

## Enhanced Performance, Versatility, High Availability, and Reliability at the Provider Edge

### Cisco 7609-S Router

The Cisco® 7609-S Router is a high-performance router deployed at the network edge, where performance, IP services, redundancy, and fault resiliency are critical. It enables Carrier Ethernet service providers to deploy an advanced network infrastructure that supports a range of IP video and triple-play (voice, video, and data) system applications in both the residential and business services markets. The Cisco 7609-S enables enterprises to deploy advanced WAN and metropolitan-area network (MAN) networking solutions necessary to succeed in demanding, high-traffic environments.

Providing the foundation for a powerful combination of speed and services, the 9-slot Cisco 7609-S Router is an outstanding choice for multiple applications. Whether deployed as a high-speed WAN aggregator, as a device for peering, as a residential broadband services aggregator, or as a device for Metro Ethernet aggregation and uplink, the Cisco 7609-S meets requirements for redundancy, high availability, and rack density. In the point-of-presence (POP) service provider edge or the metropolitan network edge, the Cisco 7609-S sets new standards as part of the industry-leading Cisco 7600 Series Routers (Figure 1).

**Figure 1.** Cisco 7609-S Chassis



With a forwarding rate of up to 400-Mpps distributed and 720-Gbps total throughput, the Cisco 7609-S provides performance and reliability with options for redundant route processors and power supplies. The inclusion of two Gigabit Ethernet ports on the Cisco Catalyst® 6500 Series Supervisor Engine 720 with the Multilayer Switch Feature Card 3 (MSFC-3) or the new Cisco Route Switch Processor 720 (RSP 720) with the MSFC-4 used in the Cisco 7609-S eliminates the need for a line-card slot for uplink ports. The result of this design is more efficient use of available line-card slots and increased deployment flexibility. Four Gigabit Ethernet ports are available for use in dual-route processor configurations.

As part of the Cisco 7600 Series, the Cisco 7609-S Router is an enhancement on the highly successful 9-slot chassis (Cisco 7609). This enhanced chassis delivers numerous design improvements, including:

- Improved failover mechanisms in the hardware which when paired with the proper Cisco IOS® Software image, can achieve 100 ms failover
- Ability to deliver higher power of up to 750W per slot
- Redundant high-speed fan tray module with five speeds on a front-to-back airflow design
- Better thermal flow measurement and management

The power supplies supported on the Cisco 7609-S are the 4000W, 6000W (AC and DC), and 3000W AC power supplies (refer to Table 1).

Shared port adaptors (SPAs) on the SPA interface processors (SIPs) are available on the Cisco 7600 Series with interface speeds ranging from OC-3 to OC-192 and from Fast Ethernet to 10 Gigabit Ethernet. The Cisco 7600 Series can also use the Cisco 7600 Series/Catalyst 6500 Series Enhanced FlexWAN Module to take advantage of most Cisco 7200 and 7500 Port Adapters for terminating DS-0 to OC-3 speeds. By using the Cisco Catalyst 6000 Series of Ethernet line cards in conjunction with the SIP-based SPAs and the enhanced FlexWAN module, the Cisco 7600 provides a multitude of options to scale WAN connectivity from DS-0 to OC-192 and LAN connectivity from 10-Mbps Ethernet through 10 Gigabit Ethernet.

The Cisco 7609-S chassis accommodates a broad selection of line cards supporting numerous applications, including:

- SPAs and SIPs (Cisco 7600 Series SPA Interface Processor-200 [SIP-200], SIP-400, and SIP-600):
  - Channelized T1/E1, Channelized T3, and Channelized OC-3/STM-1
  - OC-3/STM-1, OC-12/STM-4, OC-48/STM-16 Packet over SONET/SDH (PoS), and OC-192/STM-64 PoS
  - OC-3/STM-1 ATM, OC-12/STM-4 ATM, and OC-48/STM-16 ATM
  - Fast Ethernet, Gigabit Ethernet, and 10 Gigabit Ethernet
- Enhanced FlexWAN module: Supporting Cisco 7200 and 7500 WAN Port Adapters from DS-0 to OC-3 for channelized and ATM interfaces and also Fast Ethernet port adapters
- High-density Ethernet services modules: 10/100 Mbps, Gigabit Ethernet, and 10-Gigabit Ethernet
- Services modules: IP Security (IPsec), firewall, distributed denial of service, intrusion detection systems, network analysis, and content switching commonly used, for example, in the Cisco Mobile Exchange solution
- Supervisor support:
  - Cisco Route Switch Processor 720 (RSP720-3C-GE and RSP720-3CXL-GE)
  - Cisco Route Switch Processor 720-10GE (RSP720-3C-10GE and RSP720-3CXL-10GE)
  - Cisco Catalyst 6500 Supervisor Engine 32 (WS-SUP32-GE-3B and WS-SUP32-10GE-3B)
  - Cisco Catalyst 6500 Supervisor Engine 720 (WS-SUP720-3B and WS-SUP720-3BXL)

The Cisco 7609-S incorporates many service provider and high-end enterprise carrier-class requirements. Line cards are vertically mounted for efficient cooling with front-to-back airflow. High availability is an inherent facet in the form of redundant power supplies and redundant fan-tray modules. Standard or extended cable-tray inserts provide unrestricted management of either fiber and coaxial or multiple conductor types with up to 48 10/100 cables per slot. Two chassis can be installed per 7-foot rack.

## Applications

The flexible Cisco 7609-S Router is ideal for addressing high-performance applications such as:

- High-end customer premises equipment (CPE)
- Leased line
- IP/Multiprotocol Label Switching (MPLS) provider edge
- Metro Ethernet access
- Enterprise WAN aggregation
- Mobile Radio Access Network (RAN) aggregation
- Residential subscriber aggregation

## Feature Summary

### Cisco 7609-S Chassis Features

- Twenty-one rack units (RUs) (36.75 in. [93.3 cm]) high, up to 2 chassis per 7-foot rack
- Nine configurable interface slots
- Route processor, switch fabric, and power supply protection capability: 1 + 1
- Tiered-speed fan design (standard): 1 + 1
- Cable management tray options for fiber and coaxial and dense 10/100 cable configurations
- Single-side connection management for both interface and power terminations
- Front-to-back airflow

### Cisco 7609-S System Features

- Total throughput: 720 Gbps
- Up to 400-Mpps distributed forward rate (requires distributed forwarding cards [DFCs])

### Cisco 7609-S Technical Specifications

- Nine-slot chassis
- Network Equipment Building Standards (NEBS) Level 3 compliance
- Dimensions (H x W x D): 36.75 x 17.2 x 20.7 in. (93.3 x 43.1 x 53.3 cm)
- Power requirements:
  - -208 to 240 VAC (recommended)
  - -48 to -60 VDC (4000 WAC supplies require 30A input circuits)
- Weight: 121 lb (54.9 kg; chassis only); 270 lb (122.5 kg; full configuration)
- Predicted Mean time between failure (MTBF): 448,000 hours

- Environmental conditions:
  - Operating temperature: 32 to 104°F (0 to 40°C)
  - Storage temperature: –4 to 149°F (–20 to 65°C)
  - Relative humidity, operating: 10 to 85%, noncondensing
  - Relative humidity, storage: 5 to 95%, noncondensing
  - Operating altitude: –500 to 6500 ft
- Minimum software release: Cisco IOS Software Release 12.2(18)SXE

Table 1 gives ordering information for the Cisco 7609-S.

**Table 1.** Cisco 7609-S Chassis Ordering Information

Part Number	Description
<b>Spare Units (denoted by "=")</b>	
CISCO7609-S=	Spare Cisco 7609/CISC7609-S enhanced service-provider chassis (includes redundant tiered-speed fan trays, cable management tray with standard and extended depth inserts, and mounting kit)
PWR-6000-DC=	Spare 6000W DC power supply for Cisco 7609/7609-S/7613
WS-CAC-6000W =	Spare AC power supply for the Cisco 7609/7609-S chassis
PWR-4000-DC=	Spare 4000W DC power supply for Cisco 7609/7609-S/7613
WS-CAC-4000W-US=	Spare AC power supply for the Cisco 7609/7609-S chassis (30A circuit required); U.S./Japan cord attached
WS-CAC-4000W-INT=	Spare AC power supply for Cisco 7609/7609-S chassis (30A circuit required); international cord attached
WS-CAC-3000W=	Cisco 7600 and Catalyst 6500 3000W AC power supply (spare)
FAN-MOD-9SHS=	High speed fan tray module for the Cisco 7609/7609-S chassis (can be used as the first or second tray)
CABLETRAY-09S=	Cable Tray Assembly for CISCO7609-S Spare
KIT-MNTG-09=	Spare mounting kit for the Cisco 7609/7609-S chassis for the default 19-in. rack
FLTRASSM-09=	Filter cage assm CISCO7609/WS-C6509-NEB-A, no filter inserts
FLTRINSERTS-09=	Set -five (5) replacement Filter inserts for FLTRASSM-09=
PWR-09S-CVR=	Blank Power Supply Cover for the 7609-S
CLK-7600=	Clock card for the Cisco 7609/7609-S chassis

## Regulatory Compliance

### CE Marking

#### Safety

- UL 60950
- IEC 60950
- EN 60950
- CAN/CSA-C22.2 No. 60950
- AS/NZS 3260

#### EMC

- FCC Part 15 (CFR 47) Class A
- ICES-003 Class A
- EN55022 Class A
- CISPR22 Class A
- AS/NZS 3548 Class A

- VCCI Class A
- EN55024
- ETS300 386
- EN50082-1
- EN61000-3-2
- EN61000-3-3
- EN61000-6-1

#### Industry Standard

- GR-63-Core NEBS Level 3
- GR-1089-Core NEBS Level 3
- ETSI 300 019 Storage Class 1.1
- ETSI 300 019 Transportation Class 2.3
- ETSI 300 019 Stationary Use Class 3.1

### Service and Support

Cisco offers numerous service and support offerings for both service provider and enterprise customers. Cisco has earned the highest customer satisfaction ratings in the industry by providing the world-class service and support necessary to deploy, operate, and optimize networks. Whether the goal is speed to market, maximizing network availability, or enhancing customer satisfaction and retention, Cisco is committed to the success of its customers.

### For More Information

For more information about Cisco service and support programs and benefits, visit:

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

For more information about Cisco 7600 Series Routers, contact your Cisco account representative or visit:

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

For ordering information, visit: [http://www.cisco.com/public/ordering\\_info.shtml](http://www.cisco.com/public/ordering_info.shtml).



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