

Introduction



Cisco Product Quick Reference Guide

For companies of all sizes

Welcome to the **September 2009** edition of the Cisco Product Quick Reference Guide. This guide presents an overview of Cisco products, services, and solutions for every part of your business.

This portable and easy-to-use reference tool, summarizes information about many of Cisco's products and services sold through our channel partners. Inside the guide, you will find a wealth of current information, including brief overviews, important features, technical specifications, part numbers, and ordering information.

This guide is designed to help our partners, resellers, distributors, and sales account teams quickly learn about and sell Cisco products, services and solutions that are right for their customers. It's also ideal for end users, networking professionals, Cisco Networking Academy members, and those studying for Cisco certification who need a broad, high-level overview.

What's New in This Edition

This edition of the Cisco Product Quick Reference Guide covers updates to existing products and services, as well as many new offerings, including:

- Cisco 5500 Series Wireless LAN Controller
- Cisco Unified IP Phones 6900 Series
- Cisco TelePresence System 1300
- Cisco TelePresence Recording Server
- Cisco Video Surveillance 2000 Series IP Domes
- Cisco ASR9000 Series Aggregation Services Routers
- Cisco Unified Attendant Consoles Portfolio
- Cisco Network Building Mediator

For More Information

For questions about the Cisco Product Quick Reference Guide or to register with the Document Center, visit <http://www.cisco.com/go/guide>. When you register in the Document Center, you will have access to PDF and HTML versions of this guide that you can download at no charge.

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The Power of the Integrated Network

Cisco network systems solutions help enable anytime, anywhere, secure communications throughout your company and across the Internet. This is achieved by bringing together core networking functions, including routing, switching, security, WAN optimization, and Internet services.

The Cisco network systems end-to-end approach allows technical staff to manage the network centrally. Scalable solutions help businesses incrementally add or upgrade equipment as their needs change.

With proper management, the network reliably connects all local and remote employees and provides them with access to the same business applications and services.

Cisco network systems solutions create an inherently intelligent, integrated network that adapts to current and future business needs by:

- Providing secure, unconstrained connectivity between employees, customers, and information
- Delivering quality, real-time applications, such as voice and video, on a converged network platform
- Helping to ensure access to information and resources from anywhere
- Automating a manageable and self-defending network
- Reducing operating expenses
- Enabling green business, IT, and networking practices

These system and solutions enable customers to do the following:

- Reduce risk in deploying and operating technology solutions
- Accelerate technology solution deployment
- Improve business agility with a scalable, reliable, predictable foundation on which to build business value and lower the total cost of ownership
- Integrate technology solutions in the campus, branch, and data center with higher and consistent quality assurance of product and solution
- Improve ease and success of deploying business-critical applications when enabled by Cisco network architectures
- Customize a design to meet specific business requirements

The systems and solutions designs are organized around the following:

- Network architectures—Branch office or WAN, campus and data center
- Technologies—Unified communications, mobility, security, and video
- Industries—Financial services, healthcare, retail, and manufacturing

To access the available design guidance, refer to the following:

- **Enterprise systems and solutions**—Design zone is a consolidated resource for design guides, application deployment guides, white papers, videos, and other technical reference materials.
For more information, visit <http://www.cisco.com/go/designzone>.
- **Small and medium-sized business systems and solutions**—The SMB smart designs are validated commercial solutions designed primarily for partner success. They incorporate comprehensive solution implementation best practices in an easy-to-follow format to streamline the installation process, reduce deployment risk, and increase partner profitability.
For more information, visit <http://www.cisco.com/go/partner/smartdesigns>.

Cisco Capital Financing

As a wholly owned subsidiary of Cisco, Cisco Capital is in a unique position to provide end-users with competitive and flexible financing options for Cisco solutions.

We're able to take advantage of the strong resources of our parent company to provide customers with an alternative source of affordable funds while allowing them to get the technology they need now, while preserving capital and maximizing resources.

As a trusted business partner, Cisco Capital can help end-users obtain and maintain the right Cisco solution with the most effective acquisition strategy for their business.

For more information on financing with Cisco Capital, visit www.cisco.com/go/ciscocapital.

Cisco Certified Refurbished Equipment

Cisco Capital Remarketing maintains a large inventory of refurbished Cisco products for sale. Key facts to know:

- Over 2800 current and end-of-sale (EOS) part numbers and unique SKUs across all technology areas: switching, routing, security, wireless, telephony, advanced technologies, memory, and accessories
- Remanufactured, tested, and reconditioned to Cisco factory specifications
- Same warranty and service support options as for equivalent new products
- 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
- Inventory varies daily; sold on a first-come, first-served basis
- Check product availability at <http://www.cisco.com/go/refurbished>
- 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

Ideal applications for Cisco Certified Refurbished Equipment include:

- 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
- For more information about Cisco Certified Refurbished Equipment, including product availability, current promotions, and ordering instructions, please visit us at: <http://www.cisco.com/go/refurbished>.

Product Warranty Information

All Cisco hardware and software products are covered for a minimum of 90 days. Some products have longer coverage periods. 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.

Warranty ¹	Entitlement Descriptions
Cisco Standard 90-Day Limited Hardware Warranty, Software Warranty and License Agreement (78-523-vvrr)	<ul style="list-style-type: none"> • Warranty Duration: Ninety (90) days • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location. • Software Warranty: Ninety (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. • 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. • 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 ninety (90) days after original shipment by Cisco) • Warranty allows guest access only to Cisco.com
Cisco 90-day Limited Hardware Warranty (78-5236-vvrr)	<ul style="list-style-type: none"> • Warranty Duration: Ninety (90) days • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location. • Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco) • Warranty allows guest access only to Cisco.com
Cisco End User Software License Agreement and Limited Software Warranty (78-3621-vvrr)	<ul style="list-style-type: none"> • Warranty Duration: Ninety (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. • 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. • Software warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, commences not more than ninety (90) days after original shipment by Cisco). • 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 One-Year Limited Hardware Warranty (78-10747-vvrr)	<ul style="list-style-type: none"> • Warranty Duration: One (1) year • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location. • Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco) • Warranty allows guest access only to Cisco.com
Cisco Two-Year Limited Hardware Warranty (78-16341-vvrr)	<ul style="list-style-type: none"> • Warranty Duration: Two (1) years • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location • Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco) • Warranty allows guest access only to Cisco.com

Cisco 5-Year Limited Hardware Warranty (78-18856-vvrr)	<ul style="list-style-type: none"> • Available for Cisco Small Business Pro Switch • Warranty Duration: Five (5) years • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location. • Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, not more than ninety (90) days after original shipment by Cisco). • Warranty allows guest access only to Cisco.com
Cisco 5-Year Limited Hardware and 1-Year Limited Software Warranty (78-13712-vvrr)	<ul style="list-style-type: none"> • Hardware Warranty Duration: Five (5) years • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery within fifteen (15) working days after receipt of the defective product at Cisco's site. Actual delivery times of replacement products may vary depending on Customer location. • Software Warranty Duration: One (1) year • 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. • 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. • 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 ninety (90) days after original shipment by Cisco). • Warranty allows guest access only to Cisco.com
5-Year Limited Hardware and 5-Year Limited Software Warranty (78-19176-vvrr)	<ul style="list-style-type: none"> • Warranty is available on optical hardware and software products. • Hardware Warranty Duration: Five (5) years • Hardware Replacement: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery within fifteen (15) working days after receipt of the defective product at Cisco's site. Actual delivery times of replacement products may vary depending on Customer location. • Software Warranty Duration: Five (5) years • 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. • 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. • 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 ninety (90) days after original shipment by Cisco). • Warranty allows guest access only to Cisco.com
Cisco Limited Lifetime Hardware Warranty (78-6310-vvrr)	<ul style="list-style-type: none"> • Warranty applies to Catalyst Express 500, Catalyst 2960, 3560, 3560-E, 3750, 3750-E, 4500, and 4500-E 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 five (5) years. • In the event of discontinuance of product manufacture, Cisco warranty support is limited to five (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 ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location. • Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, not more than ninety (90) days after original shipment by Cisco). • Warranty allows guest access only to Cisco.com
Cisco Small Business Product 3-Year Limited Hardware Warranty (78-18852-vvrr)	<ul style="list-style-type: none"> • Warranty Duration: Three (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 via ground shipping with shipping charges prepaid. • Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, not more than ninety (90) days after original shipment by Cisco). • Warranty allows guest access only to Cisco.com

Cisco Small Business Product 5-Year Limited Hardware Warranty (78-18853-vvrr)	<ul style="list-style-type: none"> · Warranty Duration: Five (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 via ground shipping with shipping charges prepaid. · Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, not more than ninety (90) days after original shipment by Cisco). · Warranty allows guest access only to Cisco.com
Cisco Small Business Product Limited Lifetime Hardware Warranty (78-18854-vvrr)	<ul style="list-style-type: none"> · 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 one (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 via ground shipping with shipping charges prepaid. · In the event of discontinuance of product manufacture, Cisco warranty support is limited to five (5) years from the announcement of discontinuance. · Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, not more than ninety (90) days after original shipment by Cisco). · Warranty allows guest access only to Cisco.com
Cisco Unified Computing 3-Year Limited Hardware Warranty (78-19008-vvrr)	<ul style="list-style-type: none"> · Warranty is applicable to Cisco Unified Computing products only. · Hardware Warranty Duration: Three (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 Return Materials Authorization request. Actual delivery times of replacement products may 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 Customer will be able to operate the Software without problems or interruptions. · 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 ninety (90) days after original shipment by Cisco). · Warranty allows guest access only to Cisco.com

1. "vv" and "rr" suffixes of the warranty document numbers represent the revision and version numbers respectively.

For More Information

For more information about Cisco Hardware and Software Product Warranties, visit:
<http://www.cisco.com/go/warranty>.

Partner and Customer Support

Pre- and Post-Sales Contact Information	
Presales— 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) 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: www.cisco.com/public/ssc/ <ul style="list-style-type: none"> · 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	
Westcon-Comstor 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. tools.cisco.com/RPF/register/register.do
Partner Central	Explore the tools and resources that are available to Cisco partners. 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. www.cisco.com/web/partners/news/index.html
Partner Self-Service	Manage company data including profile information and access privileges. tools.cisco.com/WWChannels/GETLOG/login.do
Partner Locator	Locate a qualified channel partner identified on the basis of specific criteria. www.cisco.com/go/partnerlocator
Distributor Locator	Locate a Cisco distributor in any country. 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. 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. ciscopartner.custhelp.com
Ordering Website	To place orders for Cisco products and services: http://www.cisco.com/en/US/ordering/index.html
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. www.cisco.com/go/partner/smartdesigns
Cisco Certified Refurbished Equipment	To learn about Cisco Certified Refurbished Equipment, check product availability, and get ordering instructions: http://www.cisco.com/go/refurbished
Services and Support Resources	
Cisco Services	Find detailed information about the services you need to protect and grow your technology investment www.cisco.com/go/services
Cisco Support Online	Easily access online documentation, technical tools, and resources from Cisco Support Online. www.cisco.com/go/support
Cisco Service Finder	Match the right support service to the right product with the Cisco Service Finder. 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. www.cisco.com/en/US/products/prod_end_of_life.html
Return a Product	Information on return policies and RMA process. www.cisco.com/web/ordering/cs_info/or3/g32/Return_a_Product/WWRL_HOME.html
RMAService Order Tools	Access tools and resources to streamline your service and parts logistics inquiries. tools.cisco.com/serviceordertools/svosubmit/tools.do

Cisco Support Wiki	Share information and collaborate in real time with users around the globe. Find the most up-to-date information on Cisco products and services. supportwiki.cisco.com
Cisco Technical Services Newsletter	Sign up for your free subscription to our monthly 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. www.cisco.com/go/tsnews
Cisco Networking Professionals Connection	Join your fellow networking professionals to discuss and share information on Cisco products and solutions. www.cisco.com/go/netpro
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. 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. www.cisco.com/web/learning/netacad/index.html
Cisco Career Certifications	The widely respected Cisco Career Certifications and Training programs bring valuable, measurable rewards to network professionals, their managers, and the organizations that employ them. www.cisco.com/go/learnnetspace
Cisco Design Zone	Consolidated resource for design guides, application deployment guides, white papers, videos, and other technical reference materials. www.cisco.com/go/designzone
Cisco Marketplace	The one stop shop for Cisco merchandise, including Cisco collateral and product documentation, logo merchandise, Cisco Press books, and software. 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. www.cisco.com/go/marketplace

Chapter 1: Routing

Routing At-a-Glance

Product	Features	Page
INTEGRATED SERVICES ROUTERS		
Cisco 3800 Series Integrated Services Routers	<p>Very high performance and densities with the ability to run concurrent data, security, voice, and advanced services at wire speeds up to T3/E3.</p> <ul style="list-style-type: none"> High availability and resiliency with online insertion and removal (OIR); redundant system and inline power options. High-speed HWICs free network-module slots for other services. Wireless LAN controller modules are a component of the Cisco Unified Wireless Network. 	1–6
Cisco 2800 Series Integrated Services Routers	<p>Optimized for the secure, wire-speed delivery of concurrent data, voice, and video services for small business and enterprise branch routing.</p> <ul style="list-style-type: none"> Superior performance with multiple services enabled for 1–6 T1/E1 links. Advanced security features include stateful firewall, intrusion prevention system (IPS), VPN, and Cisco Network Admission Control (NAC). Built-in encryption uses Digital Encryption Standard (DES), Triple DES (3DES), and Advanced Encryption Standard (AES). WLAN controller modules are a component of the Cisco Unified Wireless Network. 	1–9
Cisco 1800 Series Integrated Services Routers	<p>Wide variety of LAN and WAN options in both modular and fixed architectures. Network interfaces on the Cisco 1841 are field-upgradable for flexibility and to accommodate future technologies.</p> <ul style="list-style-type: none"> Fixed-configuration models offer 10/100 Ethernet, asymmetric DSL (ADSL) over ISDN, ADSL over basic telephone service, or G.SHDSL WAN interfaces with integrated ISDN Basic Rate Interface (BRI) (Cisco 1801, 1802, 1803, and 1812 models) or analog modem (Cisco 1811) backup interfaces. 8-port integrated switch with VLAN support on the fixed-configuration models Optional IEEE 802.11a/b/g support on the fixed-configuration models Unified Communications and integrated wireless LAN 802.11b/g are available with Cisco 1861 model. 	1–13
Cisco 800 Series Router	<p>Integrated services routers allow small offices to operate secure concurrent services at broadband or Metro Ethernet speeds, including firewall, VPNs, threat defense, Advanced QoS, and Unified Communications support.</p> <ul style="list-style-type: none"> Integrated 4-port switch with VLAN support Wireless LAN support - Optional IEEE 802.11 b/g support on Cisco 850 and 870 Series. Optional IEEE 802.11b/g/n support on Cisco 860 and 880 Series. Optional IEEE 802.11a/b/g/n support on Cisco 890 Series. Wireless WAN with 3G support—Optional 3G support for HSPA, EVDO Rev A, UMTS, EDGE, GPRS, and EVDO Rev0/1xRTT standards (Cisco 880 Series) Survivable Remote Site Telephony (SRST) voice continuity for enterprise small branch-office and teleworker sites (Cisco 880 Series) Metro Ethernet access with concurrent services for enterprise small branch offices (Cisco 890 Series) Enhanced security features including stateful inspection firewall and hardware-assisted encryption Advanced features with threat defense capabilities, IPS, and QoS for voice over IP (VoIP), (Cisco 870, 880 and 890 Series) Demilitarized zone (DMZ), dial backup, and out-of-band management (Cisco 870, 880 and 890 Series) Cisco Configuration Professional GUI tool for simple and advanced configuration 	1–20
SERVICE AGGREGATION/CORE ROUTERS		
Cisco 7600 Series Routers	<p>Consolidate WAN, MAN, and LAN in a single platform.</p> <ul style="list-style-type: none"> High-volume aggregation of service-enabled Ethernet Ideal for service provider edge, MAN, and quad-play (data, voice, video, and mobile) deployments and high-end enterprise solutions Support many Cisco Catalyst 6500 Series line cards and Cisco 7500/7200 port adapters Support broad range of advanced services modules, such as IPsec shared port adapter (SPA), distributed denial of service (DDoS), firewall services modules (FWSMs), application control engines (ACEs) (server load balancing), Services Application Module for IP (SAMi), and Wireless Controller Modules. 	1–25

Cisco 7300 Series Routers	<ul style="list-style-type: none"> • Cisco 7304—Network edge router delivers high-performance IP services at optical speeds for service providers and enterprise networks. • Cisco 7301—Broadband and WAN edge router provides intelligent services, port-adapter modularity, high performance, investment protection, and scalability in a 1RU form factor. 	1–28
Cisco 7200 Series Routers	<p>Optimized OC-3/Gigabit Ethernet WAN-edge router provides intelligent services, high modularity, high performance, investment protection, and scalability in a small form factor.</p> <ul style="list-style-type: none"> • Choice of system processors (network processing engines [NPEs]) for up to 2-Mpps performance (Cisco 7201 comes with built-in NPE) • Built-in Gigabit Ethernet connectivity—Copper or fiber (three ports on Cisco uBR7200 Series NPE-G2 Network Processing Engine or four ports on the Cisco 7201) 	1–30
Cisco ASR 9000 Series Aggregation Services Routers	The Cisco ASR 9000 Series delivers a true carrier-class solution by using the modular, microkernel-based Cisco IOS XR Software operating system, comprehensive system redundancy, and a full complement of network resiliency schemes.	1–32
Cisco ASR 1000 Series Aggregation Services Routers *NEW*	<p>Offer service providers and enterprises industry-leading performance, service capabilities, reliability, and efficiencies in a compact form factor. Using an innovative Cisco QuantumFlow processor, current and future services can be instantly turned on to operate at line rate without compromising network performance or availability.</p> <ul style="list-style-type: none"> • For enterprises—Provides secure WAN aggregation services, integrated threat-defense services at the private WAN or Internet edge, or can be used for managed CPE services. • For service providers—Provides flexible, cost-effective delivery of sophisticated any-play consumer and business services. 	1–34
Cisco XR 12000 and 12000 Series Routers	<p>Service provider-class multiservice-edge routers help customers transition toward a converged IP network infrastructure.</p> <ul style="list-style-type: none"> • Support edge-optimized line cards, maximizing the value of line-rate edge applications with 10-G uplinks while sustaining line-rate performance. • Up to nine chassis options are available, with new power supply and blower enhancements supporting a portfolio of shared port adapters (SPAs) and SPA interface processors (SIPs). • Offer service-related enhancements (Layer 3 VPN [L3VPN], L2VPN, and QoS) that help ensure traffic differentiation while meeting the strictest customer service-level agreements. 	1–35
Cisco CRS-1 Carrier Routing System	<p>Industry's only carrier routing system offering continuous system operation, unprecedented service flexibility, and system longevity.</p> <ul style="list-style-type: none"> • Powered by Cisco IOS XR Software, designed for always-on operation while scaling system capacity up to 92 Tbps. • Marks a new era in carrier IP communications by powering the foundation for Cisco IP Next-Generation Networks (IP NGNs) today while protecting investments for decades to come. 	1–38
SERVICES		
Cisco Routing Services	<p>The enterprise network becomes a strategic asset through effective architecture, deployment, and operations. Cisco Routing Services use leading practices and time-tested methodologies to help you to:</p> <ul style="list-style-type: none"> • Deliver new capabilities while keeping the network secure, reliable, and available • Successfully integrate new technologies and applications onto the routing platform • Reduce risk, delays, and the total cost of network deployments • Optimize your core routing network to meet future needs • Prepare your teams to succeed with new technologies • Achieve operational excellence 	1–39

Product Ordering Website

To place an order or for more part numbers, visit: <http://www.cisco.com/en/US/ordering/index.shtml>.

This chapter only provides a small subset of all part numbers available. See the URL listed in the "For More Information" section of each product to get a complete list of part numbers.

Cisco Routers Port Matrix

	Integrated Services Routers				Service Aggregation/Core Routers					
	3800 Series	2800 Series	1800 Series	800 Series	7600 Series	7304 Series	7200/7301 Series	ASR 1000Series	12000 Series	CRS-1 System
Fixed Ports Only				X						
Fixed & Modular Ports	X	X	X		X	X	X	X	X	X
Modular Ports Only										
LAN Ports										
10-Mbps Ethernet					X		X	X		
10-Mbps Ethernet (fiber)					X		X	X		
100-Mbps Ethernet	X	X	X		X		X	X	X	
100-Mbps Ethernet (fiber)	X				X	X	X	X	X	
10/100-Mbps Ethernet	X	X	X	X	X	X	X	X	X	
10/100 Mbps Switch Port	X	X	X	X	X					
Cable DOCSIS 2.0	X	X	X	X						
Token Ring	X					X ¹	X			
ATM	X	X			X	X	X	X		
Gigabit Ethernet	X	X ²		X	X	X	X	X	X	X
10 Gigabit Ethernet					X			X	X	X
WDM 10 Gigabit Ethernet								X	X	X
Wireless LAN										
Integrated Standalone Access Point	X	X	X	X						
Wireless LAN Controller Module	X	X								
3G Wireless WAN	X	X	X ³	X						
WAN Ports										
Sync Serial	X	X	X		X	X	X	X		
Sync Serial w/ CSU	X	X	X			X				
ISDN BRI (S/T)	X	X	X	X			X			
ISDN BRI (U)	X	X	X				X			
ISDN PRI/Ch T1	X	X					X			
ISDN PRI w/ CSU	X	X					X			
Async	X	X	X							
Analog/POTS	X	X		X						
Integrated Modems	X	X	X	X						
Integrated Modem WICs	X	X	X							
HSSI	X				X	X	X			
DS3	X	X			X	X	X	X	X	X

	Integrated Services Routers				Service Aggregation/Core Routers					
ATM OC-3					X	X	X	X	X	X
ATM OC-12					X	X			X	X
ATM	X	X			X	X	X	X		X
ATM-T1/E1	X	X			X	X	X			
POS OC-x/STM-x					X	X	X	X	X	X
DPT/RPR OC-12/STM-4					X				X	X
DPT/RPR OC-48/STM-16					X				X	X
DPT/RPR OC-192/STM-64					X				X	X
Circuit Emulation					X					
	3800 Series	2800 Series	1800 Series	800 Series	7600 Series	7304 Series	7200/7301 Series	ASR 1000Series	12000 Series	CRS-1 System
ADSL, ADSL 2+, G.SHDSL		X	X	X						
ADSL over ISDN	X	X	X	X						
G.SHDSL	X	X	X	X						
IDSL	X	X	X							
DPT									X	X
Voice Over IP (VoIP)										
Analog Voice Interfaces	X	X	X ⁴	X						
Digital Voice Interfaces	X	X	X ⁵		X		X			
ISDN BRI Digital Voice Interfaces	X	X	X ⁵	X						
Integrated Switching										
Integrated 4-port Switch				X						
Integrated 8-port Switch			X ⁵	X						
Integrated 4-port Switch HWIC	X	X	X ⁴							
Integrated 9-port Switch HWIC	X	X								
Integrated 16-port Switching	X	X ⁶								
Integrated 24-port Switching	X	X ⁷								
Integrated 36-port Switching	X	X ⁸								
Integrated 48-port Switching	X	X								
Power over Ethernet (PoE)	X	X	X	X						
Application Acceleration (WAAS)										
Wide Area Application Acceleration Modules	X	X								
Security VPN										
IPS	X	X	X	X	X		X			
IPS Advanced Integration Module	X	X	X ⁴							
IPS Network Module	X	X								

Network Admission Control Network Module	X	X			X					
Encryption Advanced Integration Modules	X	X	X	X	X					
Encryption Service Adapter					X		X	X		
Application Extension Platform (AXP)										
Advanced Integration Module	X	X	X ⁴							
Network Module	X	X								

1. Cisco 7301 Router only
2. Supported on the Cisco 2691 only
3. Cisco 1841 only
4. Cisco 1861 only
5. Except Cisco 1841
6. Cisco 2811, 2821, and 2851 only
7. Cisco 2821 and 2851 only
8. Supported on Cisco 2851 only

Memory Information for Routers

Router	Memory Type	Slots	Default Memory	Max Memory	Default Configuration (Notes)
815	Flash DRAM	1 1	32 MB	64 MB 128 MB	
850 Series	Flash DRAM		20 MB 64 MB	20 MB 64 MB	20 MB On board 64 MB On board
860 Series	Flash DRAM		128 MB 256 MB	128 MB 256 MB	
870 Series	Flash DRAM	1 1	24 MB or 28 MB ¹ 128 MB	52 MB 256 MB	20MB On board + 4MB or 8MB* Mini Flash 128 MB On board + 128MB DIMM module * Advanced IP Services image includes 28MB flash
880 Series	Flash DRAM	1	128 MB or 256 MB (on SRST models) 256 MB or 512 MB (on SRST models)	128 MB or 256 MB (on SRST models) 768 MB	256 MB on motherboard, plus one slot
890 Series	Flash DRAM	1	256 MB 512 MB	256 MB 768 MB	256 MB on motherboard, plus one slot
1800 Series	Flash (1841) DRAM (1841) Flash (1861) DRAM (1861) Flash (181x, 180x) DRAM (181x, 180x)	1 1	32 MB 128 MB 128 MB 256 MB 64 MB 256 MB	128 MB 384 MB 128 MB 256 MB 128 MB 384 MB	External compact flash 128 MB on motherboard, plus one slot External compact flash 128 MB on motherboard, plus one slot
2800 Series	DRAM (2801) DRAM (2811) DRAM (2821) DRAM (2851) Compact Flash (2801) Compact Flash (2811) Compact Flash (2821) Compact Flash (2851)		128 MB 256 MB 256 MB 256 MB 64 MB 64 MB 64 MB 64 MB	384 MB 768 MB 1 GB 1 GB 128 MB 256 MB 256 MB 256 MB	Slot 0 = 128 MB, Slot 1 = Empty Slot 0 = 256MB, Slot 1 = Empty Slot 0 = 256MB, Slot 1 = Empty Slot 0 = 256MB, Slot 1 = Empty Single 64 MB Compact Flash default Single 64 MB Compact Flash default Single 64 MB Compact Flash default Single 64 MB Compact Flash default
3800 Series	Flash (External Compact Flash) DDR SDRAM (ECC)	1 2	64 MB 256 MB	256 MB 1 GB	Single 64 MB Compact Flash default Slot 0 = 256MB, Slot 1 = Empty

ASR 1000 Series	ASR1002 DRAM		4 GB	4 GB	
	ASR1002-F DRAM		4 GB	4 GB	
	RP1 DRAM		2 GB	4 GB	
	ESP5 DRAM		1 GB	1 GB	
	ESP10 DRAM		2 GB	2 GB	
	ESP20 DRAM		4 GB	4 GB	
	ASR1002 eUSB		8 GB	8 GB	
7200 Series	Flash for 7201	1	256 MB	256 MB	
	Flash (PCMCIA) (for IO controller card; IO controller card required for NPE-400)	2	64 MB	128 MB	
	Flash for NPE-G1 (Compact Flash)	1	64 MB	256 MB	
	Flash for NPE-G2 (Compact Flash)	1	64 MB	256 MB	
	DRAM (NPE-400)	1	256 MB	256 MB	
	DRAM (NPE-G1)	2	512 MB	1 GB	
	DRAM (NPE-G2)	2	1 GB	2 GB	
DRAM for 7201	2	256 MB	512 MB		
7301 Series	Flash (CFM)	1	64 MB	512 MB	
	DRAM	1	512 MB	1 GB	
7304 NPE-G100	Flash (CFM)	1	256 MB	256 MB	
	DRAM	1	512 MB	512 MB	
	Flash (CFM)	1	256 MB	256 MB	
7304 NSE-150	DRAM	1	1 GB	1 GB	
	DRAM	1	2 GB	2 GB	
7600 Series	Flash (PCMCIA)	1	16 MB	1 GB	
	DRAM (MSFC2 or MSFC3)	1	128 MB	512 MB	
	DRAM (DFC)	1	128 MB	1 GB	
	DRAM (Sup720-3B)	1	512 MB	1 GB	
	DRAM (Sup720-3BXL)	1	1 GB	1 GB	
	DRAM (RSP720-3C)	1	1 GB	4 GB	
	DRAM (RSP720-3CXL)	1	1 GB	4 GB	
	DRAM (RSP720-3C-10G)	1	1 GB	4 GB	
	DRAM (RSP720-3CXL-10G)	1	1 GB	4 GB	
XR 12000/12000 Series	Flash (PCMCIA)	2	48 MB	4 MB	Route Memory
	SDRAM (PRP-2)	1	2 GB	4 GB	
	DRAM (Line Cards)	1/2	128-256 MB	256 MB-2 GB	
CRS-1 Carrier Routing System	Flash (PCMCIA)	1	1 GB	4 GB	Route Memory Line Card Route Memory Line Card Packet Memory
	DRAM (RP)	2	4 GB	4 GB	
	DRAM (MSC)	2	2 GB	2 GB	
	DRAM (MSC)	2	2 GB	2 GB	

- Advanced IP Services image includes 28MB flash

Cisco 3800 Series Integrated Services Routers

The Cisco 3800 Series Integrated Services Routers constitute the flagship platform in a portfolio of next-generation routers that integrate advanced technologies, adaptive services, wireless support, and secure enterprise communications.

These new routers offer the performance and reliable packet delivery necessary to efficiently deliver mission-critical network capabilities, including real-time applications such as voice over IP (VoIP), business video, and collaborative communications. Architectural enhancements include embedded security processing, significant platform performance and memory improvements, and new high-density interface types.



Ideal for Companies That Need These Features

Cisco 3825 Integrated Services Router

- Low density (up to 88 ports), integrated 10/100 switching
- Up to 360W Cisco Inline Power, or PoE
- Integrated onboard security acceleration for IPsec for improved IPsec performance and an integral part of Cisco Self-Defending Network
- Medium- to large-sized branch offices and businesses that can support concurrent data, security, voice, and advanced services at wire speed up to one-half T3/E3 rates.

Cisco 3845 Integrated Services Router

- Same features as above plus higher availability and resiliency (such as redundant system and inline power, online-insertion-and-removable (OIR) components, and field-replaceable components such as the CPU motherboard and fan assembly).
- Medium- to large-sized branch offices and businesses, providing very high performance and densities for concurrent data, security, voice, and advanced services with the ability to run at wire speed up to T3/E3 rates.

Key Features

- Cisco IOS Firewall provides stateful, application-based filtering (context-based access control); per-user authentication and authorization; real-time alerts; a transparent firewall; and an IPv6 firewall.
- The Cisco 3845 Integrated Services Routers offer VPN services, including Data Encryption Standard (DES), Triple DES (3DES), and Advanced Encryption Standard (AES) 128, 192, and 256 cryptology support. They support embedded hardware-based VPN acceleration on the motherboard, and (optional) higher-performance AIM-based security acceleration with Layer 3 compression. The routers support up to 1800 tunnels with the VPN module, Cisco Easy VPN (remote and server), Dynamic Multipoint VPN (DMVPN), Group Encrypted VPN (GET VPN), and Secure Socket Layer VPN (SSL VPN).
- The 3800 Series routers support Multiprotocol Label Switching (MPLS) VPNs. Specific provider-edge capabilities include Virtual Route Forwarding (VRF) firewall and VRF IP Security (IPsec).
- Onboard universal-serial-bus (USB) 1.1 port(s) offer future support for secure token and flash memory.
- More than 700 intrusion-prevention-system (IPS) signatures are supported in Cisco IOS Software, with the ability to load and enable selected IPS signatures. More than 2000 IPS signatures are available with the optional high-performance intrusion-prevention-system (IPS) network module. IPS AIM is also supported.
- Onboard URL filtering with an optional content-engine network module is provided. Local URL filtering occurs in Cisco IOS Software based on the external server.
- Cisco Router and Security Device Manager (SDM) comes standard on all Cisco 3800 Series Integrated Services Routers.
- Integrated IEEE 802.11 a/b/g standalone access-point high-speed WAN interface cards (HWICs) provide wireless support.
- Wireless LAN (WLAN) controller modules are a component of the Cisco Unified Wireless Network.
- The routers support IP phones through an optional integrated power supply with inline power. Standard 802.3af support derives from 360W of inline power.
- The routers offer analog voice support for up to 88 foreign-exchange-station (FXS) and 56 foreign-exchange-office (FXO) ports and digital voice support for up to 720 calls. The motherboard has 4 packet-voice-DSP-module (PVDM) slots. Finally, the routers support local conferencing and transcoding.
- Cisco Communications Manager Express software on these routers supports up to 240 phones; Cisco Survivable Remote Site Telephony (SRST) supports up to 720 phones.
- The routers have up to 120 mailboxes using a Cisco Unity Express network module.
- Voice interfaces support FXS, FXO, Direct Inward Dial (DID), Ear & Mouth (E&M), Centralized Automated Message Accounting (CAMA), Basic Rate Interface (BRI), T1, E1, J1, Primary Rate Interface (PRI), Q.SIG, and channel associated signaling (CAS).

Specifications

Feature	Cisco 3825	Cisco 3845
Network Module Slots	2	4
Advanced Integration Module (AIM) Slots	2	Same As Cisco 3825
High speed WAN Interface Card (HWIC) Slots	4	Same As Cisco 3825
10/100/1000 GE Ports	2	Same As Cisco 3825
Small Form Pluggable (SFP) ports	1	Same As Cisco 3825
Onboard PVDM slots	4	Same As Cisco 3825
WAN Network Modules	Yes	Same As Cisco 3825
ATM AIM Modules	Yes	Same As Cisco 3825
Voice/Fax Network Modules	Yes	Same As Cisco 3825
WAN Interface Card (WIC) Modules	Yes	Same As Cisco 3825
Multiflex Voice/WAN Interface Cards	Yes	Same As Cisco 3825
Voice Interface Card (VIC) Modules	Yes	Same As Cisco 3825
Modem Modules	Yes	Same As Cisco 3825

EtherSwitch Modules	Yes, HWIC and Network Modules	Same As Cisco 3825
Performance with Services	Up to 14 T1/E1's	Up to T3
VPN/Security Advanced Integration Modules (AIM)	Yes, AIM-VPN/EPII-PLUS	Yes, AIM-VPN/EPII-PLUS
Content Engine Network Modules	Yes	Same As Cisco 3825
Flash Memory (External)	64 MB (default) -256 MB (optional)	Same As Cisco 3825
DRAM Memory	256 MB (default) - 1024 MB (max)	Same As Cisco 3825
Power Supply	AC, AC +POE, DC, external redundant AC	AC, DC, internal redundant AC + POE
Dimensions (H x W x D)	3.5 x 17.1 x 14.7 in.	5.25 x 17.25 x 16 in.

Selected Part Numbers and Ordering Information

Cisco 3800 Series Integrated Services Routers		
CISCO3825	Cisco 3825 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 2 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, and AC power	
CISCO3825-AC-IP	Cisco 3825 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 2 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, AC Power, and PoE	
CISCO3825-DC	Cisco 3825 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 2 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, and DC power	
CISCO3845	Cisco 3845 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 4 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, and AC power	
CISCO3845-AC-IP	Cisco 3845 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 4 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, AC Power, and PoE	
CISCO3845-DC	Cisco 3845 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 2 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, and DC power	
Cisco 3800 Series Secure Voice Bundles		
CISCO3845-H-VSEC/K9	Cisco 3845 High Performance VSEC:AIM-VPN3/SSL, PVD2M2, CCME/SRST, AIS, 512F/1024D	
CISCO3825-H-VSEC/K9	Cisco 3825 High Performance VSEC:AIM-VPN3/SSL, PVD2M2, CCME/SRST, AIS, 512F/1024D	
C3845-VSEC/K9	Cisco 3845 Voice Security Bundle, PVD2M2-64, Adv IP Services, 128MB Flash/512MB DRAM	
C3825-VSEC/K9	Cisco 3825 Voice Security Bundle, PVD2M2-64, Adv IP Services, 128MB Flash/512MB DRAM	
C3845-VSEC-CCME/K9	Cisco 3845 VSEC Bundle, PVD2M2-64, FL-CCME-240, Adv IP Services, 128MB Flash/512MB DRAM	
C3825-VSEC-CCME/K9	Cisco 3825 VSEC Bundle, PVD2M2-64, FL-CCME-168, Adv IP Services, 128MB Flash/512MB DRAM	
C3845-VSEC-SRST/K9	Cisco 3845 VSEC Bundle, PVD2M2-64, FL-SRST-240, Adv IP Services, 128MB Flash/512MB DRAM	
C3825-VSEC-SRST/K9	Cisco 3825 VSEC Bundle, PVD2M2-64, FL-SRST-168, Adv IP Services, 128MB Flash/512MB DRAM	
C3845-VSEC-CUBE/K9	Cisco 3845 VSEC Bundle w/ PVD2M2-64, FL-CUBE-400, AVS:128F/512D	
C3825-VSEC-CUBE/K9	Cisco 3825 VSEC Bundle w/ PVD2M2-64, FL-CUBE-300, AVS:128F/512D	
Cisco 3800 Series Security Bundles		
CISCO3845-SEC/K9	Cisco 3845 Security Bundle with IOS Advanced Security, 64MB Flash/256 MB DRAM	
CISCO3845-HSEC/K9	Cisco 3845 Security Bundle with IOS Advanced IP Services, AIM-VPN/HPII Plus, 128MB Flash/512 MB DRAM	
CISCO3825-SEC/K9	Cisco 3825 Security Bundle with IOS Advanced Security, 64MB Flash/256MB DRAM	
CISCO3825-HSEC/K9	Cisco 3825 Security Bundle with IOS Advanced IP Services, AIM-VPN/EPII Plus, 128MB Flash/512 MB DRAM	
Cisco 3800 Series Voice Bundles		
CISCO3845-V/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVD2M2-64, 64 MB Flash/256 MB DRAM	

CISCO3845-SRST/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVDM2-64, FL-SRST (240 users), 64 MB Flash/256 MB DRAM
CISCO3845-CCME/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVDM2-64, FL-CCME (240 users), 64 MB Flash/256 MB DRAM
CISCO3825-V/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, 64 MB Flash/256 MB DRAM
CISCO3825-SRST/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, FL-SRST (168 users), 64 MB Flash/256 MB DRAM
CISCO3825-CCME/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, FL-CCME (168 users), 64 MB Flash/256 MB DRAM
Cisco 3800 Series WAAS Optimization Bundles	
CISCO3825-WAE/K9	Cisco 3825, NME-WAE-502/K9,WAAS Trans.IPBase.128F/512D
CISCO3845-WAE/K9	Cisco 3845, NME-WAE-502/K9,WAAS Trans.IPBase.128F/512D

For More Information

For more information about the Cisco 3800 Series Integrated Services Routers, visit: <http://www.cisco.com/go/3800>.

Cisco 2800 Series Integrated Services Routers

The Cisco 2800 Series Integrated Services Routers offer performance improvements, increased security and voice performance, wireless support new embedded service options, and increased slot performance and density. These routers maintain support for most existing interface cards and modules available for the Cisco 1700 and 2600 Series Routers. Comprising four platforms (the Cisco 2801, Cisco 2811, Cisco 2821, and Cisco 2851 Integrated Services Routers), the Cisco 2800 Series features the ability to deliver multiple, high-quality, simultaneous services at wire speed at up to multiple T1, E1, and xDSL connections.



Ideal for Companies That Need These Features

Cisco 2800 Series Integrated Services Routers

- Performance and densities for concurrent data, security, voice, and advanced services up to multiple T1, E1, and xDSL connections
- VPN connections (or plan to migrate to them over time)
- Integrated security services that enable network device protection, threat defense, secure connectivity, and endpoint protection and control
- Secure integrated call processing, voicemail, flexible telephony interfaces, redundancy for centralized call processing, or robust digital-signal-processor (DSP) support, including local conferencing and transcoding
- Wireless support through integrated IEEE 802.11 a/b/g standalone access-point high-speed WAN interface cards (HWICs)
- Wireless LAN controller modules (components of the Cisco Unified Wireless Network)
- Integrated Layer 2 switching capability in densities from 4 to 48 ports and the ability to use Cisco StackWise connectivity

Key Features

- Cisco 2800 Integrated Services Routers offer a modular architecture; a wide variety of LAN and WAN options are available. Network interfaces can be upgraded in the field to accommodate future technologies. Several types of slots are available to add connectivity and services in the future on an "integrate-as-you-grow" basis.
- The routers provide embedded hardware cryptography accelerators, which when combined with an optional Cisco IOS Software upgrade facilitate WAN link security and VPN services.
- Integrated dual Fast Ethernet or Gigabit Ethernet ports provide two 10/100 Ethernet ports on the Cisco 2801 and 2811 models and two 10/100/1000 Ethernet ports on the Cisco 2821 and 2851 models.
- The routers offer high-speed WAN interface card (HWIC) slots with enhanced functions, including wireless LAN (WLAN) access points, dual advanced-integration-module (AIM) slots, and packet-voice-DSP-module (PVDM) slots on the motherboard.
- IP telephony solutions facilitate an all-in-one voice-over-IP (VoIP) solution with Cisco Unified Communications Manager Express, telephony interfaces, and Cisco Unity Express for voicemail and Automated-Attendant functions.
- Onboard hardware-based encryption for Digital Encryption Standard (DES), Triple DES (3DES), and Advanced Encryption Standard (AES) and onboard slots for PVDMs all include high-speed Ethernet interfaces.
- The routers support an optional dedicated security AIM.
- Easy VPN eases administration and management of point-to-point VPNs by pushing new security policies from a single headend to remote sites.