DELL Technologies

Specification Sheet

CONNECTRIX MDS 9700 ENTERPRISE DIRECTORS

Supports up to 64Gb/s Fibre Channel line rate performance

Performance, scalability, high availability, analytics, automation and investment protection

The Dell 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 16-, 32- and 64Gb/s platforms support NVMe/FC. Connectrix MDS Directors support the concurrent use of both traditional Fibre Channel and NVMe storage traffic, allowing organizations to seamlessly integrate Fibre Channel networks with next-generation NVMe-based storage, without a disruptive rip-and-replace.

Connectrix MDS Director Chassis Models

There are three Connectrix MDS 9700 director chassis models to address all your storage networking requirements. All chassis models include dual supervisor modules, fabric modules, fans and power supplies as noted in the specifications below. The director models support 64-, 32- and 16Gb/s Fibre Channel line rate ports as well as NVMe/FC and FCIP protocols. The MDS-9710-V2 and MDS-9706-V2 also support mainframe FICON.

- MDS-9706-V2 – with four switching module slots, theses directors provide up to 192 ports per chassis
- MDS-9710-V2 – with eight switching module slots each, these models support up to 384 ports per chassis
- MDS-9718-V3 – sixteen switching module slots, deliver up to 768 ports per chassis to enable consolidation at scale

Connectrix MDS Standard Features

Includes Port Channel, VSAN, VSAN Trunking, Inter-VSAN Routing, NPV, ISL and HBA Diagnostics, 10Gb/s Fibre Channel, Port Monitoring, Slow Drain (Congestion) Detection, Virtual machine transparency, hardware-enforced zoning. ACLs, per VSAN Role-based Access Control (RBAC), QoS policies, sophisticated diagnostics and more.

Connectrix MDS Optional Licensed Key Features

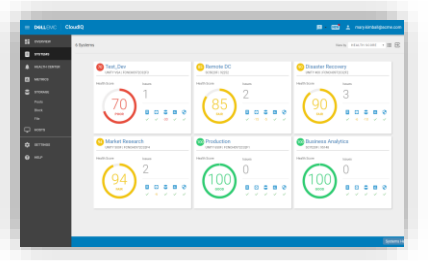
Enterprise License – includes advanced traffic engineering—quality of service (QoS), zoned-based QoS and network security features such as IVR, Fibre Channel Security Protocol (FCSP), port security, VSAN-based access control, fabric binding, IPsec and IKE for IPv4, IKE Digital certificates, enhanced VSAN Routing, zone-based traffic prioritizing, Extended BB_Credits, FC write acceleration, SCSI flow statistics, FCiP encryption, SAN device virtualization and TrustSec FC Link Encryption.

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 64- and 32/Gb/s MDS director switching modules. The SAN Analytics engine can produce 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.

Intelligent Infrastructure Insights with Dell CloudIQ

CloudIQ combines machine intelligence and human intelligence to provide storage administrators with the intel they need to take quick action and more efficiently manage their Dell environment. CloudIQ supports Dell storage systems and Connectrix MDS. Monitor your environment from a browser or the CloudIQ smart phone app.



MDS 9700 Enterprise Directors

System Architecture	Technical Specification
Essential chassis components	MDS-9718-V3 - Base model includes six fabric modules, two supervisor modules, three fan trays and eight power supplies. An additional four power supplies can be added to insure the highest level of power availability. MDS-9710-V2 - Base model includes three fabric modules, two supervisor modules, three fan trays, and four power supplies. Additional two power supplies can be added to insure the highest level of power availability. MDS-9706-V2 - Base model includes three fabric modules, two supervisor modules, three fan trays and two power supplies. Additional two power supplies can be added to insure the highest level of power availability. Note: To run at 64G speed, the MDS-9710-V2 and MDS-9706-V2 directors will need a total of **six** fabric modules.
Switching modules	48-port 32 Gb/s module 48-port 64 Gb/s module 24/10-port SAN Extension module with FCiP
Cascade maximum	MDS-9718 and MDS-9718-V3 – 7 MDS-9710-V2 - 5 MDS-9706-V2 - 7
Virtual SANs (VSANs)	Up to 80 VSANs per fabric
Performance	64Gb/s Fibre Channel full duplex, 10- and 40GigE
Switch core	Non-blocking, cross bar design
Buffer credits	64Gb switching module – up to 1000 buffer credits for exceptional extensibility without the need for additional licenses. With the Enterprise Package up to 16,000 buffer credits can be allocated to an individual port, enabling full link bandwidth over long distances with no degradation in link utilization. 32Gb switching module - up to 500 per port (dedicated mode) standard and up to 8191 on individual port with Enterprise Package activated 16Gb switching module - up to 500 per port (dedicated mode) standard and up to 4095 on individual port with Enterprise Package activated
Maximum frame size	2112 bytes
Classes of service	Class 2, 3 and F
Fabric services	Simple Name Server, Registered State Change Notification (RSCN), Login Services, Fabric Configuration Service (FCS), Broadcast, In-order delivery
Fibre Channel port types	Standard: E, F, FL and B Enhanced: SD, ST and TE
Advanced functions	VSAN, IVR, PortChannel, QoS, N_Port ID Virtualization, Dynamic Ingres Rate Limiting (DIRL)
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 components	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
Minimum NX-OS versions	MDS-9718 – 7.3 MDS-9718-V3 - 8.4(2a)+ MDS-9710-V2 - 8.4(1) MDS-9706-V2 8.4(1)
Management	Nexus Dashboard Fabric Controller (NDFC) Data Center Network Manager (DCNM)
Management access	MDS-9718 and MDS-9718-V3 – Ethernet RJ-45; RS-232 Console CLI RJ-45 MDS-9710-V2 – Ethernet RJ-45; RS-232 Console CLI RJ-45 MDS-9706-V2 – Out-of-band 10/100/1000 Ethernet port, RS-232 serial console port

Physical specifications	MDS-9718 and MDS-9718-V3 Dimensions: (HxWxD) 45.25x17.3x35 inches (114.9x43.9x88.9 cm), 26RU Weight: 800 pounds fully loaded (363 kg) MDS-9710-V2 Dimensions: (HxWxD) 24.35x17.3x34 inches (61.9x43.9x86.4 cm), 14RU Weight: 450 pounds fully loaded (204 kg) MDS-9706-V2 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 Technologies Support Matrix (ESM), E-Lab Navigator or E-Lab Navigator mobile app

MDS-9700 Enterprise Directors	
Power and airflow	**Technical Specification**
Power supply	3000W AC
Input voltage	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)
Airflow	MDS-9718 and MDS-9718-V3- 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 and MDS-9718-V3, 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. MDS-9710-V2 – front to back MDS-9706-V2 – front to back

MDS-9700 Enterprise Directors	
Environmental specifications	**Technical Specification**
Temperature ambient operating	32 to 104 degrees F (0 to 40C)
Temperature ambient non-operating	-40 to 158 degrees F (-40 to 70C)
Relative humidity, ambient (non-condensing) operating	10 to 90%
Altitude operating	-197 to 6500 feet (-60 to 2000 m)

MDS-9700 Enterprise Directors

Regulatory compliance	Technical Specification
Safety	CE Marker UL 60950 CAN/CSH – C22.2 No. 60950 EN 60950 AS/NZS 3260 IEC 60825 EN 60825 21CFR 1040
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
FIPS	FiPS Certified FIPS 140-2 Level 2

MDS-9700 Enterprise Directors

Network security	Technical Specification

- Per VSAN RBAC using RAIDUS and TACACS+-based authentication, authorization and accounting (AAA) functions
- VSAN Fabric Isolation
- Intelligent packet inspection at port level
- Fibre Channel Security Protocol (FC-SP) from host-to-switch and switch-to-switch authentication
- Secure File Transfer Protocol (SFTP)
- Secure Shell Version 2 (SSHv2) 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.

MDS-9700 Enterprise Directors

Availability	Technical Specification

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

Online, non-disruptive software upgrades and activation
Non-disruptive subsystem maintenance

Stateful supervisor module failover

Stateful process restart
E-mail home capability with DCNM 7.2.3+
Fabric-based multipathing
Per-VSAN fabric services
Online diagnostics
Port tracking
Virtual Routing Redundancy Protocol (VRRP)

Dell Technologies Services

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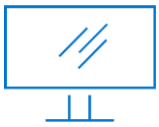

Learn More about Connectrix solutions

Contact a Dell Technologies Expert

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