

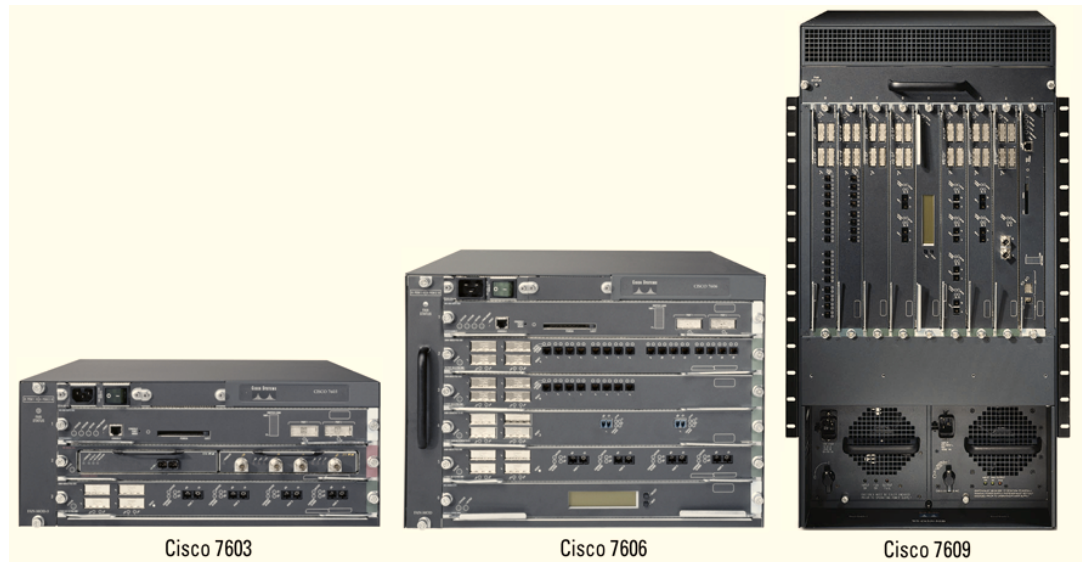
Cisco 7600 Series Internet Router Essentials



Cisco 7600 Series Internet Router

The Cisco 7600 Series Internet Router delivers optical wide- and metropolitan-area network (WAN and MAN) services with high-touch IP services at the network edge. Now, service providers (SPs) and enterprises can “service enable” their networks at optical speeds, providing competitive advantage and service differentiation to the SP and high-speed connectivity and link usage efficiency to the enterprise. The Cisco 7600 is an important component of Cisco’s end-to-end IP+Optical offerings, which help SPs break through service and bandwidth barriers to increase new revenue and profits (see Figure 1).

Figure 1 Cisco 7600 Series Internet Router



Cisco 7600 Internet Router Chassis

The Cisco 7600 provides customers the flexibility of three different form factors: Cisco 7603, 7606, and 7609. As the most scalable system in the industry, each chassis offers the ability to bring DS0 to OC-48 WAN connectivity, and 10-Mbps Ethernet to 10-Gigabit Ethernet LAN connectivity to the Internet data center, metropolitan aggregation, WAN edge aggregation, and enterprise networking applications (see Tables 1 and 2).

Table 1 Cisco 7603, 7606, and 7609 Characteristics

	Cisco 7603	Cisco 7606	Cisco 7609
Height	7 inches (four RU)	12.25 inches (7 RU)	33.5 inches (20 RU)
Chassis/Rack	10	6	2
Slots	3 (horizontal)	6 (horizontal)	9 (vertical)
NEBs Compliance	Yes	Yes	Yes
Bandwidth	32 Gbps	160 Gbps	256 Gbps
Switching Performance	15 Mpps	30 Mpps	30 Mpps
Service Performance	6 Mpps per OSM	6 Mpps per OSM	6 Mpps per OSM

Table 2 Features and Benefits of the Cisco 7600

Feature	Benefit
Scalable and modular bandwidth capacity	Backplane is scalable from 32 Gbps up to 256 Gbps on the nine-slot chassis and 160 Gbps on the six-slot chassis; crossbar switch fabric (WS-X6500-SFM2) provides scalable bandwidth growth and fail-over protection
Chassis options	Three chassis options (Cisco 7603, 7606, and 7609) specifically designed to fit different space requirements and applications
WAN interfaces ranging from DS0 to OC-48/STM-16	Broad range of WAN interfaces allows scalability as bandwidth requirements grow
High-speed channelized optical connectivity (channelized OC-12 and channelized OC-48 to DS3)	Provides the industry's highest-density DS3, OC-3, and OC-12 connectivity to enable cost savings and easy deployment
2 Gigabit Ethernet ports on the Cisco Supervisor 2 Multilayer Switch Feature Card 2 (MSFC2) route processor	Eliminates the need to use 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
LAN connectivity	Supports the full Catalyst® 6000 Series of high-density/high-speed Ethernet, Fast Ethernet, Gigabit Ethernet, and 10-Gigabit Ethernet LAN modules
FlexWAN module for evolution from the Cisco 7500 to the Cisco 7600	Provides both a distinct growth path and investment protection for Cisco 7200 and 7500 WAN interfaces
Parallel Express Forwarding (PXF)-enabled high-performance IP services	Field-upgradable application-specific integrated circuit (ASIC) provides the flexibility and time-to-market advantages of software upgrades with the processing speed of hardware-accelerated IP services
Wide range of IP services	IP services can be applied to rate-limit, shape, and account for traffic flows, allowing for maximum revenue generation per connection
Multiprotocol Label Switching (MPLS) Provider Edge (PE) functionality <ul style="list-style-type: none"> • Basic MPLS • MPLS class of service (CoS) • Ethernet over MPLS • MPLS virtual private network (VPN) 	For service providers and high-end enterprise customers: <ul style="list-style-type: none"> • Highly scalable standards-based implementation • Efficient Layer 2 transport across Layer 3 MPLS core • End-to-end IP quality-of-service (QoS) support • Support for Layer 2 and Layer 3 MPLS VPNs • MPLS-based traffic engineering support for Internet/metropolitan service providers (ISPs/MSPs) • Basic MPLS switching support for ISP core

Cisco 7600 Applications

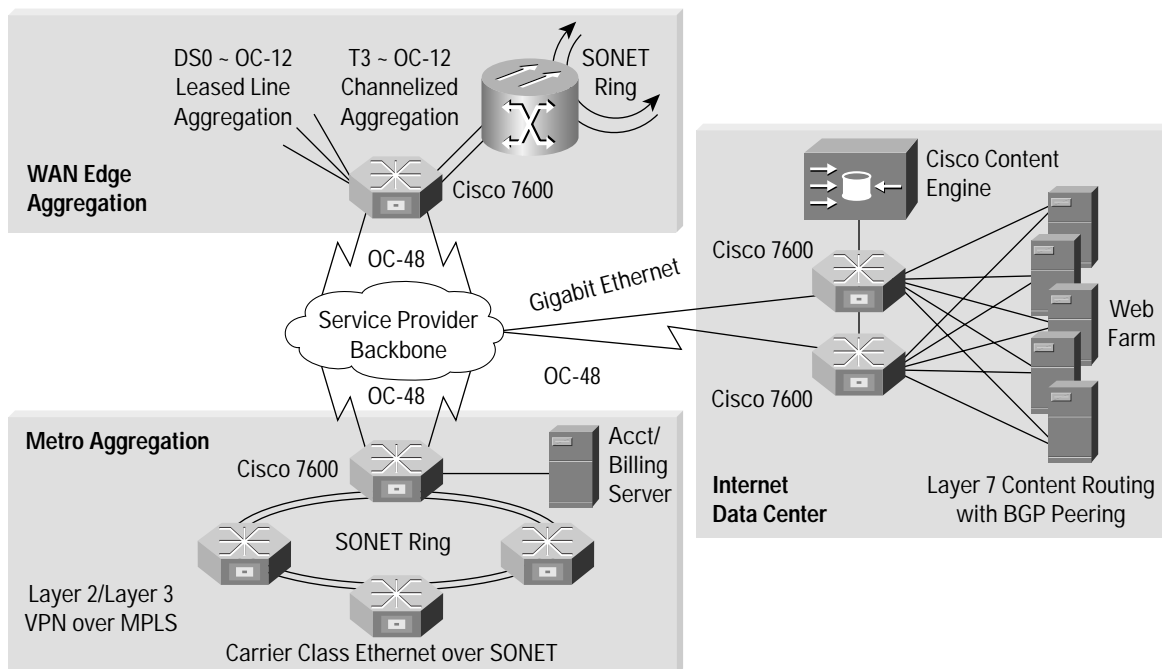
The Cisco 7600 is ideally positioned for deployment at the network edge—both in service provider and enterprise environments.



Cisco 7600 Service Provider Solutions

Service providers require networking platforms that scale from DS0 to OC-48c and beyond. They must also support a consistent set of high-performance features across this broad range of speeds. The ability to deploy a wide set of revenue-generating services using a single standardized platform is an enormous benefit. Figure 2 shows typical SP deployment situations and the Cisco 7600 solutions that effectively meet these needs.

Figure 2 Cisco 7600 Service Provider Applications



WAN Edge aggregation—The Cisco 7600 is an ideal platform for integrating all aspects of a point of presence (POP): customer aggregation, Web-hosting services, and high-speed access to the backbone in a single platform. For customer aggregation needs, the Cisco 7600, configured with the Channelized OC-12 or OC-48 optical services modules (OSMs), or the FlexWAN with Cisco 7200 and 7500 port adapters, provides connectivity from DS0 to OC-48. The eight-port Channelized OC-12 and two-port Channelized OC-48 OSMs provide the industry's highest-density DS3, OC-3, and OC-12 aggregation. Optical customer termination and backbone connectivity are achieved through the high-speed PXF-enabled OC-3c/STM-1, OC-12c/STM-4, and OC-48c/STM-16 interfaces.

Metropolitan aggregation—The Cisco 7600 with the PXF IP service-enabled Gigabit Ethernet WAN OSM is ideally suited for metropolitan aggregation. The Gigabit Ethernet WAN OSM supports virtual LAN (VLAN) trunking so that multiple customers in an office building or metropolitan area can share the same Gigabit Ethernet access switch fiber but use separate VLANs to access the service provider's POP. The Gigabit Ethernet WAN OSM is equipped with Cisco's patented PXF technology to support high-touch, high-performance packet services. PXF-based traffic shaping can be used to offer sub-rate Gigabit Ethernet connections when customers do not have enough current traffic to justify a full Gigabit Ethernet, but may in the future. The Cisco 7600 also offers a range of choices for either Layer 2 or 3 metropolitan services based on either MPLS or traditional Ethernet forwarding schemes.

Internet data center—The Cisco 7600 provides a unique solution for the Internet data center. A combination of high-speed, high-density LAN interfaces and high-touch PXF-accelerated IP services complemented by application-specific modules such as the intrusion detection system (IDS) and content switching modules (CWMs) make the Cisco 7600 a complete single-box solution for space-constrained data centers.

Cisco 7600 Enterprise Solutions

Enterprises now require networking platforms that can aggregate remote users, branch offices, and business partners with speeds from DS0 to OC-12/STM-4 while maintaining the ability to connect to their service providers at OC-12/STM-4 and beyond.

In this aggregation scenario, high-performance services are critical. The Cisco 7600 provides services such as traffic shaping, security, and Weighted Fair Queuing (WFQ). In addition, the Cisco 7600 offers the ability to connect database and application servers with Gigabit and Fast Ethernet all in the same chassis as well as offering a migration path for current Cisco 7200 and 7500 customers via the FlexWAN module. Utilizing a single, standardized platform, enterprises can benefit from the simplicity of network design and operational cost savings. Figure 3 shows how an enterprise can use the Cisco 7600 to effectively meet their needs.

Figure 3 Cisco 7600 Enterprise Applications

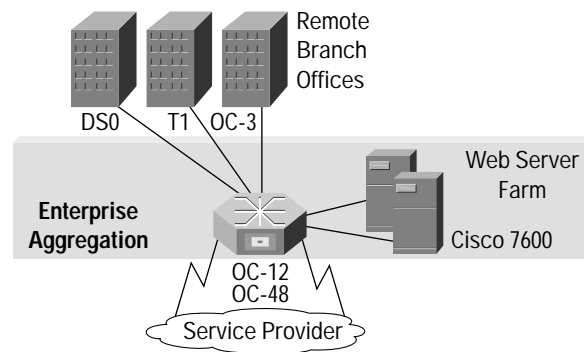


Table 3 Cisco 7600 Series Internet Router

	Description	Part Number
Cisco 7600 System	Cisco 7603 chassis Cisco 7606 chassis Cisco 7609 chassis Supervisor Engine 2 with MSFC-2/PFC-2 Interdomain Routing License	CISCO7603 CISCO7606 OSR-7609-AC OSR-7609-DC
Supervisor 2 Processor	Supervisor Engine 2 with MSFC-2 and PFC-2	WS-X6K-S2-MSFC2
Flash Memory	16-MB option PC Flash memory card 24-MB option PC Flash memory card	MEM-C6K-FLC16M MEM-C6K-FLC24M
Crossbar Switch Fabric	Switch fabric module (optional for Cisco 7606 and 7609)	WS-C6500-SFM
Packet over SONET (POS) Optical Services Modules	4-port OC-3c/STM-c POS SM-IR 8-port OC-3c/STM-1c POS multimode (MM) and single-mode (SM)-intermediate/long reach (IR/LR) 16-port OC-3c/STM-1c POS MM and SM-IR/LR 2-port OC-12c/STM-4c POS MM and SM-IR/LR 4-port OC-12c/STM-4c POS MM and SM-IR/LR 1-port OC-48c/STM-16c POS MM and SM-IR/LR	OSM-4OC3-POS-SI OSM-8OC3-POS- (MM/SI/SL) OSM-16OC3-POS- (MM/SI/SL) OSM-2OC12-POS- (MM/SI/SL) OSM-4OC12-POS- (MM/SI/SL) OSM-1OC48-POS- (MM/SI/SL)
DRAM Memory—Optical Services Modules	128-MB DRAM MSFC-2 memory 256-MB DRAM MSFC-2 memory 512-MB DRAM MSFC-2 memory	MEM-MSFC2-128MB MEM-MSFC2-256MB MEM-MSFC2-512MB

	Description	Part Number
Channelized Optical Services Modules	4- or 8-port Channelized OC-12 to DS3	OSM-4CHOC12/T3-SI
	1- or 2-port Channelized OC-48 to DS3	OSM-8CHOC12/T3-SI
		OSM-1CH48/T3-SS
		OSM-2CH48/T3-SS
ATM Optical Services Modules	2-port OC-12c/STM-4c ATM MM and SM-IR	OSM-2OC12-ATM- (MM/SI)
Gigabit Ethernet WAN Optical Services Modules	4-port Gigabit Ethernet WAN (GBIC)	OSM-4GE-WAN-GBIC
Optical Services Module (OSM) Memory	128-MB ECC OSM memory	MEM-OSM-128M
	256-MB ECC OSM memory	MEM-OSM-256M
	512-MB ECC OSM memory	MEM-OSM-512M
FlexWAN Module	2-slot FlexWAN module for Cisco 7000 Series port adapters	WS-X6182-2PA

Optical services modules and Catalyst 6000 Series LAN line cards are interchangeable with both the Cisco 7600 and Catalyst 6500 chassis.



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