

# What's New in the Cisco 7600 Series

Q. What Cisco® 7600 products are being announced?

A. Cisco Systems® announces the following new Cisco 7600 products:

- Cisco Catalyst® 6500 Series/Cisco 7600 Series Supervisor Engine 720-3BXL
- Cisco 7600 Series/Cisco 6500 Series Enhanced FlexWAN module

The Cisco 7600 Series also delivers a new software release that contains support for rich service-enabling features such as virtual private LAN service (VPLS), Any Transport over MPLS (AToM), 7500 migration features, hardware-accelerated Multiprotocol Label Switching (MPLS), and IPv6.

## Cisco Catalyst 6500 Series/Cisco 7600 Series Supervisor Engine 720-3BXL

Q. What is the Cisco Catalyst 6500 Series/Cisco 7600 Series Supervisor Engine 720-3BXL?

A. The Cisco Catalyst 6500 Series/Cisco 7600 Series Supervisor Engine 720-3BXL (Sup 720-3BXL) is the third-generation supervisor engine for the Cisco Catalyst 6500 Series Switch and Cisco 7600 Series Router. It addresses the growing data-plane requirements of service provider and enterprise customers by delivering scalable, enhanced services such as hardware-accelerated IPv4, IPv6, and MPLS. The Cisco Sup 720-3BXL integrates a high-capacity crossbar switching fabric that can deliver up to 40-Gbps capacity per slot for a total system capacity of 720 Gbps.

Q. What are the key features and benefits of the Cisco Sup 720-3BXL?

A. The Cisco Sup 720 3BXL provides extensive feature support such as QoS mechanisms, hardware-based generic-routing-encapsulation (GRE) tunneling, and access control lists (ACLs), enabling customers to build high-performance, feature-rich networks capable of offering services such as MPLS VPNs, metropolitan (metro) aggregation, and various WAN edge services. Refer to Table 1 for details.

Table 1 Cisco Sup-720 3BXL Features and Benefits

Feature	Benefits
Integrated 720-Gbps switch fabric	<ul style="list-style-type: none"> <li>• Integrated switch fabric saves up to 2 slots, allowing more slots for line cards</li> <li>• 40 Gbps per slot supports high-density Gigabit Ethernet and 10 Gigabit Ethernet</li> </ul>
1 million routes for IPv4 FIB table	<ul style="list-style-type: none"> <li>• Scalability for support large routing tables</li> </ul>



Table 1 Cisco Sup-720 3BXL Features and Benefits (Continued)

Feature	Benefits
MPLS features	<ul style="list-style-type: none"><li>• Layer 2 and Layer 3 VPNs, ATM over MPLS (AToM), traffic engineering, resiliency</li></ul>
Hardware-based IPv4 and IPv6 features	<ul style="list-style-type: none"><li>• High performance and scalability</li></ul>
ACLs, ACL counters, and CPU rate limiting	<ul style="list-style-type: none"><li>• Security, denial-of-service (DoS) attack control, and enhanced statistics</li></ul>

Q. What is the benefit of the Cisco Sup 720-3BXL for service provider customers?

A. With the introduction of the Cisco Sup 720-3BXL, the Cisco 7600 further strengthens its role as an edge device: as a label edge router (LER) for pure MPLS-based networks and as a provider edge device for the MPLS VPN networks. The numerous interface speeds and media types available on the Cisco 7600 enable the aggregation of various types of transport traffic across an MPLS-based Layer 3 core.

Q. What are some of the MPLS features on the Cisco Sup 720-3BXL?

A. The Cisco 7600 Series MPLS implementation is standards-based and compliant with RFC 3031, Multiprotocol Label Switching Architecture; RFC 3036, Label Distribution Protocol (LDP) Specification; RFC 2547 and RFC 2547 bis-based MPLS VPNs; and various other IETF drafts. The following are some of the key features provided by a Cisco Sup 720-3BXL-based Cisco 7600.

- MPLS label imposition, disposition, and switching functionality (P and PE functions)
- MPLS Layer 3 VPNs, including inter-autonomous system and carrier-supporting-carrier (CsC) function
- MPLS Layer 2 VPNs and Any Transport over MPLS (AToM)
- MPLS QoS support, including Differentiated Services (Diff-Serv)-aware traffic engineering

Q. What is the benefit of Layer 2 VPNs with the Cisco Sup 720-3BXL?

A. The combined Ethernet and MPLS capabilities of the Cisco 7600 improve the economics of Ethernet-based service deployment and provide an optimal Layer 2 VPN solution in the metro area. Cisco has implemented these capabilities under the umbrella of a collection of features, known as AToM.

AToM (Layer 2 VPN) provides a flexible, high-speed service that removes the complexity associated with the WAN from the end users. With Layer 2 VPN, a service provider interconnects an enterprise's LAN regardless of the physical location of that enterprise in such a way that the WAN services supporting the network are not apparent to the customer.

One of the primary ways the Cisco 7600 Series provides Layer 2 VPN service is with EoMPLS technology. EoMPLS takes advantage of an existing MPLS backbone network to deliver point-to-point Layer 2 VPN connectivity to two or more customer sites. For instance, in an EoMPLS implementation, each customer's traffic from a given site is mapped onto an MPLS label switched path (LSP) that extends across the metropolitan- or wide-area network (MAN or WAN). These LSPs are point-to-point paths and must be established between sites that have Layer 2 traffic transport needs. Each LSP can enjoy reserved bandwidth across the MPLS cloud, as well as other QoS guarantees. This MPLS implementation allows the service provider to provide service-level guarantees critical to premium service-level agreements (SLAs).



Other Layer 2 AToM features available with this latest software release include Frame Relay over MPLS, ATM AAL5 over MPLS and ATM Cell Release over MPLS.

Q. What IETF implementation is the Cisco 7600 Layer 2 VPN implementation compliant with?

A.

- Transport of Layer 2 Frames Over MPLS, draft-martini-l2circuit-trans-mpls-08.txt
- Encapsulation Methods for Transport of Layer 2 Frames Over MPLS, draft-martini-l2circuit-encap-mpls-04.txt

Further details on AToM are discussed in a separate white paper titled “Cisco 7600 Series Any Transport over MPLS (AToM).”

Q. What is the MPLS Layer 3 VPN support on the Cisco Sup 720-3BXL?

A. The Cisco 7600 Series supports RFC 2547 and RFC 2547 bis-based MPLS VPNs. In addition, it can support one of the industry’s widest varieties of interface types in the customer edge direction as well as in the provider core direction. The Cisco 7600 Series supports more than 1000 MPLS Layer 3 VPN Virtual Route Forwarding (VRF) instances.

Q. Can the Cisco 7600 Series support inter-autonomous system (Inter-AS) VPNs?

A. The Cisco 7600 Series is now able to support features such as inter-autonomous system VPNs. This feature allows a service provider to interconnect two or more independently managed MPLS VPN autonomous systems and to provide connectivity for all VPN-X sites. The following are some of the benefits of the inter-autonomous system feature:

- Fast geographic service coverage expansion
- Fast service expansion with new acquisitions
- Interior Gateway Protocol (IGP) isolation with service continuity

Q. How about support for Carrier Supporting Carrier (CsC) VPNs on the Cisco 7600 Series?

A. In addition to inter-autonomous system with Layer 3 VPNs, another key service provider feature introduced by the Cisco 7600 Series is CsC. Using this feature, service providers (known as carriers) support Internet service providers’ (ISPs’) (other carriers’) customers with CsC. CsC allows ISPs to offer their customers MPLS Layer 3 VPN services.

Q. Do I need a separate switch fabric module with the Sup 720-3BXL?

A. No, the Cisco Sup 720-3BXL has an integrated 720-Gbps switch fabric module, delivering up to 40 Gbps full duplex per slot in 3-, 6-, and 9-slot chassis.

Q. Will there be upgrade programs for customers moving from the Cisco Supervisor Engine 2 (Sup 2) to the Cisco Sup 720 -3BXL?

A. Yes, Technology Migration Programs will be available for customers migrating from the Cisco Sup 2 to the Cisco Sup 720-3BXL. For more information, visit:

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



Q. Can I upgrade a Cisco Supervisor 720 (Sup 720) to include PFC3BXL and 1GB of memory?

A. Yes, you can upgrade a Cisco Sup 720 to include a PFC3BXL and 1GB of memory by ordering WS-F6K-PFC3BXL. This kit includes a PFC3BXL daughter card and 2 x 1GB memory module for the SP and RP.

Q. Is the Cisco Sup 720-3BXL compatible with the Cisco Sup 2 in a redundant configuration?

A. No, the Cisco Sup 720-3BXL cannot be used in the same chassis with the Cisco Sup 2 for redundancy.

Q. What are the minimum software requirements for the Cisco Sup 720-3BXL?

A. The Cisco Sup 720-3BXL is supported in Cisco IOS® Release 12.2(17a)SXA.

Q. Is high availability supported with the Cisco Sup 720-3BXL?

A. Yes, the Cisco Supervisor 720-3BXL supports Fast Software Upgrade and Route Processor Redundancy+ (RPR+).

Q. Can the Cisco Sup 720-3BXL enable MPLS on the optical services module (OSM) and Gigabit Ethernet ports?

A. Yes, MPLS can be enabled on the Gigabit Ethernet ports included on the Supervisor 720-3BXL and the OSM.

Q. With the introduction of the Cisco Sup 720-3BXL, are there plans to retire the Sup 2 and Sup 720?

A. No, there are currently no plans to retire the Sup 2 or Sup 720.

#### Cisco 7600 Series/Catalyst 6500 Series Enhanced FlexWAN Module

Q. What is the Cisco 7600 Series/Catalyst 6500 Series Enhanced FlexWAN module?

A. The Cisco 7600 Series/Catalyst 6500 Series Enhanced FlexWAN module (Enhanced FlexWAN) enables high-performance, intelligent metropolitan-area network (MAN) and WAN services. Enterprises and service providers can take advantage of the many types of the Cisco 7000 Series common port adapters for their WAN aggregation and connectivity options, as well as the increased scalability, performance, and rich quality of service (QoS) features offered by the Cisco Enhanced FlexWAN module.

Q. What are the key features and benefits of the Cisco Enhanced FlexWAN module?

A. The Cisco Enhanced FlexWAN module offers the ability to consolidate LAN, WAN, and MAN services into a single platform and lowers the total cost of ownership of the network through simplified design and ease of network management and maintenance.

Q. How does the Cisco Enhanced FlexWAN module lower the total cost of ownership (TCO)?

A. A major benefit of LAN, WAN, and MAN consolidation on the Cisco 7600 Series and Cisco Catalyst 6500 Series is the reduction in the number of platforms to deploy and manage in any given network. This service convergence not only simplifies network design and configuration, it also decreases rack space and power requirements as well as the training and administrative burden associated with managing many different platforms. Additionally, such integration eases the support burden placed on a maintenance staff because spare parts for multiple platforms do not need to be stocked or managed. In addition, port adapters from currently deployed Cisco 7500 and Cisco 7200 platforms can be leveraged into the 7600/6500.



Q. Are there any additional TCO benefits?

A. Yes, the Cisco Enhanced FlexWAN module also provides considerable investment protection for the large installed base of Cisco 7200 and 7500 Series Routers. These same WAN port adapters can be deployed on the Cisco 7600 Series and Cisco Catalyst 6500 Series for immediate service delivery and scaling to much higher levels of system performance and bandwidth.

Q. Is the Cisco Enhanced FlexWAN module supported on all Cisco 7600 and Cisco Catalyst 6500 chassis?

A. Yes, the Cisco Enhanced FlexWAN module is supported on all Cisco 7600 and Cisco Catalyst 6500 chassis.

Q. Which supervisor engines support the Cisco Enhanced FlexWAN module?

A. Cisco Sup 720- and Sup 2-based systems support the Cisco Enhanced FlexWAN module with the appropriate software release. Supervisor 1A systems do not support the Cisco Enhanced FlexWAN module.

Q. What is the minimum software release that supports the Cisco Enhanced FlexWAN module?

A. Cisco IOS 12.2(17a)SXA is the minimum software release required to support the Enhanced FlexWAN module, with the Sup 720 initially, followed by Sup 2 support in a rebuild release of Cisco IOS 12.2(17a)SXB.

Q. What are the differences between the Cisco Enhanced FlexWAN module and the Cisco FlexWAN module?

A. The Enhanced FlexWAN module is the next-generation carrier card for supporting the Cisco 7000 Series common port adapters. It is a high-performance, feature-rich carrier card with line-rate performance for OC-3 interfaces. Table 2 lists the differences between the Cisco Enhanced FlexWAN module and the Cisco FlexWAN Module.

Table 2 Differences Between Cisco Enhanced FlexWAN Module and FlexWAN Module

	Enhanced FlexWAN Module	FlexWAN Module
<b>CPU</b>	400 MHz	262 MHz
<b>Number of CPUs</b>	2 CPUs, one per bay	2 CPUs, one per bay
<b>Memory (default)</b>	256 MB per bay	64 MB per bay
<b>Memory upgrade option</b>	512 MB maximum per bay	128 MB maximum per bay
<b>Switch fabric connectivity</b>	Yes	No
<b>Bus connectivity</b>	Yes	Yes
<b>Online insertion and removal of module</b>	Yes	Yes

Q. What is the performance improvement of the Cisco Enhanced FlexWAN module over the FlexWAN module?

A. The Cisco Enhanced FlexWAN module offers greater than twice the packet-forwarding performance of the Cisco FlexWAN module.

Q. Is the Cisco Enhanced FlexWAN module feature-compatible with the Cisco FlexWAN module?

A. Yes, the Cisco Enhanced FlexWAN module is feature-compatible with the Cisco FlexWAN module. In addition, the Cisco Enhanced FlexWAN module supports Fast Ethernet port adapters, and supports ongoing Metropolitan (Metro) Ethernet feature enhancements not supported on the Cisco FlexWAN module.

Q. With the introduction of the Cisco Enhanced FlexWAN module, are there plans to retire the Cisco FlexWAN module?

A. No, there are no plans at this time to retire the Cisco FlexWAN module.



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