Cisco MDS 9200 Series Multiservice Switches and 9100 Series Multilayer Switches

Overview

Cisco® MDS 9200 Series Multiservice Switches and 9100 Series Multilayer Switches are fabric switches designed for deployment in small to medium-sized enterprise SANs. The Cisco MDS 9200 Series switches deliver state-of-the-art multiprotocol and distributed multiservice convergence, offering high-performance SAN extension and disaster-recovery solutions, intelligent fabric services, and cost-effective multiprotocol connectivity for both open systems and mainframe environments. With a compact form factor and advanced capabilities normally available only on director-class switches, the Cisco MDS 9200 Series switches provide an ideal solution for departmental and remote branch-office SANs. The Cisco MDS 9100 Series switches are cost-effective, scalable, easy-to-install, and highly configurable Fibre Channel switches that are ideal for small to medium-sized businesses. With high port densities, the Cisco MDS 9100 Series switches easily scale from an entry-level departmental switch to a top-of-the-rack switch, providing edge-switch connectivity to enterprise core SANs.

Sharing the same operating system and management interface with other Cisco data center switches, the Cisco MDS 9200 and 9100 Series switches enable easy deployment of SAN extension solutions and intelligent storage services with high-performance Fibre Channel (FC), Fibre Channel over IP (FCIP), Small Computer System Interface over IP (iSCSI), and Fibre Channel over Ethernet (FCoE) connectivity to achieve low total cost of ownership (TCO).

Cisco MDS NX-OS Software

The Cisco MDS NX-OS Software, included at no charge with every Cisco SAN switch, is the underlying system software that powers the Cisco MDS 9200 and 9100 Series switches. Cisco MDS NX-OS provides many unique features that help the Cisco MDS 9200 and 9100 Series switches deliver low TCO and a quick return on investment (ROI). It supports remote SAN extension capabilities on the Cisco MDS 9200 Series switches that simplifies data-protection and business-continuance strategies. By providing an open, standards-based platform, Cisco MDS 9000 NX-OS enables intelligent fabric applications such as Cisco I/O Accelerator (IOA) for increased performance and reduced latency over long-distance SAN extension links and Cisco Data Mobility Manager (DMM) for heterogeneous data migration between storage arrays.

Cisco MDS NX-OS provides services optimized for virtual machines and blade servers that let IT managers dynamically respond to changing business needs in virtual environments. It supports IPv6 as mandated by the U.S. Department of Defense (DoD), Japan, and China. The Cisco MDS 9200 and 9100 Series switches are FIPS compliant as mandated by the U.S. federal government.

Cisco Prime Data Center Network Manager Management Software

Cisco Prime Data Center Network Manager (DCNM) is the network's industry's first converged SAN and LAN management solution. The Cisco DCNM solution is an integral part of the Cisco MDS and Cisco Nexus® platforms for the provisioning and monitoring of intelligence services and multiprotocol traffic across Fibre Channel and Ethernet. The solution is designed to scale to large enterprise deployments through scale-out server architecture with automated failover capability. These capabilities provide a resilient management system that centralizes infrastructure and path monitoring across geographically dispersed data centers.

The Cisco DCNM base management functions are available at no charge with the Cisco MDS switches; advanced features are unlocked with a license.

To learn more about Cisco DCNM, go to http://www.cisco.com/go/dcnm.

Cisco MDS 9200 and 9100 Series Switch Models

Table 1 summarizes the Cisco MDS 9200 and 9100 Series switches.

Table 1. Cisco MDS 9200 and 9100 Series Switches

			
Switch Type	**Cisco MDS 9250i Multiservice Fabric Switch**	**Cisco MDS 9222i Multiservice Modular (MSM) Switch**	**Cisco MDS 9148 Multilayer Fabric Switch**
Part Number	Original storage manufacturer (OSM) part number: • DS-C9250I-K9 Cisco Direct part numbers: • DS-C9250ID16GSFPK9 • DS-C9250ID8GSFPK9 • M9250IPD20-16GSFP= • M9250IPD20-8GSFP=	OSM and Cisco Direct part number. • DS-C9222I-K9	OSM part numbers: • DS-C9148-16P-K9 • DS-C9148-32P-K9 • DS-C9148-48P-K9 Cisco Direct part numbers: • DS-C9148D-8G16P-K9 • DS-C9148D-8G32P-K9 • DS-C9148D-8G48P-K9 • DS-C9148D-4G16P-K9 • DS-C9148D-4G32P-K9 • DS-C9148D-4G48P-K9
Description	Fixed, multiprotocol fabric switch (2 rack units [2RU]) capable of running intelligent storage services	Semimodular, multiprotocol fabric switch (3RU) capable of running intelligent storage services	Fixed, multilayer Fibre Channel fabric switch (1RU)
Ports and Slots per Chassis	Up to 50 fixed ports including 40 x 16-Gbps Fibre Channel, 2 x 10-Gbps FCIP, and 8 x 10-Gbps FCoE	Base (fixed slot): 18 fixed 4-Gbps Fibre Channel ports and 4 fixed 1-Gbps Ethernet ports Expansion slot: 1 empty expansion slot with support for the following: • Cisco MDS 9000 Family 18/4-Port Multiservice Module (MSM) • Cisco MDS 9000 16-Port Storage Services Node (SSN)	Up to 48 fixed 8-Gbps Fibre Channel ports
Target Customer	Medium-sized and large enterprises and service providers	Small, medium-sized, and large enterprises	Small to medium-sized enterprises

Switch Type	Cisco MDS 9250i Multiservice Fabric Switch	Cisco MDS 9222i Multiservice Modular (MSM) Switch	Cisco MDS 9148 Multilayer Fabric Switch
Optics Supported	• 16-Gbps Fibre Channel SW and LW Enhanced Small Form-Factor Pluggable (SFP+) • 8-Gbps Fibre Channel SW and LW SFP+ • 10-Gbps Fibre Channel SW and LW SFP+ • 10 Gigabit Ethernet SR and LR SFP+	• 8-Gbps Fibre Channel SW and LW SFP+ • 4-Gbps Fibre Channel SW, LW, and coarse wavelength-division multiplexing (CWDM) SFP • 10-Gbps Fibre Channel SR, LR, and ER transceivers • 2-Gbps CWDM and dense wavelength-division multiplexing (DWDM) SFP • 1 Gigabit Ethernet SX and LX SFP	• 8-Gbps Fibre Channel SW and LW SFP+ • 4-Gbps Fibre Channel SW, CWDM, and DWDM SFP
Supported Software Packages	• Cisco Enterprise • Cisco DCNM • Cisco SAN Extension over IP (built in) • Cisco IOA • Cisco DMM • Cisco Mainframe and Extended Remote Copy (XRC) Acceleration	• Cisco Enterprise • Cisco DCNM • Cisco SAN Extension over IP • Cisco IOA • Cisco DMM • Cisco Mainframe and XRC Acceleration	• Cisco Enterprise • Cisco DCNM • Cisco Mainframe
Recommended Solutions	• High-performance SAN extension solutions • Distributed intelligent fabric services • Data mobility and migration • Cost-effective multiprotocol connectivity for both open systems and mainframe environments		• Edge connectivity to enterprise core SANs • Business continuance

Cisco MDS 9200 and 9100 Family Software License Packages

In addition to the unique software features included in the base switch configuration such as integrated VSANs, an advanced security suite, advanced diagnostics and troubleshooting tools, and the comprehensive Cisco DCNM, Cisco offers an advanced set of software features logically grouped in software license packages (Table 2).

Table 2. Cisco MDS 9200 Family Licenses

License Type	Cisco Enterprise	Cisco DCNM	Cisco SAN Extension over IP	Cisco IOA	Cisco DMM	Cisco Mainframe	Cisco XRC Acceleration
Description	The Cisco MDS 9000 Enterprise package includes advanced traffic engineering and advanced security features for enterprise SANs.	Cisco Prime DCNM is the network's industry's first converged SAN and LAN management solution. Cisco DCNM can manage all Cisco NX-OS Software based devices including the Cisco MDS and Nexus products. The intuitive GUI simplifies day-to-day operations of Cisco Unified Fabrics in today's highly virtualized data center environments.	The Cisco MDS 9000 SAN Extension over IP package provides an integrated, cost-effective, and reliable business-continuance solution that uses the existing IP infrastructure.	Cisco MDS 9000 IOA provides a fabric-based service to accelerate SCSI disk write and tape read and write I/O operations across metropolitan area network (MAN) and WAN links. The IOA feature is delivered as a highly available service with clustering capability, increasing reliability, performance, scalability, and application stability.	The Cisco DMM license is required to enable the Cisco MDS 9000 Family data migration feature. Two versions of the license are available. A permanent license that does not have any expiration period is available only to end-user customers who want to use this feature for their own data mobility needs and do not plan to sell services using this product. Service provider customers expecting to sell services based on Cisco DMM must purchase the 180-day license.	The Cisco Mainframe package includes features required in mainframe environments. IBM Fibre Connection (FICON) is an architecture for high-speed connectivity between mainframe and I/O devices.	Cisco MDS 9000 XRC Acceleration accelerates dynamic updates for IBM z/OS Global Mirror (formerly called XRC) over WAN links when used in conjunction with the Cisco MDS 9000 SAN Extension over IP and Mainframe packages.

License Type	Cisco Enterprise	Cisco DCNM	Cisco SAN Extension over IP	Cisco IOA	Cisco DMM	Cisco Mainframe	Cisco XRC Acceleration
Features	Advanced traffic management (Inter-VSAN Routing [IVR], quality of service [QoS], and extended credits) and security features (switch-to- switch and host-to-switch authentication, port security, VSAN-based access control, IP Security (IPsec) for iSCSI, and FCIP), Internet Key Exchange (IKE) digital certificates, and fabric binding for Fibre Channel	Monitoring of events and performance historically and at scale Wizard- and template-based provisioning of Cisco NX-OS based technologies and services Dynamic topology views with extended visibility into virtual infrastructure Resource management through trend analysis of inventory and performance Rule-based event notification and filtering Role-based access control (RBAC), providing separation between the network and storage teams	FCIP support including FCIP compression, write acceleration, and read and write tape acceleration; SAN extension tuner; and IVR for FCIP	Acceleration of disk write and tape read and write operations over both WAN FCIP and MAN Fibre Channel links, transparent insertion of fabric service, clustering of IOA service engines with load balancing and failover, PortChannels across line cards for Fibre Channel and FCIP, and compression for Fibre Channel links	Transparent insertion of service (Cisco MDS 9000 Family customers can turn on this service and move data from one array to another without any disruption of host applications), capability to schedule cutover to the new array (the point at which the old array is phased out), rate control of administrative traffic, and synchronous and asynchronous migration both within and across geographically dispersed data centers	VSAN for FICON and FCP intermixing, FICON Control Unit Protocol (CUP), fabric binding, switch cascading, IBM TotalStorage Virtual Tape Server, IBM TotalStorage XRC, FICON native mode and native mode channel- to-channel operation, persistent FICON FCID assignment, port swapping for host channel cable connectors, and FICON tape acceleration	Elimination of the need for a separate FICON acceleration appliance by running on the Cisco MDS 9222i or MDS 9000 18/4-Port Multiservice Module (MSM) used for FCIP; support for multiple IBM Service Delivery Manager (SDM) appliances, readers, Parallel Access Volumes (PAVs), and HyperPAVs; and simple management from the command-line interface (CLI), Cisco DCNM GUI, or IBM z/ OS tools

For More Information

For more information, please visit http://www.cisco.com/go/mds.

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