

Catalyst 6000 Family Multilayer Switch Module

THE WS-X6302-MSM MULTILAYER SWITCH MODULE (MSM) FOR CATALYST 6000 FAMILY SWITCHES COMBINES SOPHISTICATED CISCO IOS® SOFTWARE FEATURES WITH ADVANCED ASIC TECHNOLOGY TO SUPPORT WIRE-SPEED MULTIPROTOCOL ROUTING IN A COMPACT, MANAGEABLE PLATFORM. THE MSM ENABLES CATALYST 6000 FAMILY CUSTOMERS TO DEPLOY VERY HIGH-PERFORMANCE MULTIPROTOCOL, MULTILAYER SWITCH SERVICES IN THE DISTRIBUTION/BACKBONE OF THEIR NETWORK TO SUPPORT WIRING CLOSET SWITCHES.

The MSM requires a single slot (with no slot dependency) in any Catalyst 6000 (WS-C6006 and WS-C6009) or Catalyst 6500 (WS-C6506 and WS-C6509) Series platform. The MSM module was designed with fully integrated Application Specific Integrated Circuits (ASIC) enabling aggregate throughput of up to six million packets per second for Layer 3 switching (IP, IPX®, and IP multicast). Combined with industry-leading IOS™ software, the high performance MSM enables the Catalyst 6000 Family to be particularly effective as a backbone/distribution switch.

Key Benefits

Industry-Leading Layer 3 with Cisco IOS Software

The MSM supports feature-rich IP, IPX, and IP multicast Layer 3 switching without sacrificing the performance required in a scalable backbone/distribution platform. This unique combination of performance and flexibility enables customers to integrate the Catalyst 6000 Family into existing IOS network configurations while at the same time scaling their backbone capacity to gigabit speeds. Routing protocols supported in the MSM module include:

- Enhanced IGRP (EIGRP)
- Interior Gateway Routing Protocol (IGRP)
- Open Shortest Path First (OSPF)
- Routing Information Protocol (RIP) Versions I and II
- Static routes
- Route redistribution

Additional IOS protocols supported in the Catalyst 6000 Family MSM module include:

- Hot Standby Router Protocol (HSRP)
- Internet Group Management Protocol (IGMP) Version I and II
- Dynamic Host Configuration Protocol (DHCP) Relay
- Cisco Group Management Protocol (CGMP)
- Internet Control Message Protocol (ICMP)
- Gateway Discovery Protocol (GDP)
- ICMP Router Discovery Protocol (IRDP)
- Bootstrap Protocol (BOOTP) Relay
- PIM (sparse and dense mode)

Wire Speed IPX Support

The Catalyst 6000 Family MSM module is also a full-featured IPX router. The MSM provides basic services such as Novell network RIP and Service Advertising Protocols (SAPs), and Novell Enhanced IGRP, as well as route distribution among all of these protocols. In addition, the MSM supports the following features to scale Novell networks:

- Get Nearest Server (GNS) response filtering and round-robin GNS support
- Novell RIP
- SAP, protocol, and NetBIOS name filtering
- Equal-cost path loadsharing
- Variable RIP and SAP timers
- Novell NetBIOS type 20 propagation support for legacy applications that continue to be mission critical
- Novell-compliant IPX ping utility

Multilayer Services

IP Multicast Switching and Routing

The MSM module supports IP multicast at wire speeds across the multigigabit Catalyst 6000 Family backplane. As multicast applications such as Microsoft NetShow and NetMeeting become more widely deployed, end-to-end multicast support becomes increasingly important with multicast routing protocols, which are integral for a consistent, end-to-end multicast solution. The MSM supports both Protocol Independent Multicast (PIM) sparse and dense modes and Distance Vector Multicast Routing Protocol (DVMRP) interoperability for legacy applications. The MSM provides support for IGMP, Versions 1 and 2, and CGMP server capabilities for integrating IP multicast support with Catalyst® wiring closet switches. These protocols are necessary not only for IP multicast clients to join groups but also for efficient leave processing, which is necessary to save bandwidth and end-station CPU cycles.

Advanced Management for Critical Backbone Switch Availability

The MSM module in the Catalyst 6000 Family supports a wide variety of CiscoAssure Policy Networking management tools and applications to enable fault management, configuration management, performance management, security management, and other functions. These network management applications are critical in backbone switch configurations with concentrated network traffic. The MSM and Catalyst 6000 Family platforms support full SNMP functions, password requirements for local or Telnet access and, to reduce the costs of administering software upgrades, Flash memory allows remote downloads using Trivial File Transfer Protocol (TFTP) of new revisions of operating systems without hardware changes.

Quality of Service

The Multilayer Switch Module incorporates rich QoS capabilities enabling important services such as support for dedicated bandwidth, avoidance and management of network congestion, and traffic prioritization across the network. To support these services, the MSM implements Weighted Round Robin (WRR) queuing, Per-Queue Drop Thresholds, and Per-Flow Queuing (PFQ) to differentiate and protect mission-critical application bandwidth from other, less critical, traffic.

The Quality of Service capabilities of the multilayer switch module, when combined with CiscoAssure Policy Networking, deliver the ability to protect mission-critical traffic by allowing network administrators to easily provision and manage traffic flows in the network without sacrificing performance.

Features

- The MSM may be deployed in a single slot (no slot dependency) of either the Catalyst 600X or Catalyst 650X.
- Multiple MSM modules can be configured in a single platform for redundancy and high availability. The MSM module is hot swappable and can be removed or replaced without resetting any other modules within the chassis.
- The MSM is integrated directly onto the Catalyst 6000 Family multigigabit switching backplane enabling the MSM module's ASIC technology to be fully utilized for Layer 3 performance of up to 4-6 million packets per second.
- The MSM is fully compatible with all line cards in the Catalyst 6000 Family platforms, including 10/100 modules (RJ-45, RJ-21), 100Base-FX, Gigabit Ethernet (1000BASE-SX, LX/LH), and is supported by the Supervisor 1 module.
- Supports a wide range of IP, IPX, and IP multicast routing protocols, including IGRP and EIGRP, OSPF, RIP and RIP II, PIM (sparse and dense mode), DVMRP interoperability, and IPX RIP.
- Supports other features supported including DHCP, IPX SAP, HSRP, CGMP, ICMP, IGMP, IRDP, and BOOTP.
- Supports port-based VLAN and up to 64 VLANs simultaneously.
- Supports a wide variety of SNMP with comprehensive management.

Specifications

Multilayer Switch Module

- Occupies one slot in the Catalyst 6000 Family
- 64-MB DRAM system memory
- EIA/TIA-232 serial console port

Physical Specification

- Platform dimensions (H x W x D): 1.6 x 15.3 x 16.3 in. (4.0 x 37.9 x 40.3 cm)
- Indicators and interfaces:
- Status LED

- Console port

Environmental Conditions

- Operating temperature: 32 to 104 F (0 to 40 C)
- Storage temperature: -40 to 167 F (-40 to 75 C)
- Relative humidity: 10 to 90%, noncondensing
- Operating altitude: -60 to 4000m
- Mean Time Between Failure (MTBF): seven years for system configuration

Safety Compliance

- UL 1950
- CSA-C22.2 No. 950
- IEC 950
- EN 60950
- AS/NZS 3260

EMC Compliance

- FCC Part 15 (CFR 47) Class A
- VCCI Class B
- EN55022 Class B
- CISPR 22 Class B
- CE marking
- AS/NZS 3548 Class B

Network Management

- IANAifType-MIB
- IF-MIB
- RFC1213-MIB
- RFC1398-MIB
- RMON-MIB (only alarm and event groups are supported)
- SNMPv2-MIB
- SNMPv2-SMI
- SNMPv2-TC
- TCP-MIB
- UDP-MIB
- RS-232-MIB



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