Connectrix MDS

Quick Reference Guide

An Overview of Cisco Storage Solutions for EMC

Connectrix MDS Directors

EMC Model	MDS-9706	MDS-9710	MDS-9718
			
Configuration	Chassis, Dual Supervisor 1, and up to four 3000W Power Supply	Chassis, Dual Supervisor 1, and up to eight 3000W Power Supply	Chassis, Dual Supervisor 1E, and up to sixteen 3000W Power Supply
Maximum 10-Gbps FCoE* Ports Per Chassis	192	384	768
Maximum 40-Gbps FCoE* Ports Per Chassis	96	192	384
Maximum 1/2/4/8/16-Gbps Fibre Channel Ports Per Chassis	192 (2/4/8/16-Gbps Fibre Channel)	384 (2/4/8/16-Gbps Fibre Channel)	768 (2/4/8/16-Gbps Fibre Channel)
Maximum 10-Gbps Fibre Channel Ports Per Chassis	192	384	768
Port Speed	2/4/8/16-Gbps Fibre Channel autosensing and 10G-Gbps Fibre Channel no autosensing		
Expandability	4 modules slots	8 modules slots	16 modules slots
Rack Units	9	14	26
Chassis Per Rack	3	2	1
Port Modules	MDS-48P-16GFC MDS-FCOE-9700 MDS-FCOE-9718		
License Keys	MDS-ENT-97 MDS-DCNM-97 MDS-MAIN-9700 MDS-DCNM-97X		
Miscellaneous	MDS-9706-FAB1 DS-C9706-FAN MDS-9710-PS	MDS-9710-FAB MDS-9710-PS DS-C9710-FAN	MDS-9710-PS DS-C9718-FAN
FICON Certifications	Yes	Yes	No
Features	The MDS Directors provide an excellent platform for: · 32G Fibre Channel Ready · Data center SAN consolidation · Business continuance · Centralized SAN management · Advanced SAN security for compliance and regulation · Centralized backup, recovery, and archiving through intelligent fabric applications · Native switch based programming and RESTful API support		

* FCoE cards only handle Storage Traffic

Connectrix MDS Switches

EMC Model	MDS-9148S	MDS 9396S	MDS-9250i
			
Configuration	Fixed 1-rack-unit (1RU) chassis; configurable to 12, 24, 36, or 48 ports enabled	Fixed 2-rack-unit (2RU) chassis; configurable to 48, 60, 72, 84, or 96 ports enabled	Fixed 2-rack-unit (2RU) chassis; configurable to 20 or 40 FC ports enabled
Ports	48 x 16-Gbps Fibre Channel (line rate) 48 x 2/4/8/16G FC	96 x 16-Gbps Fibre Channel (line rate) 96 x 2/4/8/10/16 G FC	· 20 x 2/4/8/16-Gbps Fibre Channel (line rate) with option to expand to 40 · 8 x 10 Gigabit Ethernet for FCoE · 2 x 1/10 Gigabit Ethernet for FCIP and iSCSI Gateway
Port Speed	2/4/8/16-Gbps Fibre Channel autosensing	2/4/8/16-Gbps Fibre Channel autosensing and 10G-Gbps Fibre Channel no autosensing	2/4/8/16-Gbps Fibre Channel autosensing, 10 Gigabit Ethernet FCoE, and 1/10 Gigabit Ethernet FCIP and iSCSI
License Keys	MDS-9148S-POD MDS-DCNM-91 MDS-ENT-9100 MDS-DCNM-91X	MDS-9396S-48 MDS-9396S-POD MDS-DCNM-93X, MDS-DCNM-93, MDS-EDCNM-93X, MDS-EDCNM-93, MDS-ENT-9300	MDS-DCNM-92 MDS-ENT-9200 MDS-MAIN-9200 MDS-DCNM-92X
Features	· PowerOn Auto Provisioning and intelligent diagnostics · In-Service Software Upgrade and dual redundant hot-swappable power supplies for high availability · Role-based authentication, authorization, and accounting services to support regulatory requirements · High-performance interswitch links with multipath load balancing · Smart Zoning and Virtual Output Queuing · Hardware-based slow port detection and recovery · Native on Switch RESTful API · 16 Member Port Channel	· PowerOn Auto Provisioning and intelligent diagnostics · In-Service Software Upgrade and dual redundant hot-swappable power supplies for high availability · Role-based authentication, authorization, and accounting services to support regulatory requirements · High-performance interswitch links with multipath load balancing · Smart Zoning and Virtual Output Queuing · Hardware-based slow port detection and recovery · Native on Switch RESTful API · 16 Member Port Channel · Up to 4095 B2B Credit Per Port (up to 512KM of Native FC SAN Extension Capability	Fixed 50-port multiservice fabric switch in 2RU: · SAN consolidation and convergence with integrated multiprotocol support for Fibre Channel, FCoE, FCIP, iSCSI, and FICON · Optimized for performance, power, and space, with 40 line-rate 16-Gbps Fibre Channel ports and 10 x 10-Gbps Ethernet ports · Remote SAN extension with high-performance FCIP for remote replication and other disaster-recovery services · Intelligent fabric services, such as the Cisco I/O Accelerator (IOA) and Data Mobility Manager (DMM) · Flexibility for future growth and capacity expansion · Native on Switch RESTful API · 16 Member Port Channel · Smart Zoning and Virtual Output Queuing

Connectrix MDS Software License Packages

License Package	Description	Features
Enterprise License	This package includes advanced traffic engineering and advanced security features for enterprise SANs.	Advanced traffic management: · Inter-VSAN Routing (IVR) · Quality of service (QoS) · Extended credits Security: · Switch-switch and host-switch authentication · Logical unit number (LUN) zoning · Read-only zones · Port security · VSAN-based access control · IP Security (IPsec) for iSCSI and FCIP · Internet Key Exchange (IKE) digital certificates · Fabric binding for Fibre Channel
Data Center Network Manager (DCNM) License	Cisco DCNM is designed to help customers efficiently implement and manage next-generation virtualized data centers. It provides timely management support for data center hardware platforms and Cisco NX-OS innovations.	SAN management: · Virtual machine–aware path management · Monitoring and troubleshooting · Single-pane management · Scalability: Federation and VSAN · Scoping LAN management: · Network virtualization through creation of virtual device contexts (VDCs) · Full automation of virtual PortChannel (vPC) operations · Cisco FabricPath
SAN Extension Over IP License	This package provides an integrated, cost-effective, and reliable business continuance solution that uses the existing IP infrastructure.	· FCIP compression · FCIP write acceleration · FCIP read-write tape Acceleration · SAN extension tuner · IVR for FCIP
Cisco I/O Accelerator (IOA)	Cisco 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 Cisco IOA feature is a highly available service with clustering capability, increasing reliability, performance, scalability, and application stability.	· Accelerated disk write and tape · Fibre Channel link compression Channel links · Transparent insertion of fabric service · Clustered IOA service engines with load balancing and failover · PortChannels across line cards read and write operations over for Fibre Channel and FCIP WAN FCIP and MAN Fibre
Mainframe License	This package includes features required in mainframe environments. FICON is an architecture for high-speed connectivity between mainframe and I/O devices.	· VSAN for FICON and FCP intermode channel-to-channel · FICON Control Unit Protocol (CUP) · Fabric binding · Switch cascading · IBM TotalStorage virtual tape server · IBM TotalStorage Extended Remote Copy (XRC) · FICON native mode and native mixing operation · Persistent FICON FCID assignment · Port swapping for host channel cable connectors · FICON tape acceleration

Storage Networking for Small SAN to Clouds

One of the most important and dynamic developments in IT today is the evolution of enterprise data centers. As the volume and value of information increases dramatically, the network and associated systems must be able to scale to support these new work loads. To this end, Cisco and EMC are partnering with customers in the data center to address the increasing complexity of IT infrastructure. With a joint vision, we provide a portfolio of technologies and services to meet both immediate and long-term data center storage requirements.

Why EMC?

- Industry-leading solution to unify your SAN + storage environments
- Comprehensive networking and storage capabilities for virtual environments
- Tested and validated by EMC
- EMC is the single point of contact for end-to-end support
- The EMC E-Lab reduces risk, saves time, and simplifies operations
- EMC parts depots are located worldwide, making parts available within a one-to-four-hour response time frame

Why Connectrix MDS?

- Keeping investment protection in mind, the Cisco® MDS 9000 Family, sold and serviced by EMC under the Connectrix brand, is designed for a variety of protocols including Fibre Channel (FC), IBM Fibre Connection (FICON), Fibre Channel over IP (FCIP), Small Computer System Interface over IP (iSCSI), and Fibre Channel over Ethernet (FCoE) for speeds of 8, 10, 16, and 40 Gbps
- The Cisco MDS 9000 Family is flexible; a customer can start with as few as 12 ports in a Cisco MDS 9000 Family switch and grow to a 768-port director
- Cisco MDS 9000 Family directors are built with redundant logic and components throughout for true 99.999 percent availability
- Cisco NX-OS Software on the Cisco MDS 9000 Family platform is the same management operating system used for all Cisco
- Nexus® and UCS and the GUI has the same look and feel across all products
- Cisco Data Center Network Manager (DCNM) provides resilient SAN operations with end-to-end visibility and performance monitoring

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This quick reference guide is available for download at www.cisco.com/go/emc.

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