traffic over multiple member links.
Manageability	Cisco Transport Manager is the industry's most advanced optical transport domain manager. It delivers the full power of the Cisco Carrier Packet Transport System products to a customer's operation personnel and back office systems alike. · A carrier-class Element Management System (EMS), Cisco Transport Manager: Lowers network operations, administration, maintenance, and provisioning costs · Provides fault, configuration, performance, and user access security management capabilities · Features a comprehensive client/server-based platform that scales to manage the equivalent of 3000 CPT50, CPT200, CPT600 network elements and up to 100 simultaneous user sessions · Offers network provisioning, surveillance, and performance monitoring features that help customers rapidly deploy and maintain revenue-generating services that are built on Cisco Optical Networking and Voice Gateway Systems The intelligent Cisco Transport Manager High Availability Agent is designed to automatically detect problems, attempt to restart processes, and fail over to a secondary Sun UNIX server if required. The Cisco Transport Manager High Availability solution: · Significantly reduces the risk of losing data · Optimizes the Cisco Transport Manager platform to provide continuous service in the event of a failure does occur · Helps ensure constant visibility in a customer's network

Security	• Cisco Transport Software—Cisco Transport Software provides comprehensive network security features, including access control lists (ACLs); control-plane protection; authentication, authorization, and accounting (AAA) and RADIUS; Secure Shell (SSH) Protocol; SNMPv3; and Hypertext Transfer Protocol Secure (HTTPS); • Security—Many critical security features are supported: - 802.1ad Layer 2 Control Protocol (L2CP) and bridge-protocol-data-unit (BPDU) filtering - MAC limiting per EFP or bridge domain - Unicast, multicast, and broadcast storm-control blocking on any interface or port - Unknown Unicast Flood Blocking (UUFB)
Connectivity	4x10-Gbps 802.3 Ethernet SFP+ Ports
Memory	2 GB DRAM
CPT 600 Environmental & Compliance Standardization	
Physical dimensions (H x W x D): Weight	13.035 x .975 x 10.085 inches—2.30 pounds (US) 513.1990 x 2.4765 x 25.6159 centimeters —1.04kg
Power	Max Power 128 Watts Nominal Power 89 Watts
Network Equipment Building Standards (NEBS)	GR-1089 Issue 5, GR-63 Issue 3
CPT 200 Environmental & Compliance Standardization	
Physical dimensions (H x W x D): Weight	13.035 x .975 x10.085 inches—2.30 pounds (US) 513.1990 x 2.4765 x 25.6159 centimeters—1.04kg
Power	Max Power 128 Watts Nominal Power 89 Watts
Network Equipment Building Standards (NEBS)	GR-1089 Issue 5, GR-63 Issue 3
CPT 50 Environmental & Compliance Standardization	
Physical dimensions (H x W x D)	AC: 1.560 in. x 17.417 in. x 9.095 in. DC ANSI: 1.560 in. x 17.417 in. x 9.095 in. DC ETSI: 1.560 in. x 17.417 in. x 9.095 in.
Weight	4.22 Kg
Power	Max Power 210 Watts Nominal Power 159Watts
Operating temperature (nominal)	5C to 55C
Operating humidity (nominal) (relative humidity)	5-85% non condensing, operation is guaranteed up to 95% non condensing
Storage temperature	-40C to 70C
Storage (relative humidity)	93% non condensing
Operating altitude	4000 meters / 13,123.36 feet

Selected Part Numbers and Ordering Information

Cisco CPT 600—Common Equipment	
CPT-600 Packet Transport Fabric 256G Fabric Card w/ 4x10GE Packet Transport Module 4 x 10GE	Carrier Packet Transport 600 Platform CPT-PTF-256-10Gx4 CPT-PTM-10Gx4
Cisco CPT 200—Common Equipment	
CPT-200 Packet Transport Fabric 256G Fabric Card w/ 4x10GE Packet Transport Module 4 x 10GE	Carrier Packet Transport 200 Platform CPT-PTF-256-10Gx4 CPT-PTM-10Gx4
Cisco CPT 50—Common Equipment	
CPT-50 CPT-50-44GE-48A= CPT-50-44GE-48E= CPT-50-44GE-24A= CPT-50-44GE-AC=	CPT-50 w/ 44xGE -48v Pwr ANSI CPT-50 w/ 44xGE -48v Pwr ETSI CPT-50 w/ 44xGE -24v Pwr ANSI CPT-50 w/ 44xGE AC Pwr

For More Information

http://www.cisco.com/en/US/products/ps11348/index.html

Chapter 9: Network Management

This chapter provides only a subset of Cisco products and part numbers.

Network Management At-a-Glance

Product	Features	Page
NETWORK MANAGEMENT SOLUTIONS		
Cisco Prime	The Cisco Prime™ portfolio of enterprise and service provider management offerings empower IT organizations to more effectively manage their networks and the services they deliver. Built on a service-centric foundation, the Cisco Prime portfolio of products supports integrated lifecycle management through an intuitive workflow-oriented user experience and a set of common operational attributes	
Cisco Prime for Enterprise	Cisco Prime for Enterprise is a strategy and portfolio of management products that empower IT organizations to more effectively manage their networks and the services they deliver—during any phase of the network transformation. This innovative management strategy supports integrated lifecycle management of the networks, services, and end points for Borderless Networks, Data Center and Collaboration architectures.	9–4
Cisco Prime for Service Provider	The Cisco Prime portfolio of service provider management offerings empowers operators to more effectively manage their networks and the services they deliver. Built on a service-centered foundation, the Cisco Prime portfolio of products supports integrated lifecycle management through an intuitive workflow-oriented user experience. The portfolio of Cisco Prime solutions for service providers provides A-to-Z management for IP next-generation networks, mobility, video, and managed services	9–5
Cisco Video Assurance Management Solution (VAMS)	• Provides real-time, centralized monitoring of video transport over core, distribution, and aggregation networks • Monitors any changes in the multicast trees that might affect video performance • Actively manages network events to help you maintain video service uptime and quality • Supports correlation and aggregation of events in the core, distribution, and aggregation networks • When video probes are placed at demarcation points along the video path in the network, they help identify, isolate, and troubleshoot video errors. Supported video probes include: Tektronix MTM400, Ineoquest, and Mixed Signals.	9–5
NETWORK MANAGEMENT SERVICES MODULES		
Cisco Catalyst 6500 Network Analysis Modules (NAMs)	Integrated in the Cisco Catalyst 6500 Series Switches, the Cisco NAM service modules can provide high performance traffic monitoring, deep insightful packet captures and accurate performance analytics. Prepackaged dashboards, interactive reports and intuitive workflows enhance operational efficiency and accelerate problem resolution. NAM-1 and NAM-2 also support Cisco 7600 Series routers.	9–6
Cisco Prime Network Analysis Module (NAM) for ISR G2 SRE	Cisco Prime Network Analysis Module Software for ISR G2 is a software option for ISR G2 Services Ready Engine. The software provides the same traffic monitoring and packet troubleshooting capabilities in a branch setting. With its web-based UI admins can diagnose problems remotely.	
Cisco NAM 2200 Series Appliances	The Cisco NAM 2200 Series Appliances extends the reach of the NAM to places in the network not currently addressed by service modules. NAM Appliances offer up to 8 Gbps monitoring performance.	
Cisco Prime Network Analysis Module (NAM) for WAAS Virtual Blade (VB	Cisco Prime Network Analysis Module for WAAS Virtual Service Blade is an integrated solution on the WAAS 574 and 674 Appliances. Providing a zero hardware footprint, the WAAS VSB is targeted towards small data center environments by leveraging the embedded instrumentation of WAAS and NetFlow.	
Cisco Prime Network Analysis Module (NAM) for Nexus	Integrated with the Cisco Nexus 1010 Virtual Services Appliance, Cisco Prime Network Analysis Module (NAM) for Nexus 101 offers comprehensive visibility into virtual machine (VM) network to help identify performance bottlenecks, troubleshoot performance issues and optimize the use of VM network resources. Being an integrated solution, it provides investment protection, ease of deployment, and reduced network footprint.	
DATA CENTER MANAGEMENT AND AUTOMATION		
Cisco OverDrive Network Hypervisor ***NEW PRODUCT***	Designed to help customers organize their network resources into a flexible cloud infrastructure that integrates the network with their existing IT operational tools and processes.	9–6

PERFORMANCE MANAGEMENT		
Cisco Prime Performance Manager ***NEW PRODUCT***	• An extensible, highly scalable, and easy-to-use performance management solution • Proactive network and service assurance for Carrier Ethernet, mobile backhaul, and IP/MPLS networks • Easy to deploy, easy to manage, easy to extend, carrier-class scalable solution • Easy to integrate with OSS through CSV files for bulk statistics and SNMP traps for fault indications • Fast, actionable information—Easy-to-use autodiscovery or GUI-directed integration with Cisco Active Network Abstraction (ANA) helps ensure fast deployment and access to essential network information • Multi-vendor and multi-technology support	9–7
OPTICAL MANAGEMENT		
Cisco Prime Optical ***NEW PRODUCT***	• Advanced optical domain manager that delivers element and network management layer functions • Offers efficient management of the entire Cisco ONS and Carrier Packet Transport (CPT) product families. • Provides a resilient, adaptable, and integrated carrier-class element-management-system (EMS) solution • GUI-based management system makes advanced management capabilities such as A-to-Z circuit provisioning easy to learn and use • Solution is cost-effective, running on both Oracle Sun Solaris and Linux Red Hat Distribution; no additional third-party software is required because the Oracle database is embedded in the application • Can be easily integrated with third-party OSS tools with its TMF 814 standard northbound interface options	9–7
ROUTING AND SWITCHING MANAGEMENT		
Cisco Network Management Jumpstart	A turnkey solution bundle providing IP NGN infrastructure management for service providers upgrading to the Cisco ASR 9000 and ASR 1000 Series edge routers.	9–8
Cisco Active Network Abstraction	Provides service providers a comprehensive, network management solution for efficient and automated assurance, to help ensure that the next generation networks can reliably deliver IP services.	9–9

Cisco Prime Fulfillment
 	
NEW PRODUCT
	• Enables and automates design, fulfillment and auditing of network services across core, aggregation, access, and edge devices to accelerate time to value with:
	  - Automated resource management
	  - Profile-based planning and provisioning
	• Uses policy-directed workflows to produce and accelerate reliable service deployments of Multiprotocol Label Switching (MPLS) and Carrier Ethernet technologies
	• Accelerates diagnosis and repair of problems in MPLS VPN deployments with Cisco Prime Diagnostics.
	• Simplifies configuration and management of MPLS tunnels.
		9–9

Cisco Multicast Manager	• Simplifies multicast monitoring and troubleshooting
	• Web-based network management application is ideal for:
	  - Enterprise customers that employ multicast for financial market data
	  - Cable operators that use multicast to transport video over IP
	  - Service providers that need to manage a multicast VPN (MVPN) environment
		9–10

Cisco Prime LAN Management Solution (formerly CiscoWorks LMS)	Cisco Prime LMS is an integrated suite of management functions that simplify the configuration, administration, monitoring, and troubleshooting of Cisco networks. Cisco Prime LMS allows network operators to manage the network through a browser-based interface that can be accessed anytime from anywhere within the network. Cisco Prime LMS improves the overall user experience, providing new workflows built on functional partitioning that aligns the product with the way network operators do their jobs	9–10
COLLABORATION AND UNIFIED COMMUNICATIONS MANAGEMENT		
Cisco Prime Collaboration Manager ***NEW PRODUCT***	Collaboration Manager provides a powerful web-based user experience for managing and quickly troubleshooting end-to-end video collaboration over a borderless network. It takes the guesswork out of video collaboration management by providing service and network operators with a real-time unified view of all Cisco TelePresence® sessions in progress and immediate visibility into each session's associated media paths, quickly isolating the source of problems. When Medianet-capable devices are deployed in the network, Collaboration Manager provides even deeper network path visibility, down to the granularity of video flow statistics.	9–11
Cisco Unified Communications Management Suite	• Comprehensive portfolio of communications applications integrated with a secure network infrastructure	9–11
Cisco Unified Operations Manager	• Part of the Cisco Unified Communications Management Suite, Cisco Unified Operations Manager provides contextual diagnostic tools to facilitate trouble isolation and thereby increase the productivity of an organization's network managers • Provides a real-time, service-level view of the entire Cisco Unified Communications System and presents the current operational status of each element	9–11

Cisco Unified Service Monitor	· Part of the Cisco Unified Communications Management Suite, Cisco Unified Service Monitor provides a low-cost, reliable method of monitoring and evaluating voice quality in Cisco Unified Communications Solutions	9–12
Cisco Unified Provisioning Manager	· Part of the Cisco Unified Communications Management Suite, Cisco Unified Provisioning Manager · Provides provisioning for Cisco Unified Communications subscribers and deployments · Reduce the number of staff required to support subscriber base by reducing service activation time by up to 10X · Simplification and automation enables delegation to less expensive help desk staff for day-to-day subscriber management tasks · Speed site and subscriber service provisioning using subscriber, site or network level batches and templates · Know who made what change in the network, and when, with comprehensive auditing · E-mail notification system alerts on major problems or outstanding activities · Multilingual support; concurrent English, French and German	9–12
Cisco Unified Service Statistics Manager	· Part of the Cisco Unified Communications Management Suite, Cisco Unified Service Statistics Manager provides advanced statistics analysis and reporting capabilities	9–13
CiscoWorks QoS Policy Manager	· Supports centralized management of network quality of service (QoS) · Provides comprehensive QoS provisioning and monitoring capabilities so you can manage, tune, and optimize the performance characteristics of your Cisco network	9–13
Cisco Media Gateway Controller Node Manager	· Element manager for the fault, configuration, performance, and security management of the Cisco PGW 2200 Softswitch gateway	9–14
VIDEO, CABLE, AND CONTENT-DELIVERY MANAGEMENT		
Cisco Broadband Access Center	· Centralized, automated platform controls and configures residential gateways and IP devices · Provides: - Recognition of all devices coming into the service provider network - Generation and distribution of the appropriate IP lease and configuration files based on the service provider business policies - Distributed architecture with central management and single point of integration - Support for tens of millions of devices and designed to deal with performance impacting avalanche scenarios - Support for DOCSIS, PacketCable, CableHome, and TR-069 device types	9–14
Cisco Broadband Troubleshooter	· Provides a diagnostic tool for RF technicians to quickly and easily isolate problems in the cable plant · Performs the following functions: - Analyzes and sorts RF conditions into specific categories such as attenuation, provisioning, and noise or packet corruption (cyclic redundancy check [CRC]) errors - Provides dashboard views of network health, cable modem termination system (CMTS), and cable modem statistic and snapshots - Correlates cable modem to subscriber information - Works with an optional tool to map cable modems and status to subscriber street-level views	9–15
SECURITY AND IDENTITY MANAGEMENT		
Cisco Access Registrar	Cisco Access Registrar (Cisco AR) is a high performance Carrier Class RADIUS/Diameter Solution for access services. Cisco AR simplifies the deployment and management of access services, enabling service providers to: · Accelerate deployment of access services—Intelligent Authentication, Authorization & Accounting (AAA) services · Implement an "End-to-End" solution for multiple access technologies—High performance, scalable, reliable, and flexible · Reduce operational costs—Centralized management, simplified administration	9–15
BUILDING MANAGEMENT		
Cisco Network Building Mediator	· Solution that extends the network as a platform to transform the way buildings are built, operated, and experienced. The mediator is the intelligence powering the new Energy Intranet by interconnecting and enabling four critical elements: the convergence of building systems and IT and the dynamic balance of energy supply and energy demand. The integration of these disparate systems onto an IP network leads to a truly converged, energy-efficient building. · The strategy of the Cisco Mediator is built on: - Any-to-any connectivity—Building, IT, and green technologies - End-to-end management—Efficiency, conservation, and de-carbonization - Extensible platform—Third-party applications and cloud services	9–16

Cisco Network Building Mediator Manager	· Allows organizations to centrally manage their geographically dispersed buildings over an IP network · Displays network presence information, providing operators real-time visibility into the status and accessibility of their facilities · Each building or site that needs to be managed uses one or more Cisco Network Building Mediators to integrate all the building systems within that facility · Connects, monitors, aggregates, and manages this distributed network of mediators	9–17
NETWORK CONFIGURATION AND CHANGE MANAGEMENT		
CiscoWorks Network Compliance Manager (NCM)	· CiscoWorks Network Compliance Manager tracks and regulates configuration and software changes throughout a multivendor network infrastructure (including Cisco routers, switches, firewalls, load balancers, and wireless access points) · Provides exceptional visibility into network changes and can track compliance with a broad variety of regulatory, IT, corporate governance, and technology best practices	9–18
Cisco Network Registrar	· Provides fast, scalable, and reliable Domain Name System (DNS) and Dynamic Host Configuration Protocol (DHCP) services and delivers IP address management (IPAM) features to simplify administrative tasks · For cable providers, forms the basis of a DOCSIS® cable modem provisioning system · Supports DHCP Safe Failover (redundant DHCP servers) and provides DHCP avalanche prevention to reduce downtime after network outages. · Includes full IP address management for IPv4 and IPv6 Multitenant capabilities help enable cloud-based DHCP and DNS services	9–18
Cisco Mobile Wireless Transport Manager	· Performs real-time updates of any system changes such as inventory, events, and performance counters · Accelerates time to service by providing GUI-based editing · Allows the operator to immediately view events from the Cisco Radio Access Network (RAN) Optimization solution and Cisco IP Transfer Point (ITP) networks · Improves network serviceability by allowing operators to proactively assess the readiness and general health of Cisco RAN and Cisco ITP enables easier network problem identification and troubleshooting · Provides northbound XML application programming interfaces (APIs) · Helps maintain system integrity by preventing accidental or malicious operations from unauthorized users	9–19
Lifecycle Services for Network Management Products and Solutions	· Technical support services that help you maximize the availability, security, and performance of your Cisco network management products	9–19
Technical Services for Operating Network Management Products	· Technical support services that help you maximize the availability, security, and performance of your Cisco network management products.	9–20
FOR MORE INFORMATION		

Product Ordering
To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml.

End-of-Life and End-of-Sale
Please visit the end-of-life and end-of-sale website for a complete and up-to-date listing of products that are no longer being sold or supported, what replacement products are available, and information about product support.
http://www.cisco.com/en/US/products/prod_end_of_life.html

NOTE: This chapter provides only a subset of Cisco products and part numbers. For the most up-to-date and comprehensive information, refer to the Cisco website at http://www.cisco.com, the Cisco ordering website at http://www.cisco.com/en/US/ordering/index.shtml, or reference the URL listed in the "For More Information" section of each product.

Network Management Solutions

Cisco Prime for Enterprise

To effectively address the multi-dimensional issues created by the transforming network environment, IT organizations need an integrated management solution that unifies disparate networks, supports all phases of the network lifecycle, automates best practices, and delivers simplified network operations.

Cisco Prime™ for Enterprise is a strategy and portfolio of management products that empower IT organizations to more effectively manage their networks and the services they deliver—during any phase of the network transformation. This innovative management strategy supports integrated lifecycle management of the networks, services, and endpoints for Borderless Networks, Data Center, and Collaboration architectures.

The Cisco Prime for Enterprise strategy is built on a service-centric foundation and a set of common operational attributes. It delivers an intuitive workflow-oriented user experience across Cisco architectures, technologies, and networks helping IT organizations achieve:

- Improved operational efficiencies—Reduce network errors, speed troubleshooting and improve the delivery of services while making the network more predictable.
- Reduced operating expenses—Speed deployments, minimize IT staffing, and reduce training times with easy-to-use tools, workflows, and automated operations that simplify network management.

- Lowered capital expenses—Maximize the value of the existing network investment through unified management across architectures, networks, and services with cross-integration to existing operational systems, processes, and northbound management systems.

For More Information

http://www.cisco.com/en/US/prod/netmgtsw/prime.html

Cisco Prime for Service Provider

Service providers face many challenges introducing new services and evolving existing ones. The volume of services and the pace of innovation are accelerating, and next-generation network (NGN) service architectures are increasingly complex to operate. Today, service providers require a network management solution that provides a comprehensive approach to managing transport, packet, and legacy technologies throughout the service lifecycle.

The Cisco Prime portfolio of service provider management offerings empowers operators to more effectively manage their networks and the services they deliver. Built on a service-centered foundation, the Cisco Prime portfolio of products supports integrated lifecycle management through an intuitive workflow-oriented user experience. The portfolio of Cisco Prime solutions for service providers provides A-to-Z management for IP next-generation networks, mobility, video, and managed services.

Cisco Prime helps to automate the management of network services, decreasing costs and increasing efficiencies. With Cisco Prime service providers gain the following benefits:

- Accelerate service deployment—Significantly reduce the time required to get new equipment and services into operation through automated fulfillment.
- Lower CAPEX—Maximize the value of the existing investment in network infrastructure through intelligent management.
- Reduce OPEX—Lessen the reliance on expensive network management resources through the automation for fulfillment, inventory and assurance.
- Deliver improved QoS—Eliminate outages and service degradation caused by operational errors and massively reduce the impact of system failures through rapid fault isolation and repair.
- Improve operational efficiencies—A consistent definition of network services enables cross-function collaboration.

For More Information

http://www.cisco.com/en/US/prod/netmgtsw/prime.html

Cisco Video Assurance Management Solution

Get real-time centralized monitoring of your core, distribution, and aggregation networks for broadcast video transport. The Cisco Video Assurance Management Solution (VAMS) provides the framework for a flexible end-to-end assurance management platform for video

The Cisco Video Assurance Management Solution comprises the following building blocks:

- Cisco Multicast Manager—Monitors any changes in the multicast trees that might affect video performance.
- Cisco Info Center—Actively manages network events to help you maintain video service uptime and quality.
- Cisco Active Network Abstraction—Supports correlation and aggregation of events in the core, distribution, and aggregation networks.
- Third-party video probes—Help you identify, isolate, and troubleshoot video errors at demarcation points along the video path in the network; supported video probes include: Tektronix MTM400, Ineoquest, and Mixed Signals

Ideal for Companies That Need These Features

Cisco Video Assurance Management Solution

- Reduced mean time to repair (MTTR)
- Proactive video-transport monitoring
- Enhanced video quality of experience
- Increased operational efficiency

Key Features and Benefits

- Dynamic visualization of video metrics
- Custom service views
- Root-cause analysis
- Integration with other operations-support-system (OSS) and business-support-system (BSS) solutions
- Proactive video transport monitoring
- Data collection from probes
- Multicast data collection

For More Information

http://www.cisco.com/go/vams

Network Management Services Modules

Cisco Prime Network Analysis Module (NAM) Family

Cisco Prime Network Analysis Module (NAM) delivers application aware traffic and performance analysis capabilities that integrate with Cisco switching and routing platforms to simplify operational manageability. It empowers network administrators with actionable visibility to quickly troubleshoot performance issues, ensure optimal use of network resources, and deliver a consistent end-user experience. Cisco NAM product portfolio includes cost-effective form-factor choices ranging from integrated service blades, virtual service blades and standalone appliances. The portfolio offers deployment flexibility ensuring consistent performance visibility across the network and at the same time addressing troubleshooting and optimization demands specific to the places in the network, namely branch, campus, WAN and data center.

Cisco NAM family includes:

- Cisco Catalyst 6500 Series Network Analysis Module (NAM-3)
- Cisco Catalyst 6500 Series/Cisco 7600 Series Network Analysis Modules NAM-1 and 2
- Cisco NAM 2200 Series Appliances
- Cisco Prime Network Analysis Module (NAM) for ISR G2 SRE
- Cisco Prime Network Analysis Module (NAM) for Nexus 1010
- Cisco Prime Network Analysis Module (NAM) for WAAS Virtual Blade

Ideal for Companies That Need These Features

Cisco Prime Network Analysis Modules (NAM) Family	• Experiencing endemic or sporadic application performance issues such as outages, slow response time, poor voice quality • Deploying or planning to deploy Cisco WAAS solution to improve application performance • Concerned about visibility into virtual machine (VM) network in the virtual data center with the Cisco Nexus 1000V switch • Planning any large scale IT changes such as technology refreshes, DC consolidation, voice application roll-out • Challenged in terms of reducing budget and improving operational efficiency

Key Features and Benefits

- Interactive reports with advanced filters and contextual navigation allows quick access to critical network information to improve operational efficiency and boost productivity
- Site-based monitoring facilitates tracking site-specific service-level objectives, resolving performance issues, or enforcing optimization policies
- Application performance intelligence helps characterize the end-user experience and isolate application response time problems
- Cisco Performance Agent (PA) reporting enables multi-branch performance visibility from centralized NAM deployment
- Flow- and packet-based traffic monitoring combines broader network performance view with deeper packet analysis for rapid troubleshooting
- Historical analysis with embedded performance database helps address unanticipated performance issues and assess optimization needs
- Web-based packet capture, decode, and error scan expedites resolution of complex performance problems
- REST/XML-based API based integration preserves investments in existing management assets

For More Information

http://www.cisco.com/go/nam

Data Center Management and Automation

Cisco OverDrive Network Hypervisor

Cisco OverDrive Network Hypervisor offers a flexible, policy-directed approach to how cloud services are managed and controlled. It is designed to help customers organize their network resources into a flexible cloud infrastructure that integrates the network with their existing IT operational tools and processes. The network abstraction layer of Cisco OverDrive Network Hypervisor allows customers to provision and deploy numerous individual network components as sophisticated network "containers" across single- and multipod cloud deployments much more easily and quickly than previously possible with template- and script-based systems, dramatically reducing network operations costs and the potential for misconfiguration while optimizing capacity usage and accelerating service delivery.

Network infrastructure can now be virtualized and fully automated in support of cloud service deployments, creating dynamic, automated clouds providing security, partitioning, and access control—the building blocks to provide IT as a service for any class of customer.

Ideal for Companies That Need These Features

Cisco OverDrive Network Hypervisor	• Dramatically reduces network operational costs and potential misconfiguration. • Optimizes capacity use and accelerates service delivery

Key Features and Benefits

- Business-policy directed—As business needs evolve, new policies can be constructed and existing policies adjusted
- Automates device-level configuration—Enables just-in-time service delivery models to automatically translate defined policies into device-level configuration
- Automates network service delivery—Helps administrators define and control the underlying network infrastructure services that provide end-user access to physical and virtual resources.
- Open interfaces—Enables transparent integration of Cisco OverDrive Network Hypervisor with the existing network management and operational support systems to support cloud deployments.

For More Information

http://www.cisco.com/go/overdrive

Performance Management

Cisco Prime Performance Manager

Cisco Prime Performance Manager is an extensible, highly scalable, and easy-to-use performance management solution that enables the proactive management of next-generation networks including service assurance and capacity planning. Cisco Prime Performance Manager complements an existing set of network management tools or works completely as a standalone solution.

Ideal for Companies That Need These Features

Cisco Prime Performance Manager	• Easy to deploy, easy to manage, easy to extend, carrier class scalable solution • Easy to integrate with OSS through CSV files for bulk statistics and SNMP traps for fault indications • Proactive network and service assurance for Carrier Ethernet, mobile backhaul, and IP/MPLS networks • Multi-vendor and multi-technology support • Out-of-the-box integration with Cisco Active Network Abstraction

Key Features and Benefits

- Carrier class scale without the cost—Capable of managing 16,000 devices with up to 1.1 million interfaces and 50 GUI clients. Cisco Prime Performance Manager is designed for low startup and administrative costs with support for Cisco Unified Computing System (Cisco UCS), Linux, VMware, and an embedded database that eliminates the need for third-party license and maintenance costs. Distributed architecture provides reliability, deployment flexibility, and horizontal scaling to grow with the network.
- Prepackaged reports—Generate more than 200 prepackaged reports on a wide range of network services, technologies, and devices. Gain more visibility into the network and service performance characteristics on devices from core, aggregation, and access networks. Reports are automatically generated, without the need for complex customization or configuration, reducing the total cost of ownership.
- Data collection and processing—Standards-based data collection can be easily applied to any Simple Network Management Protocol (SNMP)-enabled device. Generate 5-minute, 15-minute, hourly, and daily summarized reports, available in an easy-to-use web interface and as a comma-separated value (CSV) data file export for integration with third-party OSSs.
- Multitechnology support—With extensive support for a wide variety of network services, technologies, and devices, Cisco Prime Performance Manager facilitates proactive service assurance and detection of network congestion.
- Easy to deploy—Simple and easy installation on single or multiple servers with an embedded database minimizes deployment time.
- Easy to use—Intuitive web-based interface provides fast access to performance reports with flexible navigation options to find more detail.
- Easy to extend—Enables the dynamic loading of new reports, extensions to existing reports, or the addition of new devices, including third-party equipment, to the network through field customization.
- Fast, actionable information—Easy-to-use autodiscovery or GUI-directed integration with Cisco ANA helps ensure fast deployment and access to essential network information

For More Information

http://www.cisco.com/go/performance

Optical Management

Cisco Prime Optical

Cisco Prime Optical is a carrier-class, multi-technology management system that integrates the end-to-end management of older transport networks and packet optical transport networks. Cisco Prime Optical helps communication service providers (CSPs) deliver the capacity and quality of service (QoS) required to support

the delivery of rich content-based services and high-bandwidth applications. Cisco Prime Optical simplifies provisioning and network management and reduces overall costs by providing operators with:

- Scalability and growth in a robust carrier-class element management system, designed for reduced TCO, that can scale to thousands of optical devices
- Increased productivity with a multitechnology management system that integrates the inventory, performance, and configuration management functions in a single application
- Extendability and easy OSS integration using an EMS system with a standards-based northbound interface that provides predefined integration with market leading OSS-systems, like Tivoli Netcool for Cisco Prime enterprise and service provider management offerings
- Built-in intelligence to help operators quickly accomplish tasks when performing end-to-end circuit provisioning by automatically selecting and implementing an optimal route that uses resource diversity on working and standby paths

Key Features and Benefits

- Support for up to 5,000 optical network elements
- Powerful GUI-based management system
- High availability for carrier-class management
- Support for carrier packet transport networks
- Standards-compliant information model and northbound interface for integration
- Linux and Cisco Unified Computing System (Cisco UCS) support
- Maintains an efficient and productive optical infrastructure with one view of the nationwide optical network supporting configuration, fault, performance, and security management, constantly monitoring the critical performance indicators of the optical network
- Makes advanced management capabilities such as A-to-Z circuit provisioning easy to learn and error free
- Reduces the initial network discovery time by half, allowing shorter system start-up significantly reducing the length of the network maintenance window and reducing OpEx
- Extends the strength of the network core to the edge of the network, particularly in mobile backhaul and optical transport networks, by provisioning static LSP from core to edge

For More Information

http://www.cisco.com/go/transport

Routing and Switching Management

Cisco Network Management Jumpstart

The first release of Cisco Network Management Jumpstart provides a self-contained network management layer for ASR 9000 and ASR 1000 architectures. Cisco Network Management Jumpstart is cost-effective, fast and easy-to-deploy, prepackaged solution that includes a set of predefined professional services for a predictable, low-risk network management implementation.

Solution Overview

- Cisco Active Network Abstraction (ANA)
- ASR 9000 Craft Tool (ACT)
- Cisco Unified Computing System (UCS) C200 M2
- Cisco Advanced Services package: Predefined statement of work for design, implementation, and testing of deployment of all the above software components for up to 20 ASR 9000 and 20 ASR 1000 devices (with the option to deploy additional devices). The solution also includes installation of VMware, Linux, Windows, and the ACT software. Alternatively, customers may obtain services from their local Cisco partner

Ideal for Companies That Need These Features

Cisco Network Management Jumpstart	• An add-on, self-contained network management system for service providers deploying or upgrading to the ASR 9000 or ASR 1000 series routers. • Predefined implementation services to ensure a low-risk, predicable deployment and core IP network management services.

Key Features and Benefits

- Easy to deploy: Predefined implementation services ensure a predicable deployment and core IP network management on a single box.
- Reduces time to value: One-box architecture reduces the number of disjoint applications and servers and the open northbound interface (NBI) supports quick integration with existing OSS/BSS's. All of these features help to ensure a faster time to revenue realization.
- Low risk and saves money: Pre-tested and includes all required network management components— all from one vendor at a cost-effective price point.
- Extensible and grows with the business: Addresses the issues of scale, convergence and service delivery.

For More Information

http://www.cisco.com/en/US/netsol/ns1144/networking_solutions_solution.html

Cisco Active Network Abstraction

Cisco ® Active Network Abstraction (ANA) provides service providers and other carrier-grade network operators with a comprehensive, network management solution for IP next-generation networks. ANA creates and maintains an accurate, "virtual" abstract model of the network in near real time to:

- Manage network elements: Supports all major Cisco service provider network elements, Multiprotocol Label Switching (MPLS), Carrier Ethernet, and Cisco Unified Radio Access Network (RAN) Backhaul reference architectures.
- Manage networks and services: Integrated networkwide and servicewide monitoring and fault analysis
- Integrate with network management systems (NMSs)/OSSs: Uses a standards-compliant information model for integration with third-party products, and ANA is easily field customized with built-in tools or through the Cisco partner program and Cisco Advanced Services support.

ANA's service-aware design and abstraction support converged core, aggregation, and access networks.

Key Features and Benefits

Cisco ANA brings both functional excellence and operational efficiency to network operations. Specific benefits include:

- Single management application for the converged network—Cisco ANA is the management application for the converged network, supporting all service provider IP NGN deployments, such as IP/MPLS core and service edge networks, IP RAN backhaul, and Carrier Ethernet networks. Cisco ANA provides management at the element, network, and service level. It supports the service assurance lifecycle from fault detection, event association, and root-cause analysis to remediation. The management architecture is simplified to one application - Cisco ANA - reducing the number of disjoint applications.
- Network visibility—Using Cisco ANA, users have the needed network information at their fingertips. Cisco ANA's unique model-based virtual network abstraction represents a live information foundation, providing a consistent and complete end-to-end topological view of the network resources, technologies, and services.
- Reduce operating expenses—Cisco ANA helps ensure operational efficiency and speeds up troubleshooting with its fault analysis, alarm correlation capabilities, and diagnostic tools. It reduces the Mean Time to Repair (MTTR) for service problems and thus decreases the cost of trouble tickets.
- Easily customizable—Cisco ANA is flexible and easily adaptable in different deployment scenarios. Cisco ANA is customizable to facilitate deployment in a variety of network scenarios. Its standards-based information model is easily extensible, and with its XML-based API, it provides an effective mediation and integration point for the OSS/BSS layer. Cisco ANA can be deployed along with service provisioning systems, inventory, and performance management systems, for complete management of next-generation IP networks.

For More Information

http://www.cisco.com/go/ana

Cisco Prime Fulfillment

Cisco Prime Fulfillment enables the planning, provisioning, and auditing of network services across core, aggregation, access, and edge devices. This management solution helps automate complex provisioning and diagnostic tasks using policy-directed workflows to produce consistent and reliable service deployments of MPLS and Carrier Ethernet technologies.

Ideal for Companies That Need These Features

Cisco Prime Fulfillment	Scalable and reliable architecture for large-scale operations Single server solution and web GUI open APIs and OSS interfaces that help: • Integrate IP VPN services into existing infrastructure • Integrate Cisco fault-management products with independent software vendor products for VPN-aware performance reporting

Key Features and Benefits

- MPLS VPN management—Automate processes and enforce policy-based workflows to accelerate deployment and time to value.
- Carrier Ethernet and Layer 2 VPN management—Provide fast, reliable provisioning to accelerate deployment and time to value.
- MPLS diagnostics—Accelerate diagnosis and repair of problems in MPLS VPN deployments with Cisco Prime Diagnostics to improve quality of service.
- Traffic-engineering management—Simplify configuration and management of MPLS tunnels
- Reduce costs with automated resource management and rapid profile-based planning and provisioning.

For More Information

http://www.cisco.com/go/fulfillment

Cisco Multicast Manager

Cisco Multicast Manager is a web-based network-management application that simplifies the holistic discovery, visualization, monitoring, and troubleshooting of multicast networks to help ensure business continuity. This solution is appropriate for enterprise customers that employ multicast for financial market data for multiple system operators (MSOs) use multicast to transport video over IP, and for service providers that need to manage their multicast VPN (MVPN) environment.

Ideal for Companies That Need These Features

Cisco Multicast Manager	• As enterprise customers, the ability to employ multicast for financial market data • As a cable operator, the ability to use multicast to transport video over IP • As a service provider, the ability to manage multicast VPN (MVPN) environment

Key Features and Benefits

- Video operations solution—Provides monitoring support for video probes to detect poor-quality video
- Enhanced address management database—Indicates which video channels are being affected when problems with specific multicast groups are detected
- Monitoring and diagnostics for MVPNs
- Support for one-time passwords with TACACS
- Support for the Cisco Carrier Routing System (CRS) and Cisco Advanced Services Routers (ASR)

For More Information

http://www.cisco.com/go/cmm

Cisco Prime LAN Management Solution

Cisco Prime LAN Management Solution (LMS) is an integrated suite of management functions that simplify the configuration, administration, monitoring, and troubleshooting of Cisco® networks. Cisco Prime LMS allows network operators to manage the network through a browser-based interface that can be accessed anytime from anywhere within the network. Cisco Prime LMS 4.0 improves the overall user experience, providing new workflows built on functional partitioning that aligns the product with the way network operators do their jobs. Once installed, "out-of-the-box" monitoring and troubleshooting dashboards provide actionable information to quickly isolate and fix network problems before they impact services. Configuring and deploying updates to the network has never been easier with the new Template Center, which incorporates Cisco Validated Designs and links to download the latest configuration templates from Cisco.com simplifying platform and technology rollout and reducing the chance for errors New "Work Centers" provide a single area where guided workflows give step-by-step instructions to help operators quickly provision, monitor, and manage new Cisco value-added technologies and solutions, such as EnergyWise, TrustSec/Identity, Auto Smartports, and Smart Install.

Ideal for Companies That Need These Features

Cisco Prime LAN Management Solution	• Easy-to-use intuitive management interface for monitoring, configuration, and asset management • Network discovery, topology views, end-station tracking, and VLAN management • Real-time network discrepancy analysis with easy-to-deploy, device-specific best-practices templates • Hardware and software inventory management, centralized configuration tools, and syslog monitoring • Network response time and availability monitoring and tracking • Real-time device, link, and port traffic management, analysis, and reporting • Flexible license model

Key Features and Benefits

- Quickly and proactively identify and fix network problems before they impact end-users or services
- Configuration backup, software image management, compliance, and change management required to maintain and update network devices
- Complete and thorough inventory of all Cisco equipment details - chassis, module, interface
- All reports are centralized in a single menu, simplifying navigation and access to detailed reports and information
- End-to-end "lifecycle" management of Cisco value-added technologies - deployment, monitoring, and management of EnergyWise, TrustSec/Identity, Auto Smartports, Smart Install
- Getting started and improved workflows simplify application setup and administration

For More Information

http://www.cisco.com/go/lms

Collaboration and Unified Communications Management

Cisco Prime Collaboration Manager

Cisco Prime Collaboration Manager provides a powerful web-based user experience for video collaboration service assurance. It takes the guesswork out of management by providing service operators with a real-time unified view of all Cisco TelePresence® sessions in progress with immediate visibility into each session's associated media paths, quickly isolating the source of problems. When Medianet-capable devices are deployed in the network, Collaboration Manager provides even more granular information, such as video flow measurements and statistics about all flows at congested hot spots. Cisco Prime Collaboration Manager also provides quick at-a-glance summary information about the TelePresence service in addition to more detailed utilization reports that can aid in capacity planning and ROI calculation.

Ideal for Companies That Need These Features

Cisco Prime Collaboration Manager	• Real-time, unified views of all Cisco TelePresence sessions in progress • End-to-end visibility into media paths for each TelePresence session • Detailed utilization reports for ROI calculation and capacity planning

Key Features and Benefits

- Supports timely end-to-end visibility and isolation of video-related issues for sessions, endpoints, and the network
- Reduces time to troubleshoot and recover from service-affecting problems
- Provides detailed analysis of the media path with critical fault and performance statistics that support quick isolation of network devices causing service degradation
- Efficiently validates large-scale deployments through comprehensive inventory, health, and status of Cisco TelePresence endpoints as well as service and network infrastructure devices
- Delivers reports that allow operators to track usage and problem history

For More Information

http://www.cisco.com/go/cpcm

Cisco Unified Communications Management Suite

Cisco Unified Communications Management Suite is a comprehensive portfolio of communications applications integrated with a secure network infrastructure. To take full advantage of such a system, organizations need a communications-management solution that provides a dashboard view of the entire system status.

Solution Overview

- Cisco Unified Provisioning Manager
- Cisco Unified Operations Manager
- Cisco Unified Service Monitor
- Cisco Unified Service Statistics Manager

Key Features and Benefits

Cisco Unified Communications Management Suite allows you to:

- Collect, analyze, and report statistical information from the network
- Track and report on user experience and mean opinion scores
- Monitor network elements, including Cisco Unified Communications Manager, the Cisco Unity system, gateways, and endpoints, including the underlying network
- Identify and diagnose problems, and test and track changes
- Maintain network inventory
- Rapid provisioning of UC sites and subscriber services using subscriber, site or network level batches and templates
- Delegate moves, adds and changes to group level administrators
- Track changes made to UC infrastructure and subscriber services

For More Information

http://www.cisco.com/en/US/products/ps5747/Products_Sub_Category_Home.html

Cisco Unified Operations Manager

Part of the Cisco Unified Communications Management Suite, Cisco Unified Operations Manager features out-of-the-box, real-time, service-level monitoring of all system elements. It performs automatic discovery for the entire system and provides contextual diagnostics for rapid troubleshooting. With Cisco Unified

Operations Manager there are no rules to write, no thresholds to define, and no extensive, time-consuming initial setup

Ideal for Companies That Need These Features

Cisco Unified Operations Manager	· Real-time notifications and reports about the status of the network monitored to a higher-level entity · Ability to manage multisite and multicluster unified communications environments · Reduced administrative overhead through sharing device and credential information with other CiscoWorks tools deployed in the enterprise

Key Features and Benefits

- Real-time visualization and monitoring of the entire Unified Communications system supports more efficient troubleshooting
- Active service assurance ensures that devices and applications are functioning as they should, and reveals faults and performance issues before they affect service
- Powerful diagnostic tests and troubleshooting capabilities rapidly isolate faults and increase productivity
- Correlation, analysis, and presentation of voice service quality data and alerts make use of information available through Cisco Unified Service Monitor
- Inventory and change monitoring enable tracking of complete details of unified communications devices and IP phone inventory
- Cisco Unified Operations Manager does not deploy any agent software on the devices being monitored, so it will not disrupt system operations

For More Information

http://www.cisco.com/go/cuom

Cisco Unified Service Monitor

Part of the Cisco Unified Communications Management Suite, Cisco Unified Service Monitor offers an affordable, reliable way to continuously monitor active calls supported by the Cisco Unified Communications System. Cisco Unified Service Monitor also provides near real-time notification when the voice quality of a call fails to meet a user-defined quality threshold.

Ideal for Companies That Need These Features

Cisco Unified Service Monitor	· Real-time management information and diagnostic tools to help ensure an efficient deployment and subscriber satisfaction · Immediate monitoring and assessment of the quality of IP-based calls without elaborate setup or complicated installation problems

Key Features and Benefits

- Flexible and comprehensive voice-quality measurements through a combination of Cisco Voice Transmission Quality (VTQ) metrics from Cisco IP phones, Cisco 1040 sensors, and Network Analysis Module version 4.0 and above
- Ability to pinpoint the network segment causing call-quality degradation
- Top N reports and enhanced data filters for call-quality analysis
- Advanced quality thresholds
- Near real-time Simple Network Management Protocol (SNMP) alerts on quality threshold violations
- Integrates with Cisco Unified Operations Manager to display call-quality violations on Service Quality Alerts display
- Integrates with Cisco Service Statistics Manager for long-term trend and capacity planning reports

For More Information

http://www.cisco.com/go/cusm

Cisco Unified Provisioning Manager

Part of the Cisco Unified Communications Management Suite, Cisco Unified Provisioning Manager supports the implementation of Cisco Unified Communications, as well as ongoing, simplified operational provisioning and activation services for individual subscriber changes.

Ideal for Companies That Need These Features

Cisco Unified Provisioning Manager	· Cost control for deployments and ongoing service provisioning · Reduce the number of staff required to support subscriber base · Delegation to less expensive help desk staff for day-to-day subscriber management · Remove the need for UC application logins for help desk staff · Allow delegation of moves, adds and changes to group level administrators · Rapid site and subscriber service provisioning using subscriber, site or network level, keyword based, batches and templates · Policy control of management and services · Ability to track changes made to subscriber services and UC infrastructure provisioning · Multilingual UI support

Key Features and Benefits

- Speeds up subscriber service activation by up to 10X
- Can delegate day-to-day subscriber management, at a group level, to less expensive help desk staff
- Batch provisioning permits the rollout of large numbers of subscribers or dial plan elements at once, avoiding inefficient and repetitive tasks
- Capability to roll out one or more sites with multiple UC applications, using a single, reusable, batch file or keyword based template
- Ability to use prebuilt keyword based IOS templates
- Order tracking system tracks changes made, when and by whom
- Audit report tracks admin logins and admin/subscriber password changes
- E-mail notification system keeps admins informed of major problems or outstanding activities
- Multilingual support; concurrent English, French and German UI support
- Can be used for initial deployments or can synchronize to an existing network

For More Information

http://www.cisco.com/go/cupm

Cisco Unified Service Statistics Manager

Part of the Cisco Unified Communications Management Suite, Cisco Unified Service Statistics Manager provides advanced statistics analysis and reporting capabilities for Cisco Unified Communications deployments. Cisco Unified Service Statistics Manager is an easy -to-use, web-based software product that provides a variety of easy-to-use, yet advanced executive and operational reports, enhancing capacity planning and budgeting.

Ideal for Companies That Need These Features

Cisco Unified Service Statistics Manager	• Statistical reporting, trending, and analysis for small, medium, and large Cisco Unified Communications deployments

Key Features and Benefits

- Optimizes network resources and increases operational efficiency by providing visibility into key metrics such as call volume, service availability, call quality, resource utilization, and capacity
- Allows users to collect and analyze statistics from a variety of sources to define service-level agreement (SLA) constructs
- Trend analysis capabilities can help identify potential adverse developments before they impact service
- Provides customizable report templates and automatic report invocation and scheduling features
- Enables the export of data and reports in a variety of file formats, including HTML, PDF, and comma-separated value (CSV)

For More Information

http://www.cisco.com/go/cussm

CiscoWorks QoS Policy Manager

CiscoWorks QoS Policy Manager (QPM) allows administrators to centrally define and administer Cisco IOS Software and Cisco Catalyst Operating System parameters needed for differentiating network traffic. This application helps to ensure high availability and predictable performance for business-critical applications that rely on advanced voice and video services.

Ideal for Companies That Need These Features

CiscoWorks QoS Policy Manager	• End-to-end QoS configuration and automated, reliable policy deployment, while eliminating device-by-device command streams • Rules-based policies that combine static and dynamic port applications and host system traffic filters • Cisco QoS Policy Manager services, including congestion management and avoidance and traffic shaping • Ability to efficiently translate policies to specific QoS configuration commands to ensure consistency across domains • Ability to validate policies quickly and reliably to LAN and WAN policy domains prior to deploying them • Ability to generate web-based reports on QoS policies deployed in the network

Key Features and Benefits

- Cisco QPM measures traffic throughput for top applications and service classes and troubleshoots problems with real-time and historical quality-of-service (QoS) feedback.
- Cisco QPM centrally defines roles and permissions for use with the Cisco Secure Access Control Server (ACS) privilege control. Policy views can be modified and deployed for different device groups.

- The application partitions the network into administrative and deployment domains and uses policy libraries for global QoS configuration. It modifies, scales, and monitors Cisco IOS AutoQoS voice policies on routers.
- Cisco QPM uses the secure, web-based GUI for accurate end-to-end QoS configuration and automated, reliable policy deployment, while eliminating device-by-device command streams. The Setup wizard intelligently determines QoS policies and properties at each network point that requires IP telephony QoS configuration based on Cisco design recommendations.
- Cisco QPM exposes QoS policy conflicts, uploads existing device configurations, presents command-line-interface (CLI) syntax that corresponds to policies, allows previewing of configuration changes before deployment, supports incremental access-control-list (ACL) updates, defines ACL ranges, and restores or applies a previous version of a policy database and backup to a remote server.
- An integral part of Cisco content networking, Cisco QPM delivers the appropriate service levels to business-critical applications by supporting the extension of IP packet classification to include application signature, web URLs, and negotiated ports.
- Cisco QPM facilitates congestion management, congestion avoidance, and bandwidth control by selectively activating QoS mechanisms on intelligently grouped LAN and WAN interfaces and providing support for external application programming interfaces (APIs) to trigger event-based policy distribution.
- The application extends security by defining access-control policies to permit or deny transport of packets into or out of device interfaces.
- Cisco QPM supports device inventory import from CiscoWorks Resource Manager Essentials, shortening configuration time for devices targeted for policy enforcement and QoS monitoring.

For More Information

http://www.cisco.com/go/qpm

Cisco Media Gateway Controller Node Manager

Cisco Media Gateway Controller (MGC) Node Manager is a Cisco element manager for fault, configuration, and performance management of the Cisco PGW 2200 Softswitch. It integrates management access to all node components, effectively representing them as a single entity to the network operator. The software provides views of individual managed devices and logical objects, such as trunk groups and signaling links, making it easier to manage the components that make up a voice-over-IP (VoIP) media gateway control node.

Ideal for Companies That Need These Features

Cisco Media Gateway Controller Node Manager	• Network surveillance • Cisco MGC Node Manager Diagnostic Tools • Provisioning and configuration • User access and performance

For More Information

http://www.cisco.com/en/US/products/sw/netmgtsw/ps1912/index.html

Video, Cable, and Content-Delivery Management

Cisco Broadband Access Center

Cisco Broadband Access Center (BAC) is a distributed and highly scalable application allowing for automated flow-through provisioning of subscriber services and management of subscriber devices. Cisco BAC provides a centralized and automated platform for service providers to control and configure residential home gateways and the IP devices behind the gateways.

Cisco BAC automatically recognizes devices, assigns the appropriate class of service, dynamically creates and generates device configuration files, and activates subscribers. Cisco BAC provides a single device management platform to support multiple technologies including DOCSIS® and PacketCable™.

As service provider infrastructure increases rapidly in size and complexity, management systems that simplify the task of operating the network and its services become more essential. Cisco BAC addresses this need by automating the configuration and provisioning of subscriber devices based on the service provider's business policies. Cisco BAC allows service providers to implement either one or both of the following workflow models:

- Preprovisioning—Devices are assigned to subscribers and recorded in advance in the provisioning application. When subscribers plug them in, Cisco BAC automatically assigns the appropriate service level and activates them.
- Autoprovisioning—When subscribers self-register for a service, subscriber devices are captured and recorded in the provisioning application. Upon completion Cisco BAC configures the device and activates the service.

Ideal for Companies That Need These Features

Cisco Broadband Access Center	• As a service provider, the ability to manage subscribers with network services using cable and DSL CPE devices

Key Features and Benefits

- Reliability—Cisco BAC provides high reliability and high availability, supporting autonomous headends, multiple distributed device provisioning engines (DPEs), each of which includes its own data-caching repository, a Trivial File Transfer Protocol (TFTP) server, and a time-of-day (ToD) server. During central server outages or communication problems, Cisco BAC provides continued service to existing registered subscribers.
- Scalability and performance—Cisco BAC can support up to 60 million devices in distributed deployments. Cisco BAC uses multiple distributed device management and caching engines to balance processing of device requests. A single DPE can support as many as 2 million devices. These DPEs can be combined in groups to provide redundancy, load sharing, and disaster recovery. The regional distribution unit (RDU) is a central component used to manage service requests and modifications. A single RDU server in conjunction with the appropriate number of DPE groups can support as many as 60 million devices with a sustained rate of hundreds of thousands of new devices a day.
- Integration with current systems—Cisco BAC integrates with existing service provider systems, such as billing systems, operations support systems (OSSs), and other customer management systems, through a Java provisioning API.
- Extendable technology support—Cisco BAC supports DOCSIS cable modems and set-top boxes for high-speed data provisioning, PacketCable voice provisioning of media termination adapters (MTAs) and DOCSIS cable modems. It also can be extended to support other Dynamic Host Configuration Protocol (DHCP)-based devices, including non-DOCSIS cable modems.

For More Information

http://www.cisco.com/go/bac

Cisco Broadband Troubleshooter

Cisco Broadband Troubleshooter is an easy-to-use tool that gives network administrators and technicians a GUI that streamlines RF problem resolution. The tool dynamically monitors RF characteristics on a per-modem or per-upstream basis, provides a measurement interface for the upstream that looks and feels like a spectrum analyzer, decentralizes RF monitoring and analysis, and automatically sorts and categorizes RF problem conditions. The product provides a fault-analysis tool that facilitates isolation of performance, cable plant, and Cisco Unified Communications Manager problems and characterizes upstream and downstream trouble patterns. Operators can quickly discern customer-premises-equipment (CPE) connectivity impairments by identifying noise, attenuation, provisioning, and packet-corruption problems.

For More Information

http://www.cisco.com/en/US/products/sw/netmgtsw/ps530/index.html

Security and Identity Management

Cisco Access Registrar

Cisco Access Registrar (Cisco AR) is a carrier class, standards-based RADIUS and Diameter solution for access services. Designed for high performance, extensibility, and integration with external data stores and systems, it supports multiple access technologies (dial, wholesale dial, broadband, mobile wireless, wireless LAN and public wireless LAN, Service Selection Gateway [SSG], VoIP, cable, WiMAX) with a single authentication, authorization, and accounting (AAA) platform.

Ideal for Companies That Need These Features

Cisco Access Registrar	• High performing, reliable, scalable and extensible AAA servers for service provider networks.

Key Features and Benefits

- Provides AAA, proxy, database and Label Distribution Protocol (LDP) configuration, resource allocation and session management, system tuning and configuration, troubleshooting, and monitoring.
- Provides support for IPv6 interfaces.
- Allows service providers to focus their businesses on specific areas of service delivery by supporting additional wholesale, outsourcing, and roaming service scenarios using *proxy* RADIUS/Diameter.
- Reduces operational costs and speeds service rollout by supporting integration with provisioning, billing, and other service-management components using directory or relational database management system (RDBMS) support and scriptable configuration interfaces.
- Efficiently manages resource use by supporting centralized IP address assignment and session-limit enforcement across access devices spanning multiple geographic regions and across multiple Cisco AR servers.
- Provides multimillion session scalability by off-loading the active session information to an external database like Oracle.

For More Information

http://www.cisco.com/go/car

Building Management

Cisco Network Building Mediator



The Cisco Network Building Mediator ("Mediator") is the industry's first solution that extends the network as a platform to transform the way buildings are built, operated, and experienced. The Mediator:

- Enables sustainable energy reduction across global operations
- Takes full advantage of Cisco's expertise in collaboration, convergence, and security to foster sustainable energy use
- Helps ensure that network applications will be compatible with future versions by providing flexible integration of new technologies that deliver energy efficiency, clean energy, and environmental stewardship

The Cisco Mediator is the intelligence powering the new Energy Intranet by interconnecting and enabling four critical elements: the convergence of building systems and IT and the dynamic balance of energy supply and energy demand. The integration of these disparate systems onto an IP network leads to a truly converged, energy-efficient building.

The strategy of Cisco Mediator is built on:

- Any-to-any connectivity—Building, IT, and green technologies
- End-to-end management—Efficiency, conservation, and de-carbonization
- Extensible platform—Third-party applications and cloud services

The Cisco Mediator collects data from the building, IT, energy supply, and energy demand systems that use different protocols and are otherwise unable to communicate. The mediator then normalizes the data into a common data representation, enabling it to perform any-to-any protocol translation and provide information to the end user in a uniform presentation.

This network-based framework creates a common, standards-based, open platform that then allows enterprise applications, cloud services, and building and IT systems to communicate. Protocol agnostic, Cisco Mediator extends the network to serve as an effective foundation for sustainability management.

Key Features and Benefits

- Cisco Mediator supports Cisco EnergyWise technology to manage energy across IT and facilities.
- The mediator supports network protocols such as Simple Network Management Protocol (SNMP), Simple Object Access Protocol (SOAP), and XML.
- The solution supports open standard building automation protocols such as BACnet and Modbus.
- Cisco Mediator supports other third-party building automation protocols.
- Any-to-any protocol translation allows communication between multivendor systems.
- Cisco Mediator supports energy meters, including pulse meters and smart meters (Modbus or IP).
- The solution allows for flexible integration of energy-generating and energy-consuming devices.
- The solution provides tools to both monitor real-time energy consumption and create automated policies to control it.
- The solution supports automated demand response and automated fault diagnostics.
- The platform is hardened and secured through the Cisco Self-Defending Network.
- Role-based access control offers increased user security.
- Communication is secured through certificate encryptions.
- Cisco Mediator provides interactive, menu-directed tools that allow you to:
  - Configure the interfaces and protocols on the mediator
  - Create and edit schedules, alarms, logs, and trends
  - Perform remote installation
  - Back up and restore configuration
- The solution provides a graphical programming tool that allows users with a working knowledge of controls and automation to translate their knowledge into efficient and powerful control logic.
- The management framework is web-based.
- With this solution you can control and manage devices over the Internet.
- Cisco Mediator presents real-time information in web-based graphical views.
- With Cisco Mediator you can create customized webpages for facility operations management.
- Cisco Mediator provides a standards-based open interface that allows third-party applications to integrate with the mediator and offer services "over the cloud". Examples of such cloud services include:
  - Remote energy management
  - Automated demand response
  - Automated fault diagnostics
  - Remote facility management

Specifications

Feature	Cisco Network Building Mediator
Processor	Pentium-class @ 266 MHz
Memory	512 MB of SDRAM and 512 MB of Compact Flash

Communications	· 1- console port (RS-232) · 2- RS-232 · 4- RS-485 · 2- 10/100 BASE-T Ethernet ports · 4- Dallas 1-Wire® ports (for distributed I/O points) · 2- USB ports
Inputs	4- Counters (optionally, general purpose digital inputs)
Outputs	2- Solid-State single-pole relay outputs (0-60V, 1.0A AC/2.0A DC outputs, opto-isolated)
Power	24V DC or AC (24 universal DC power supply provided with unit)
Wattage	Typically 6 Watts (maximum10 Watts)
Weight	Approximately 35 oz.
Size	Approximately 8" x 6" x 1" (housing cover)
Temperature	Recommended ambient range: 0° to 70°C (32° to 158°F)
Agency listings	Safety—UL 60950-1, CAN/CSA-C22.2 No. 60950-1 EMC Emissions—47CFR Part 15 (CFR 47) Class A, CISPR2 2 Class A, EN55022 Class A, ICES003 Class A, EN61000-3-2, EN61000-3-3

Selected Part Numbers and Ordering Information

NBM4800-K9	Cisco Network Building Mediator 4800-Include 2000 Pts
NBM4800-PL	Cisco Network Building Mediator 4800-Add 1000 Pts License
NBM4800-INT	Cisco Network Building Mediator 4800-Intermediate Protocols
NBM4800-ADV	Cisco Network Building Mediator 4800-Advanced Protocols
NBM2400-K9	Cisco Network Building Mediator 2400-Include 250 Pts
NBM2400-PL	Cisco Network Building Mediator 2400-Add 250 Pts License
NBM2400-INT	Cisco Network Building Mediator 2400-Intermediate Protocols

For More Information

http://www.cisco.com/go/mediator

Cisco Network Building Mediator Manager



Each building or site that needs to be managed uses one or more Cisco Network Building Mediators to integrate all the building systems within that facility. The Cisco Network Building Mediator Manager connects, monitors, aggregates, and manages this distributed network of mediators. The mediator manager includes a global navigator that provides visualization and presence for the dispersed deployment, global alarm monitoring for centralized event management, and tools for defining schedules and set points that apply across all facilities, helping to standardize facility operations and increase efficiencies in facility management.

Key Features and Benefits

- Provides global navigator that includes network presence information for enterprise-wide visibility of facility operations
- Provides global set-point control for changing system set points across all facilities
- Offers global alarm monitoring portal with the ability to redirect or route alarms to workflow management systems
- Provides global, unified schedules that apply across all facilities and across all subsystems
- Offers navigation capability from global site view to local site view
- Provides site dashboard highlighting important site parameters
- Provides site view that includes graphical equipment status pages for critical systems such as heating, ventilation, and air conditioning (HVAC), lighting, and metering
- Offers direct control of local site and equipment set points from enterprise portal

Specifications

Processor	**Quad-core Intel Xeon (Nehalem)**
Memory	6 GB
Hard Disk	2 x 300-GB SAS RAID drives
Ethernet	Ethernet network interface cards (NICs): 2 x Integrated NICs, 2 x Gigabit NICs (PCI-X)

Interfaces	1 serial port, 4 USB 2.0 ports, 1 keyboard port, 1 video port, 1 mouse port
Form Factor	Rack-mounted 1 RU
Weight	35 lb (15.87 kg) fully configured
Dimensions	1.70 x 16.78 x 27.75 in

Selected Part Numbers and Ordering Information

NBM-MGR-6300-K9	Cisco Network Building Mediator Manager 6300
NBM-MGR-50N-LIC	Cisco Network Building Mediator Manager (50-node license)

For More Information

http://www.cisco.com/go/mediator

Network Configuration and Change Management

CiscoWorks Network Compliance Manager (NCM)

CiscoWorks Network Compliance Manager (NCM) tracks and regulates configuration and software changes throughout a multivendor network infrastructure. It provides superior visibility into network changes and can track compliance with a broad variety of regulatory, IT, corporate governance, and technology requirements. NCM helps IT staff identify and correct trends that could lead to problems such as network instability and service interruption.

Ideal for Companies That Need These Features

Cisco Network Compliance Manager

- Tracks and regulates configuration and software changes throughout your multivendor network infrastructure (including routers, switches, firewalls, load balancers, and wireless access points)
- Improves visibility into network changes
- Tracks compliance with a broad variety of regulatory, IT, corporate governance, and technology best practices

Key Features and Benefits

- Flexible incremental licensing based on number of nodes
- Software image management with validation and recommendation
- End of Sale and End of Life reporting and notification
- Policy- and rule-based compliance reporting and management
- Rule-based prevalidation and configuration
- Sophisticated search capability
- Extensive support for a broad range of vendor equipment

For More Information

www.cisco.com/go/ncm

Cisco Network Registrar

Cisco Network Registrar is a full-featured solution that provides scalable, reliable, high-performance Domain Name Server (DNS) and Dynamic Host Configuration Protocol (DHCP) services and delivers IP address management (IPAM) features to ease administrative tasks. For cable providers, Cisco Network Registrar also forms the basis of a DOCSIS® cable modem provisioning system. Cisco Network Registrar provides high-performance provisioning of IP addresses for all services including mobile, cloud, and video.

Ideal for Companies That Need These Features

Cisco Network Registrar

- Scalability and high speed
- Automated support for the transition from IPv4 to IPv6
- Multitenancy for managed service providers to consolidate many small customers on a limited number of local clusters
- Carrier-class lease reservation performance for static IP address assignment
- Privacy protection functionality including compliancy with European Union privacy regulations

Key Features and Benefits

- Fast and scalable—Able to assign over 47,000 DHCP leases per second on a Cisco B-Series UCS platform (and 14,000 leases per second on a non-Cisco hardware platform) and support more than 50 million devices in a single customer deployment

- Reliable—Provides DHCP safe-failover, support for high-availability DNS, and unsurpassed avalanche prevention to reduce downtime after network outages
- Consolidated IP address management—Full lifecycle management for IPv4 and IPv6; allows dual-stack deployments on a single server, IPv6 prefix delegation and IPv6 stateless and stateful configuration
- Cloud ready—Multitenant capabilities enable cloud-based DHCP and DNS
- Low risk and reduced startup costs—Able to be deployed in a virtualized environment
- High-performance provisioning of IP addresses for all services including mobile, cloud, and video
- Real-time server status dashboard
- Carrier-class lease reservation performance
- Configuration and installation
- DHCP features—Both internal and external client reservations for IPv6 and IPv4 addresses and bulk lease query capabilities on IPv6 leases

For More Information

http://www.cisco.com/go/cnr

Cisco Mobile Wireless Transport Manager

With the Cisco Mobile Wireless Transport Manager (MWTM), Cisco offers monitoring and management capabilities for the Cisco Global System for Mobile Communications (GSM) Radio Access Network (RAN) Optimization solution, Cisco IP Transfer Point (ITP) networks, and Cisco Mobile Service Exchange Framework (mSEF).

Ideal for Companies That Need These Features

Cisco Mobile Wireless Transport Manager	• Easy navigation through the various management and troubleshooting tasks required to support the GSM backhaul infrastructure

Key Features and Benefits

- Event monitoring
- Performance reporting
- Troubleshooting
- Operations-support-system (OSS) integration
- Wizard-based provisioning
- Autodiscovery and topology
- Security
- Client/server architecture and OS support

For More Information

http://www.cisco.com/go/mwtm

Lifecycle Services for Network Management Products and Solutions

Cisco and our authorized partners provide a comprehensive portfolio of services for your network management solutions across the planning, design, implementation, and operate phases of the Cisco Lifecycle Services approach.

Planning, Design, and Implementation Services

Cisco and our global network of partners help you increase your success through world-class professional services delivery. Proven methodologies and leading practices help you better understand and improve the state of your operations and your Cisco network management solutions and processes. In addition to increased customer satisfaction, these services help reduce the complexities of deploying network services and reduce excess operating costs for your business. These innovative service programs are delivered through a unique combination of consulting engineers, processes, tools, and partners to address your planning needs. Implementation service activities are delivered primarily through Cisco Certified Partners.

Cisco Services for Operations and Network Management

- Accelerate your design and implementation of network management solutions
- Increase the accuracy and efficiency of your Cisco Operations and Network Management solution deployment by providing expertise and methodologies
- Help to ensure the Cisco Operations and Network Management solution delivers expected features and functions through involvement in all aspects of the plan, design, and implementation activities
- Improve your operations staff's productivity by enhancing staff skills to support the Cisco Operations and Network Management solution

For More Information

http://www.cisco.com/en/US/products/ps6835/serv_group_home.html

Technical Services for Operating Network Management Products

Cisco and our authorized partners offer technical support services that help you maximize the availability, security, and performance of your Cisco network management products. These services are available through your Cisco account manager or your local authorized partner.

Application Support

Application software support services are essential to keeping business-critical applications available, secure, and operating at optimal performance. They can help you reduce security, operational, and business risk by simplifying the process of keeping software releases current and supporting your staff with Cisco expertise and online tools.

Cisco Application Support for Network Management products include Software Application Support (SAS) and Software Application Support plus Upgrades (SASU).

Cisco Software Application Support provides:

- Around-the-clock, global access to certified Cisco Technical Assistance Center (TAC) engineers with specialized expertise in application software problems
- Unrestricted access to the extensive Cisco.com knowledge base, automated troubleshooting tools, and online support communities
- Access to ongoing application software updates for your licensed applications
- Software Application Support plus Upgrades includes all the deliverables of SAS plus access to major software application upgrades on your licensed applications, which can include significant new features and network management functions

Hardware Support

Cisco SMARTnet Service delivers rapid problem resolution, flexible device-by-device coverage, and premium service options to help maximize operational efficiency. SP Base provides similar device-level support tailored specifically for service provider customers.

Cisco SMARTnet Service and SP Base provide:

- Around-the-clock, global access to the Cisco TAC
- Registered access to the extensive Cisco.com knowledge base and tools
- Next-business-day advance hardware replacement (premium options available for business-critical devices, such as 2-hour replacement and onsite parts replacement and installation)
- Access to ongoing operating system software updates and upgrades
- Cisco operating system (Cisco IOS Software) software support to extend the life of Cisco devices with improved security, increased performance, bandwidth management, new protocol support, and greater interoperability
- Proactive diagnostics and real-time alerts on select devices with Smart Call Home

For More Information

http://www.cisco.com/go/services/applicationsupport

http://www.cisco.com/en/US/products/svcs/ps3034/ps2827/ps2960/serv_group_home.html

To find the specific technical services available for your hardware product or software application, visit the Cisco Service Finder tool at http://www.cisco-servicefinder.com.

To find a Cisco partner near you, visit: http://www.cisco.com/go/partnerlocator.

Technical Support Offerings	Application Support: SAS or SASU	Hardware Support: Cisco SMARTnet or SP Base Service
Cisco Catalyst 6500/7600 Series Network Analysis (NAM) Modules 1 and 2		Cisco SMARTnet or SP Base Service
Cisco Branch Routers Series NAM		Cisco SMARTnet or SP Base Service
Cisco NAM 2200 Series Appliances		Cisco SMARTnet or SP Base Service
Cisco Prime Optical	SAS	
Cisco Prime Fulfillment	SAS	
Cisco Prime Performance Manager	SAS	
Cisco Active Network Abstraction	SAS	
Cisco Multicast Manager	SAS	
Cisco Video Assurance Management Solution (VAMS)	SAS	

Cisco Prime LAN Management Solution (LMS)	SAS	
Cisco Unified Communications Management Suite	SAS	
Cisco Unified Operations Manager	SAS	
Cisco Unified Service Monitor	SAS	
Cisco Unified Provisioning Manager	SAS	
Cisco Unified Service Statistics Manager	SAS	
CiscoWorks QoS Policy Manager	SAS	
Cisco Media Gateway Controller Node Manager	SAS*	Cisco SMARTnet or SP Base Service*
Cisco Broadband Access Center	SAS	
Cisco Broadband Troubleshooter	SAS and SASU	
Cisco Secure Access Control Server (ACS)	SAS*	Cisco SMARTnet or SP Base Service*
Cisco Security Management Suite-Cisco Security Manager	SAS	
Cisco Access Registrar	SAS	
CiscoWorks Network Compliance Manager	SAS	
Cisco Network Registrar	SAS	
Cisco Mobile Wireless Transport Manager	SAS	

*Products with SAS or SASU and Cisco SMARTnet or SP Base Service have hardware devices and software applications. Cisco SMARTnet or SP Base Service is the support service for the hardware and OS and SAS is the support for the software application. Both are required to ensure that the product is completely covered.

Chapter 10: Cisco Services

Realize the full business value of your technology investments by harnessing the network as a powerful business platform enabled by smart, personalized services from Cisco and our partners.

Cisco services are built on expertise from more than 25 years experience in the networking industry, an installed base of more than 50 million devices, and more than six million customer interactions each year.

Put Cisco expertise to work for you:

- Faster Time to Value for New Technology Solutions
- Better Serve Your Customers
- Improve Operational Efficiency'
- Accelerate Growth
- Mitigate Risk

Successfully Plan, Build, and Run Your Network

Successfully plan, build, and run your network as a powerful business platform through our deep networking expertise and broad ecosystem of partners.



Plan

Early planning and sound design are critical for business alignment and deployment success—whether you are revamping your architecture or integrating new technologies. Cisco and our partners can work with you to explore your business objectives, design a solution architecture, and develop a strategy and architecture roadmap tied to your business goals.

Build

Quickly and cost-effectively deploy a fully integrated solution with these services that simplify migration assist your staff with configuration and post deployment validation. Based on proven methodologies and deep networking expertise, these services can help you take better advantage of your product features and benefits.

Run

Help maintain network health and performance with a broad portfolio of optimization, remote management, and technical services.

- Optimize your network for business evolution and innovation using Cisco expertise and leading practices through optimization services for your core infrastructure and advanced technologies.
- Simplify the adoption and ongoing management of Cisco advanced technologies, while enhancing the business benefits of your network and significantly reducing your total cost of ownership through remote management services.
- Proactively improve operational efficiency and network availability, mitigate risk, and better serve your customers with technical services.

Optimization Services

Optimization services can help your network remain optimized to support your business objectives. We share knowledge and leading practices, complementing your team's experience. Advanced technology optimization services are also available to help improve the performance of all the technologies on your network.

Remote Management Services

Built upon the principles of co-management and out-tasking, Cisco Remote Management Services offer a happy medium between complete outsourcing and self-management.

Technical Services

Technical services help businesses:

- Cisco SMARTnet Service—Gives your IT staff direct, anytime access to Cisco engineers, the Technical Assistance Center (TAC), and an extensive range of online resources. Provides fast, expert technical support, flexible hardware coverage, and smart, personalized capabilities to help you resolve critical network issues. The Cisco SMARTnet Onsite Service option provides a field engineer at your location for replacement parts installation. Smart Call Home, an embedded support feature, provides proactive diagnostics, alerts, and remediation capabilities for call-home enabled devices.
- Cisco Focused Technical Support Services—Expedites the resolution of network operations issues with priority handling by Cisco network experts who have comprehensive knowledge of the customer's network. Cisco SMARTnet or SP Base is a prerequisite for this service.
- Cisco Smart Net Total Care Service—This network-wide support offer simplifies and transforms your service experience through smart service capabilities. It combines Cisco's global networking expertise with secure visibility into your network assets to deliver actionable intelligence and proactive support that help you create operational efficiencies, lower costs and mitigate risk. With extensive inventory management and analysis, customized security alerts, proactive diagnostics, service case management from Cisco, and optional service-level agreements, Smart Net Total Care Service aligns with your business and development initiatives.
- Cisco Smart Care Service—Gives small and medium-sized business (SMB) customers proactive support for the entire Cisco network in a single contract. Increases network visibility; supports continuous improvement; and verifies network security, reliability, and functionality. (Smart Care Service is only available from certified partners.)
- Cisco Smart Foundation Service—Provides cost-effective network support on select devices for SMB customers.
- Cisco Software Application Support Services—Strengthens the availability, functionality, and security of your Cisco software applications with Cisco Software Application Support (SAS) Service, Cisco Software Application Support plus Upgrades (SASU) Service, and Cisco Unified Communications Essential Operate Service (ESW).
- Cisco SP Base Service—Gives service providers anytime access to Cisco engineers and Cisco.com resources to help ensure the fast, expert response needed to resolve critical network issues. Smart Call Home, an embedded support feature, provides proactive diagnostics, alerts, and remediation capabilities for call-home enabled devices. The Cisco SP Base Onsite option adds the services of a trained field engineer to install replacement parts on location. (Cisco SP Base is only available direct from Cisco.)

Cisco Technical Services also include the following technology-specific services:

- Cisco Unified Computing Support and Warranty Services—Helps you get the most from your unified computing investment with multiple service levels offering features tailored for unified computing needs.
- Cisco Unified Communications Operate Services—Maintains high availability, security, and operational efficiency of Cisco Unified Communications solutions.
- Cisco TelePresence™ Essential Operate Service—Provides system-level technical support that safeguards critical components and resolves issues with your Cisco TelePresence solution.
- Cisco Services for IPS—Keeps your Cisco Intrusion Prevention System (IPS) solution current on the latest threats so malicious or damaging traffic is accurately identified, classified, and stopped.
- Cisco Security IntelliShield Alert Manager Service—Provides easy access to customized, timely, accurate, vendor-neutral security intelligence to prevent, mitigate, and quickly remediate potential attacks.

To find the right technical service for any Cisco product, use the Service Finder tool at http://www.cisco-servicefinder.com. Enter a product description or SKU or search by product series family for a list of suggested services and support coverage options.

For More Information

- Cisco Customers—Contact your Cisco representative or authorized Cisco partner to discuss recommended services to protect and extend your technology investment. To learn more about Cisco Services, visit http://www.cisco.com/go/services.
- Locate a Cisco Partner—For customers looking for a Cisco Partner who will help you with specialized network design, consultation, installation and support services, visit http://www.cisco.com/go/partnerlocator.
- Cisco Authorized Partners—If you are an authorized partner, find information and resources to help you develop, sell and/or deliver services for Cisco products and solutions at http://www.cisco.com/go/partnerservices.

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