



CONNECTRIX MDS 9700 ENTERPRISE DIRECTORS

The Dell EMC Connectrix MDS 9700 Director series support up to 32Gigabit per second (Gb/s) Fibre Channel performance which accommodates mission-critical applications and massive amounts of data.

Dell EMC Connectrix MDS 9700 Directors deliver performance, scalability and high availability to your modern data center storage network

The Connectrix MDS 9700 Directors have a fault-tolerant design and multiprotocol flexibility to support non-stop operations. The Connectrix MDS 9700 address the stringent requirements of large, virtualized data center storage environments. The MDS 9700 Directors provide high availability, scalability, security and ease of management with outstanding performance and powerful features for the all-flash, virtualized data center. All Connectrix MDS 32Gb/s platforms are NVMe-ready.

Connectrix MDS Chassis Models

There are three Connectrix MDS 9700 models to address all of your storage networking requirements. All three chassis models include dual supervisor modules, fabric modules, fans and power supplies as noted in the specifications below. The models support 32- and 16Gb/s Fibre Channel line rate ports as well as FCiP and FCoE. The MDS-9710 and MDS-9706 also support mainframe FICON.

- MDS-9718 – with sixteen switching module slots, the MDS-9718 delivers up to 768 ports per chassis to enable consolidation at scale
- MDS-9710 – with eight switching module slots, the MDS-9710 delivers up to 364 ports per chassis
- MDS-9706 – with four switching module slots, the MDS-9706 delivers up to 192 ports per chassis

Connectrix MDS Optional Licensed Key Features

Enterprise License – includes advanced traffic engineering and network security features such as IVR, QoS, zoned-based QoS, Fibre Channel Security Protocol (FCSP), port security, VSAN-based access control and fabric binding.

Mainframe Package – includes features required for mainframe environments. FICON supports high-speed connectivity between mainframes and I/O devices. Features include VSAN for FICON and FCP intermixing, FICON Control Unit Port (CUP), Fabric Binding, Switch Cascading, FICON Native Mode Channel-to-Channel Operation, Persistent FICON FCID assignment, Port Swapping for host channel cable connectors, FICON Tape Acceleration.

MDS SAN Analytics – SAN Analytics is achieved through a built-in analytics engine on the 32/Gb/s MDS switching module. The SAN Analytics engine is capable of producing I/O-level metrics so you can analyze in real time all Fibre Channel exchanges and report on metrics. The MDS Analytics solution is pervasive, there's no appliance, no probes and it's always on. There are two options for MDS SAN Analytics:

- SAN Insights License - enables access to telemetry data which Data Center Network Manager (DCNM) can display.
- SAN Telemetry Streaming License - provides the same data to 3rd party platforms like Virtual Instruments or for custom solutions.

Connextrix MDS Management – Data Center Network Manager

Data Center Network Manager (DCNM) Server-based SAN License – includes advanced management capabilities such as vCenter integration, performance trending, advanced provisioning, backup and dashboards. License is hosted on a server.

Data Center Network Manager (DCNM) Switch-based SAN License – includes advanced management capabilities such as vCenter integration, performance trending, advanced provisioning, backup and dashboards. License is hosted on the switch.

There is also a free 30-day trial server-based license. You can download it from support.emc.com at the following link:

https://support.emc.com/downloads/33166_Connextrix-MDS-Series-Software

Specifications

System Architecture			
Features	MDS-9718	MDS-9710	MDS-9706
Essential chassis components	Base model includes six fabric modules, two supervisor modules, three fan trays and twelve power supplies. An additional four power supplies can be added to insure the highest level of power availability.	Base model includes three fabric modules, two supervisor modules, three fan trays, and six power supplies. Additional four power supplies can be added to insure the highest level of power availability	Base model includes three fabric modules, two supervisor modules, three fan trays and four power supplies.
Switching modules	48-port 32 Gb/s module 48-port 16 Gb/s module 48-port 10GbE FCoE module 24-port 40GbE FCoE module 24/10-port SAN Extension module with FCiP	48-port 32 Gb/s module 48-port 16 Gb/s module 48-port 10GbE FCoE module 24-port 40GbE FCoE module 24/10-port SAN Extension module with FCiP	48-port 32 Gb/s module 48-port 16 Gb/s module 48-port 10GbE FCoE module 24-port 40GbE FCoE module 24/10-port SAN Extension module with FCiP
Cascade maximum	7	5	7
Virtual SANs	Up to 80 VSANs per fabric	Up to 80 VSANs per fabric	Up to 80 VSANs per fabric
Performance	32Gb/s Fibre Channel full duplex, 10- and 40GigE	32Gb/s Fibre Channel full duplex, 10- and 40GigE	32Gb/s Fibre Channel full duplex, 10- and 40GigE
Switch core	Non-blocking, cross bar design	Non-blocking, cross bar design	Non-blocking, cross bar design
Buffer credits 32Gb/s module	Up to 500 per port (dedicated mode) standard and up to 8191 on individual port with Enterprise Package activated	Up to 500 per port (dedicated mode) standard and up to 8191 on individual port with Enterprise Package activated	Up to 500 per port (dedicated mode) standard and up to 8191 on individual port with Enterprise Package activated
Buffer credits 16Gb/s module	Up to 500 per port (dedicated mode) standard and up to 4095 on individual port with Enterprise Package activated	Up to 500 per port (dedicated mode) standard and up to 4095 on individual port with Enterprise Package activated	Up to 500 per port (dedicated mode) standard and up to 4095 on individual port with Enterprise Package activated
Maximum frame size	2112 bytes	2112 bytes	2112 bytes
Classes of service	Class 2, 3 and F	Class 2, 3 and F	Class 2, 3 and F

System Architecture

Features	MDS-9718	MDS-9710	MDS-9706
Fabric services	Simple Name Server, Registered State Change Notification (RSCN), Login Services, Fabric Configuration Service (FCS), Broadcast, In-order delivery	Simple Name Server, Registered State Change Notification (RSCN), Login Services, Broadcast, Name Server Zoning	Simple Name Server, Internet Storage Name Server (iSNS), Registered State Change Notification (RSCN), Login Services, Fabric Configuration Service (FCS), Public loop, Broadcast, In-order delivery
Fibre Channel port types	Standard: E, F, FL and B Enhanced: SD, ST and TE	Standard: E, F, FL and B Enhanced: SD, ST and TE	Standard: E, F, FL and B Enhanced: SD, ST and TE
Advanced functions	VSAN, IVR, PortChannel, QoS, N_Port ID Virtualization	VSAN, IVR, PortChannel, QoS, N_Port ID Virtualization	VSAN, IVR, PortChannel, QoS, N_Port ID Virtualization
Media types	Hot swappable enhanced Small Form Factor Pluggable (SFP+) transceivers Short wave SFP+ up to 1,640 feet/500 meters Longwave SFP+ up to 6.21 miles 10 km	Hot swappable enhanced Small Form Factor Pluggable (SFP+) transceivers Short wave SFP+ up to 1,640 feet/500 meters Longwave SFP+ up to 6.21 miles 10 km	Hot swappable enhanced Small Form Factor Pluggable (SFP+) transceivers Short wave SFP+ up to 1,640 feet/500 meters Longwave SFP+ up to 6.21 miles 10 km
Hot swappable components	Switching modules, SFPs, Supervisor modules, power supplies, fan assembly and Fabric modules	Switching modules, SFPs, Supervisor modules, power supplies, fan assembly and Fabric modules	Switching modules, SFPs, Supervisor modules, power supplies, fan assembly and Fabric modules
Installation options	19-inch Electronic industries Alliances (EIA) compliant rack or the Connectrix EC-1700 cabinet	19-inch Electronic industries Alliances (EIA) compliant rack or the Connectrix EC-1700 cabinet	19-inch Electronic industries Alliances (EIA) compliant rack or the Connectrix EC-1700 cabinet
Minimum software revision	NX-OS Release 7.3 or higher	NX-OS Release 6.2.1 or higher	NX-OS Release 6.2.9 or higher
Management	Data Center Network Manager (DCNM) Access: Ethernet RJ-45; RS-232 Console CLI RJ-45	Data Center Network Manager (DCNM) Access: Ethernet RJ-45; RS-232 Console CLI RJ-45	Data Center Network Manager (DCNM) Access: Out-of-band 10/100/1000 Ethernet port, RS-232 serial console port
Physical specifications	Dimensions: (HxWxD) 45.25x17.3x35 inches (114.9x43.9x88.9 cm), 26RU Weight: 800 pounds fully loaded (363 kg)	Dimensions: (HxWxD) 24.35x17.3x34 inches (61.9x43.9x86.4 cm), 14RU Weight: 450 pounds fully loaded (204 kg)	Dimensions: (HxWxD) 15.6 x17.3x32 inches (39.62x43.9x81.3 cm), 9RU Weight: 325 pounds fully loaded (147.42 kg)
Interoperability	Refer to the Dell EMC Support Matrix (ESM) or E-Lab Navigator	Refer to the Dell EMC Support Matrix (ESM) or E-Lab Navigator	Refer to the Dell EMC Support Matrix (ESM) or E-Lab Navigator

Power and Airflow

Features	MDS-9718	MDS-9710	MDS-9706
Power supply	3000W AC	3000W AC	300W AC
Input voltage	100 to 240v AC nominal (+/- 10% full range); 50 to 60 Hz nominal (+/-3 Hz for full range)	100 to 240v AC nominal (+/- 10% full range); 50 to 60 Hz nominal (+/-3 Hz for full range)	100 to 240v AC nominal (+/- 10% full range); 50 to 60 Hz nominal (+/-3 Hz for full range)
Output voltage	1452W 50V +/-4%/28A, 3.4 V +/-4%/15A (100 to 120V AC input). 3051W 50V +/-4%/60A and 3.4 +/- 4%/15A (200 to 240V AC input)	1451W 50V +/-4%/28A, 3.4 V +/-4%/15A (100 to 120V AC input). 3051W 50V, +/-4%/60A and 3.4 +/- 15A (200 to 240V AC input)	Input:100 to 240V AC nominal ($\pm 10\%$ for full range); 16A nominal; 50 to 60 Hz nominal (± 3 Hz for full range) Output: 1451W 50V $\pm 4\%$ 28A, 3.4V $\pm 4\%$ 15A (100 to 120V AC input), 3051W 50V $\pm 4\%$ 60A, and 3.4V $\pm 4\%$ 15A (200 to 240V AC input)
Air Flow	MDS-9718 provides 30 to 100 cubic feet per minute (CFM) total flow through each line card slot depending on the line card type and the fan speed setting, With the MDS-9718, the original manufacturer recommends that you maintain a minimum air space of 7 inches (17.78 cm) between walls, such as in a cabinet, on the side and on the top and bottom of the chassis. The chassis front air vents need a clearance of 12 inches, and the back air vents need a clearance of 36 inches from a solid obstruction such as a solid wallMDS-9718 provides 30 to 100 cubic feet per minute (CFM) total flow through each line card slot depending on the line card type and the fan speed setting, With the MDS-9718, the original manufacturer recommends that you maintain a minimum air space of 7 inches (17.78 cm) between walls, such as in a cabinet, on the side and on the top and bottom of the chassis. The chassis front air vents need a clearance of 12 inches, and the back air vents need a clearance of 36 inches from a solid obstruction such as a solid wall.	Front to back.	Front to back

Environmental Specifications

Features	MDS-9718	MDS-9710	MDS-9706
Temperature ambient operating	32 to 104 degrees F (0 to 40C)	32 to 104 degrees F (0 to 40C)	32 to 104 degrees F (0 to 40C)
Temperature ambient non-operating	-40 to 158 degrees F (-40 to 70C)	40 to 158 degrees F (-40 to 70C)	40 to 158 degrees F (-40 to 70 C)
Relative humidity, ambient (non condensing) operating	10 to 90%	10 to 90%	10 to 90%
Altitude operating	-197 to 6500 feet (-60 to 2000 m)	-197 to 6500 feet (-60 to 2000 m)	-197 to 6500 feet (-60 to 2000 m)

Regulatory Compliance

Features	MDS-9718	MDS-9710	MDS-9706
Safety	CE Marker UL 60950 CAN/CSH – C22.2 No. 60950 EN 60950 AS/NZS 3260 IEC 60825 EN 60825 21CFR 1040	32 to 104 degrees F (0 to 40C)	32 to 104 degrees F (0 to 40C)
EMC	FCC Part 15 (CFR 47) Class A ICES-003 Class A EN 55022 Class A CISPR 22 Class A AS/NZS 3548 Class A EN 55024 EN 50082-1 EN 61000-6-1 EN 61000-3-2 EN 61000-3-3	40 to 158 degrees F (-40 to 70C)	40 to 158 degrees F (-40 to 70 C)
FIPS	FiPS Certified FIPS 140-2 Level 2		

Network Security

MDS-9718	MDS-9710	MDS-9706
Per VSAN RBAC using RAIDUS and TACACS+-based authentication, authorization and accounting (AAA) functions	Per VSAN RBAC using RAIDUS and TACACS+-based authentication, authorization and accounting (AAA) functions	Per VSAN RBAC using RAIDUS and TACACS+-based authentication, authorization and accounting (AAA) functions
VSAN Fabric Isolation	VSAN Fabric Isolation	VSAN Fabric Isolation
Intelligent packet inspection at port level	Intelligent packet inspection at port level	Intelligent packet inspection at port level
Fibre Channel Security Protocol (FC-SP) from host-to-switch and switch-to-switch authentication	Fibre Channel Security Protocol (FC-SP) from host-to-switch and switch-to-switch authentication	Fibre Channel Security Protocol (FC-SP) from host-to-switch and switch-to-switch authentication
Secure File Transfer Protocol (SFTP)	Secure File Transfer Protocol (SFTP)	Secure File Transfer Protocol (SFTP)
Secure Shell Version 2 (SSHv2) with Advanced Encryption Services (AES)	Secure Shell Version 2 (SSHv2) with Advanced Encryption Services (AES)	Secure Shell Version 2 (SSHv2) with Advanced Encryption Services (AES)
Simple Network Management Protocol version 3 (SNMPv3) with Advanced Encryption Services (AES)	Simple Network Management Protocol version 3 (SNMPv3) with Advanced Encryption Services (AES)	Simple Network Management Protocol version 3 (SNMPv3) with Advanced Encryption Services (AES)
Other built-in security: Control plane security, logical unit number (LUN) zoning and read-only zones, hardware enforced zoning and broadcast zones, management access FIPS 140-2 compliance. Other enhanced security features are available in the Enterprise Package.	Other built-in security: Control plane security, logical unit number (LUN) zoning and read-only zones, hardware enforced zoning and broadcast zones, management access FIPS 140-2 compliance. Other enhanced security features are available in the Enterprise Package.	Other built-in security: Control plane security, logical unit number (LUN) zoning and read-only zones, hardware enforced zoning and broadcast zones, management access FIPS 140-2 compliance. Other enhanced security features are available in the Enterprise Package.

Availability

MDS-9706	MDS-9710	MDS-9718
Redundant, hot-swappable supervisor modules Redundant, hot-swappable fabric modules Hot swappable switching modules and hot swappable SFP+ optics	Redundant, hot-swappable supervisor modules Redundant, hot-swappable fabric modules Hot swappable switching modules and hot swappable SFP+ optics	Redundant, hot-swappable supervisor modules Redundant, hot-swappable fabric modules Hot swappable switching modules and hot swappable SFP+ optics
Redundant AC Input Redundant, hot-swappable power supplies and fans	Redundant AC Input Redundant, hot-swappable power supplies and fans	Redundant AC Input Redundant, hot-swappable power supplies and fans
Online, non-disruptive software upgrades and activation Non-disruptive subsystem maintenance	Online, non-disruptive software upgrades and activation Non-disruptive subsystem maintenance	Online, non-disruptive software upgrades and activation Non-disruptive subsystem maintenance
Stateful supervisor module failover Stateful process restart	Stateful supervisor module failover Stateful process restart	Stateful supervisor module failover Stateful process restart
E-mail home capability with DCNM 7.2.3+	E-mail home capability with DCNM 7.2.3+	E-mail home capability with DCNM 7.2.3+
Fabric-based multipathing	Fabric-based multipathing	Fabric-based multipathing
Per-VSAN fabric services	Per-VSAN fabric services	Per-VSAN fabric services
Online diagnostics	Online diagnostics	Online diagnostics
Port tracking	Port tracking	Port tracking
Virtual Routing Redundancy Protocol (VRRP)	Virtual Routing Redundancy Protocol (VRRP)	Virtual Routing Redundancy Protocol (VRRP)



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