

Cisco IOS XR Supported Platforms and Features

This document provides an overview of the platforms supported by the Cisco IOS XR Software Releases 2.0, 3.0, 3.2, and 3.3.



Note

You can find the most current Cisco IOS XR software documentation on the World Wide Web at: <http://www.cisco.com/univercd/cc/td/doc/product/ioxsoft/index.htm>
These electronic documents may contain updates and modifications. See the “Obtaining Documentation” section on page 9 for more information on obtaining Cisco documentation.

This document contains the following sections:

- Introduction
- Platforms
- Supported Features

Document Revision History

The Document Revision History table records technical changes to this document. Table 1 shows the document revision number for the change, the date of the change, and a brief summary of the change. Note that not all Cisco documents use a Document Revision History Table.

Table 1 Document Revision History

Revision	Date	Change Summary
OL-8505-01	February 2006	Initial release of this document.

Documentation Objectives

The *Cisco IOS XR Supported Platforms and Features* document describes various hardware and software components that compose the Cisco IOS XR system.

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Audience

This document is intended for users who design integrated routing systems that use Cisco IOS XR software.

Introduction

The Cisco IOS XR software is a distributed operating system designed for continuous system operation combined with service flexibility and speed.

The following is a high-level overview of Cisco IOS XR software features and benefits:

- **IP and Routing**—Supports a wide range of IPv4 and IPv6 services, and routing protocols; including Border Gateway Protocol (BGP), Intermediate System-to-Intermediate System (IS-IS), Open Shortest Path First (OSPF), IP Multicast, Routing Policy Language (RPL), and Hot Standby Router Protocol (HSRP)/Virtual Router Redundancy Protocol features (VRRP).
- **MPLS**—Supports Multiprotocol Label Switching (MPLS) protocols such as Traffic Engineering (TE), Resource Reservation Protocol (RSVP), and Label Distribution Protocol (LDP).
- **Multicast**—Provides comprehensive IP Multicast software including Source Specific Multicast (SSM) and Bidirectional Protocol Independent Multicast (BIDIR-PIM) support.
- **Quality of service (QoS)**—Supports rich QoS mechanisms including classifying, policing, marking, queuing, and shaping. The operating system supports the Modular QoS CLI (MQC), a consistent API that is used to configure QoS features on Cisco routing platforms.
- **Manageability**—Provides industry-standard management interfaces including modular command-line interface (CLI), Simple Network Management Protocol (SNMP), and native Extensible Markup Language (XML) interfaces.
- **Security**—Provides comprehensive network security features including access control lists (ACLs), routing authentications, AAA/TACACS+, Secure Shell (SSH), SNMPv3, and leading Routing Policy Language (RPL) support. Control plane protections integrated into line card ASICs include Generalized TTL Security Mechanism (GTSM), RFC 3682, and dynamic control plane protection.
- **The Craft Works Interface (CWI)**— A client-side application used to configure and manage Cisco routers. The management and configuration features include fault, configuration, security, and inventory, with an emphasis on speed and efficiency. The CWI provides a context-sensitive graphical representation of the objects in a Cisco router, simplifying the process of configuring and managing the router. The CWI allows you to log in to multiple routers and perform management tasks.
- **Partitioning into Secure Domain Router (SDR)**—A logical router is a set of line cards and route processors (RPs) that form a complete router. More specifically, each SDR contains its own instance of dynamic routing, IP stack, SysDB (system database), interface manager, event notification system, and so on.
- **Availability**—Supports rich availability features such as fault containment, fault tolerance, fast switchover, link aggregation, and nonstop forwarding (NSF).

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- In Service Software Upgrade (ISSU)—Supports a modular-packaging-based release model to minimize impact of upgrades, and supports ISSU with NSF where possible.
- Layer 3 Virtual Private Networks (L3VPN)—Supports multiple simultaneous Layer 3 VPN routing and forwarding (VRF) instances.

See the *Cisco IOS XR Release Notes* for releases 2.0, 3.0, 3.2, and 3.3 for more details. The Release Notes for Cisco IOS XR software are located at the following URL:

http://www.cisco.com/en/US/products/ps5845/prod_release_notes_list.html

Platforms

This section provides an overview of the following platforms supported by Cisco IOS XR software:

- Cisco CRS-1 Router
- Cisco XR 12000 Series Routers

Table 2 lists the platforms supported by Cisco IOS XR software and in which release the platform was first supported.

Table 2 Cisco IOS XR Software Supported Platforms

	Release 2.0	Release 3.0	Release 3.2	Release 3.3
Cisco CRS-1 16-Slot Line Card Chassis (LCC)	Yes	Yes	Yes	Yes
Cisco CRS-1 8-Slot LCC		Yes	Yes	Yes
Cisco XR 12404			Yes	Yes
Cisco XR 12406			Yes	Yes
Cisco XR 12410			Yes	Yes
Cisco XR 12416			Yes	Yes

Cisco CRS-1 Router

The Cisco CRS-1 is a highly scalable routing platform designed for efficient service provider point-of-presence (POP) evolution as the IP network grows into a multiservices network.

The main features of all Cisco CRS-1 routing systems include:

- A highly scalable service provider router with a capacity of 640 gigabits per second (Gbps) for a CRS-1 8-Slot Line Card Chassis (LCC) and 1.2 terabits per second (Tbps) for a CRS-1 16-Slot LCC of bandwidth. The Cisco CRS-1 is scalable to 92 Tbps capacity.
- Supports expansion from single-chassis to multishelf systems.
- A wide range of interface speeds and types (for example, OC-48 Packet-over-SONET/SDH (POS) and OC-192 POS), and a programmable MSC forwarding engine that provides full-featured forwarding at line-rate speeds.
- Redundancy and reliability features allow nonstop operation even during service upgrades of equipment, with no single points of failure in hardware or software.

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The Cisco CRS-1 8-Slot LCC uses the same line cards, the same software, and the same type of midplane and switch mechanism as the Cisco CRS-1 16-Slot LCC. It provides the higher-speed interfaces found in the Cisco CRS-1 16-Slot LCC, but in a smaller platform, allowing easier deployment in locations where power, cooling, and other facilities might be hard to provision.

The following sections provide an overview of the Cisco CRS-1 routing systems:

- Cisco CRS-1 16-Slot Line Card Chassis (LCC)
- Cisco CRS-1 8-Slot Line Card Chassis (LCC)

Cisco CRS-1 16-Slot Line Card Chassis (LCC)

The Cisco CRS-1 16-Slot LCC has 16 MSC slots, each with a capacity of 40 Gbps, for a total routing capacity per chassis of 1.2 terabits. The routing system is built around a scalable, distributed three-stage Benes switch fabric and a variety of data interfaces. The data interfaces are contained on physical layer interface modules (PLIMs) and SMDS interface protocol that mate with an associated MSC through the chassis midplane. The switch fabric cross-connects MSCs to each other.

Cisco CRS-1 8-Slot Line Card Chassis (LCC)

The Cisco CRS-1 8-Slot LCC has eight MSC slots, each with a capacity of 40 Gbps, for a total routing capacity for each chassis of 640 Gbps. The routing system is built around a scalable, distributed three-stage Benes switch fabric and a variety of data interfaces. The data interfaces are contained on PLIMs and SIPs that mate with an associated MSC through the chassis midplane. The switch fabric cross-connects MSCs to each other.

Cisco XR 12000 Series Routers

Cisco XR 12000 Series Routers accelerate the service provider evolution toward IP Next Generation Networks, combining the unparalleled innovation of Cisco IOS XR software with the investment protection of the market-leading Cisco 12000 Series.

Offering secure virtualization, continuous system operation, and multiservice scale, Cisco XR 12000 Series Routers provide intelligent routing solutions that scale from 2.5-Gbps to $n \times 10$ -Gbps capacity per slot (where n = the number of line cards), enabling next-generation IP/MPLS networks.

The Cisco XR 12000 Series Router is powered by Cisco IOS XR Software, which allows you to isolate public and private services through the virtualization of a single router into separate physical and logical partitions. Cisco IOS XR software is a unique self-healing and self-defending operating system designed for always-on operation while scaling capacity and adding new services or features. With distributed processing intelligence and robust quality-of-service and multicast mechanisms, the Cisco XR 12000 Series Router allows you to scale services and customers with performance.

Built upon a foundation of investment protection, the Cisco XR 12000 Series Router provides fully upgradable, single-chassis platforms ranging from 2.5-Gbps to $n \times 10$ -Gbps capacity per slot.

The following sections provide an overview of Cisco XR 12000 Series Routers:

- Cisco XR 12404
- Cisco XR 12406
- Cisco XR 12410
- Cisco XR 12416

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Cisco XR 12404

The Cisco XR 12404 Router is a 4-slot, 10-Gbps-per-slot chassis that delivers 80 Gbps of switching capacity in a small 1/8-rack form factor.

Cisco XR 12406

The Cisco XR 12406 Router is a 6-slot, 10-Gbps-per-slot chassis that delivers 120 Gbps of switching capacity in a compact 1/4-rack form factor.

Cisco XR 12410

The Cisco XR 12410 Router is a 10-slot, 10-Gbps-per-slot, 1/2-rack chassis that delivers 200 Gbps of switching capacity.

Cisco XR 12416

The Cisco XR 12416 Router is a 16-slot, 10-Gbps-per-slot, full-rack chassis that delivers 320 Gbps of switching capacity.

Supported Features

This section provides information on the features supported by the Cisco IOS XR software releases. For a list of supported software features by platform for each release, see the following documents:

- Release 3.3—*Release Notes for Cisco IOS XR Software Release 3.3*
- Release 3.2—*Release Notes for Cisco IOS XR Software Release 3.2*
- Release 3.0—*Release Notes for Cisco IOS XR Software Release 3.0*
- Release 2.0—*Release Notes for Cisco CRS-1 Series Carrier Routing System IOS XR Software, Release 2.0*

The Release Notes for Cisco IOS XR software are located at the following URL:

http://www.cisco.com/en/US/products/ps5845/prod_release_notes_list.html

Table 3 lists the Cisco CRS-1 hardware supported by the Cisco IOS XR software, indicating in which release the hardware was first supported.

Table 4 lists the Cisco XR 12000 hardware supported by the Cisco IOS XR software, indicating in which release the hardware was first supported.



Note

The nodes in the Cisco CRS-1 must always run the highest installed software version. For example, if you have one node in the system running Cisco IOS XR Software Release 3.3, but the remaining nodes in the system are running Cisco IOS XR Software Release 3.0, you must upgrade all nodes to Cisco IOS XR Software Release 3.3. See the *Cisco IOS XR Getting Started Guide* for software upgrade procedures.

R3.3 Beta Draft – Cisco Confidential Information**Table 3** Cisco CRS-1 Supported Hardware

Component	Cisco CRS-1 16-Slot LCC	Cisco CRS-1 8-Slot LCC
Distributed Applications	3.3	3.3
Cisco CRS-1 16-Slot (LCC)	2.0	
Cisco CRS-1 Fan Tray for 16-Slot LCC	2.0	
Cisco CRS-1 16-Slot Fabric Card / Single	2.0	
Cisco CRS-1 Fan Controller for 16-Slot LCC	2.0	
Cisco CRS-1 16-Slot Route Processor	2.0	
Cisco CRS-1 Memory Module 2 GB	2.0	
Cisco CRS-1 PCMCIA Flash Disk 1 GB	2.0	
Cisco CRS-1 Modular Services Card	2.0	
Cisco CRS-1 LCC Front AC Power Panel	2.0	
Cisco CRS-1 LCC Front DC Power Panel	2.0	
Cisco CRS-1 16-Slot Alarm Board	2.0	
Cisco CRS-1 AC Delta Power Shelf for 16-Slot LCC	2.0	
Cisco CRS-1 AC Wye Power Shelf for 16-Slot LCC	2.0	
Cisco CRS-1 DC Power Shelf for 16-Slot LCC	2.0	
Cisco CRS-1 4xOC-192/STM64 POS/DPT Interface Module/VS ¹	2.0	
Cisco CRS-1 4xOC-192/STM64 POS/DPT Interface Module/SR ¹	2.0	
Cisco CRS-1 4xOC-192/STM64 POS/DPT Interface Module/IR ¹	2.0	
Cisco CRS-1 4xOC-192/STM64 POS/DPT Interface Module/SDR ¹	2.0	3.0
Cisco CRS-1 16xOC-48/STM16 POS/DPT Interface Module ¹	2.0	3.0
Cisco CRS-1 8xOC12/3 POS interface Module	3.3	3.3
Cisco CRS-1 2.5 G SFP SDR Optic	2.0	
Cisco CRS-1 2.5 G SFP SR Optic	2.0	
Cisco CRS-1 LCC Front Doors	2.0	
Cisco CRS-1 LCC Front Cable	2.0	
Cisco CRS-1 LCC Expanded Front Cable Management	2.0	
Cisco CRS-1 LCC Rear Cable Management	2.0	
Cisco CRS-1 LCC Rear Doors	2.0	
Cisco CRS-1 Lift for LCC 16 and FCC	2.0	3.0
Cisco CRS-1 8-Slot LCC		3.0
Cisco CRS-1 Fan Tray for 8-Slot LCC		3.0
Cisco CRS-1 LCC Filter Pack		3.0
Cisco CRS-1 AC Pwr Rectifier for 8-Slot LCC		3.0
Cisco CRS-1 DC Power Entry Module for 8-Slot LCC		3.0
Cisco CRS-1 AC and DC Power Module Filter for 8-Slot LCC		3.0

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Component	Cisco CRS-1 16-Slot LCC	Cisco CRS-1 8-Slot LCC
Cisco CRS-1 AC Delta PDU for CRS-8 LCC		3.0
Cisco CRS-1 AC Wye PDU for CRS-8 LCC		3.0
Cisco CRS-1 DC PDU for CRS-8 LCC		3.0
Cisco CRS-1 8-Slot Fabric Card / Single		3.0
Cisco CRS-1 8-Slot Fabric Card Blank		3.0
Cisco CRS-1 8-Slot Fabric Handle		3.0
Cisco CRS-1 8-Slot Route Processor		3.0
Cisco CRS-1 EOL Route Processor	3.3	3.3
Cisco CRS-1 8-Slot Route Processor Blank		3.0
Cisco CRS-1 8-Slot Route Processor Handle		3.0
Cisco CRS-1 8x10 GbE Interface Module/SDR		3.0
CRS-XENPAK10GB-SDR		3.0
Cisco CRS-1 1xOC-768/STM256 POS Interface Module/SR		3.0
Cisco CRS-1 Series SPA Interface Processor 40G		3.2
Cisco 1-Port OC-192c/STM-64c POS/RPR Shared Port Adapter with XFP Optics		3.2
Cisco 8-Port Gigabit Ethernet Shared Port Adapter		3.2
Cisco 4-Port OC-3 Shared Port Adapter		3.2
Cisco CRS-1 4x10G PLIM	3.3	3.3
Cisco CRS-1 40G PLIM	3.3	3.3

1. DPT is supported on OC-192 starting in Release 3.2.2.

Table 4 Cisco XR 12000 Supported Hardware

Component	Cisco XR 12000
Cisco XR 12000 Series 12404/80 Chassis	3.2
Cisco XR 12000 Series 12406/120 Chassis AC Power	3.2
Cisco XR 12000 Series 12406/120 Chassis DC Power	3.2
Cisco XR 12000 Series 12410/200 Chassis	3.2
Cisco XR 12000 Series 12416/320 Chassis	3.2
Cisco XR 12000 Series Performance Route Processor 1	3.2
Cisco XR 12000 Series Performance Route Processor 2	3.2
Cisco 12000 Series 40 GB Hard Drive Option	3.2
Cisco 12000 Series 4xOC12 ATM	3.3
Cisco 12000 Series 4xOC12c/STM4c POS Rev B	3.2
Cisco 12000 Series 4xOC12c/STM4c POS Rev B	3.2
Cisco 12000 Series 16xOC3c/STM1c POS Rev B	3.2

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Component	Cisco XR 12000
Cisco 12000 Series 16xOC3c/STM1c POS	3.2
Cisco 12000 Series 8xOC3c/STM1c POS	3.2
Cisco 12000 Series 8xOC3c/STM1c POS	3.2
Cisco 12000 Series 4xOC3 ATM	3.3
Cisco 12000 Series 4xOC3c/STM1c POS	3.2
Cisco 12000 Series 4xOC3c/STM1c POS	3.2
Cisco 12000 Series 4xOC3c/STM1c POS	3.2
Cisco 12000 Series 1xOC48c/STM16c POS	3.2
Cisco 12000 Series 1xOC48c/STM16c POS	3.2
Cisco 12000 Series 4xGE	3.2
Cisco 12000 Series E5 Multi-rate SIP	3.3
Cisco 12000 Series Packet Service Card (PSC-1)	3.3
Cisco 12000 Series SPA Interface Processor 10G	3.2
Cisco 12000 Series SPA (2x) 4xCT3	3.3
Cisco 12000 Series SPA (2x) 4cT3/E3	3.3
Cisco 12000 Series SPA 8xFE TX	3.3
Cisco 12000 Series SPA 2xOC48	3.3
Cisco 1-Port OC-192c/STM-64c POS/RPR Shared Port Adapter with VSR Optics	3.2
Cisco 1-Port OC-192c/STM-64c POS/RPR Shared Port Adapter with SDR Optics	3.2
Cisco 1-Port OC-192c/STM-64c POS/RPR Shared Port Adapter with XFP Optics	3.2
Cisco 5-Port Gigabit Ethernet Shared Port Adapter	3.2
Cisco 10-Port Gigabit Ethernet Shared Port Adapter	3.2
Cisco 1-Port 10 Gigabit Ethernet Shared Port Adapter	3.2

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Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation at this URL:

<http://www.cisco.com/techsupport>

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Product Documentation DVD

Cisco documentation and additional literature are available in the Product Documentation DVD package, which may have shipped with your product. The Product Documentation DVD is updated regularly and may be more current than printed documentation.

The Product Documentation DVD is a comprehensive library of technical product documentation on portable media. The DVD enables you to access multiple versions of hardware and software installation, configuration, and command guides for Cisco products and to view technical documentation in HTML. With the DVD, you have access to the same documentation that is found on the Cisco website without being connected to the Internet. Certain products also have .pdf versions of the documentation available.

The Product Documentation DVD is available as a single unit or as a subscription. Registered Cisco.com users (Cisco direct customers) can order a Product Documentation DVD (product number DOC-DOCDVD=) from Cisco Marketplace at this URL:

<http://www.cisco.com/go/marketplace/>

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<http://www.cisco.com/go/marketplace/>

Nonregistered Cisco.com users can order technical documentation from 8:00 a.m. to 5:00 p.m. (0800 to 1700) PDT by calling 1 866 463-3487 in the United States and Canada, or elsewhere by calling 011 408 519-5055. You can also order documentation by e-mail at tech-doc-store-mkpl@external.cisco.com or by fax at 1 408 519-5001 in the United States and Canada, or elsewhere at 011 408 519-5001.

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You can send comments about Cisco documentation to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you can perform these tasks:

- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories and notices for Cisco products is available at this URL:

<http://www.cisco.com/go/psirt>

If you prefer to see advisories and notices as they are updated in real time, you can access a Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed from this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you might have identified a vulnerability in a Cisco product, contact PSIRT:

- Emergencies — security-alert@cisco.com

An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- Nonemergencies — psirt@cisco.com

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

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**Tip**

We encourage you to use Pretty Good Privacy (PGP) or a compatible product to encrypt any sensitive information that you send to Cisco. PSIRT can work from encrypted information that is compatible with PGP versions 2.x through 8.x.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

The link on this page has the current PGP key ID in use.

Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support and Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

Cisco Technical Support and Documentation Website

The Cisco Technical Support and Documentation website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, at this URL:

<http://www.cisco.com/techsupport>

Access to all tools on the Cisco Technical Support and Documentation website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>

**Note**

Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support and Documentation website by clicking the **Tools and Resources** link under Documentation and Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts and RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

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Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—Your network is “down,” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, documentation, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

<http://www.cisco.com/go/marketplace/>

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- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

<http://www.ciscopress.com>

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

<http://www.cisco.com/packet>

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

<http://www.cisco.com/go/iqmagazine>

or view the digital edition at this URL:

<http://ciscoiq.texterity.com/ciscoiq/sample/>

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

<http://www.cisco.com/ipj>

- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:

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

- Networking Professionals Connection is an interactive website for networking professionals to share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:

<http://www.cisco.com/discuss/networking>

- World-class networking training is available from Cisco. You can view current offerings at this URL:

<http://www.cisco.com/en/US/learning/index.html>

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