Dell Connectrix MDS-9220i

Multi-services Switch

MDS-9220i offers up to twelve 32 Gigabits per second (Gb/s) Fibre Channel ports, four 1/10-, two 25-, and one 40-Gigabit Ethernet IP storage services ports, in a fixed one-Rack-Unit (1RU) form factor.

System Architecture	
Features	**Technical Specification**
Multi-protocol Ports	MDS-9220i: Up to twelve 32G/sb Fibre Channel ports, up to four 1/10 Gigabit Ethernet (GigE) ports, two 25 GigE ports and one 40 GigE ports. Note: The four 1/10 GigE ports, two 25GigE ports and the one 40GigE ports are not usable altogether. The MDS-9220i can be configured to support one of these GigE speeds.
Supported Optics	MDS-9220i: 32Gb/s32Gb shortwave and long wave Fibre Channel optics 40/25/10/1 GigE optics
Cascade Maximum	5
Virtual SANs	Up to 80 VSANs per Fabric
Fibre Channel Performance	MDS-9220i: Full line rate 32Gb/s Fibre Channel
Switch Core	Non-blocking, cross-bar design
Frame Size	Maximum 2112 Bytes
Class of Service	Class 2, 3, and F
Fabric Services	Name Server, Registered State Change Notification (RSCN), Login Services, Broadcast, Name Server Zoning,Fabric Configuraton Services (FCS) and In-order delivery
Fibre Channel Port Types	Standard: E, F, FL and B Enhanced: SD, ST and TE
Media Types	Hot-swappable enhanced Small Form-Factor Pluggable (SFP+) transceivers
Advanced Functions	VSAN, IVR, PortChannel, QoS, NPV, FICON over FCiP

System Architecture Cont'd

Features	Technical Specification
Hot Swappable Components	SFPs, power supplies and fans
Installation Options	19-inch EIA-compliant rack
Minimum Software Revisions	MDS-9220i: NX-OS version 8.5(1) or higher
Optional Licenses	Enterprise License – includes advanced traffic engineering and network security features such as IVR, QoS, zoned based QoS, Fibre Channel Security Protocol (FC-SP), 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. **Note**: Effective with the release of NX-OS 9.4(1a) FICON capability is embedded in the OS. Previous NX-OS releases that include FICON support will still require a separate license. Nexus Data Fabric Controller (NDFC) - provides management, control, automation, monitoring, visualization and troubleshooting across the Connectrix MDS SAN portfolio. NDFC manages the MDS Fibre Channel devices and all SAN configurations from an intuitive User Interface (UI) through wizards, templates and user-friendly features and functions. There are many configurable dashboards and dashlets that display an assortment of information, including health scores, status, utilization, alarms and events for links, switches and fabrics. *Note: As of the release of NX-OS 9.4(1a). FICON capability is embedded in the OS. Previous NX-OS releases that include FICON support will still require a separate license.

Availability

Features
Redundant AC Input
Redundant, hot-swappable power supplies
Online, non-disruptive software upgrades and activation
Non-disruptive subsystem maintenance
Stateful process restart
E-mail home capability

Interoperability

Features
For complete details, refer to the Dell E-Lab Navigator Support Matrix or the E-Lab Navigator App for IOS or Android

Management

Features

Nexus Dashboard Fabric Controller Data Sheet

Access: Ethernet (RJ-45), RS-232 Console CLI (RJ-45)

Network Security

Features

Per-VSAN RBAC using RADIUS and TACACS+-based authentication, authorization, and accounting (AAA) functions

VSAN Fabric Isolation

Intelligent packet inspection at the port level

Fibre Channel Security Protocol (FC-SP) 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 features: Control-plane security, logical unit number (LUN) zoning and read-only zones, hardware-enforced zoning, broadcast zones, and management access, FIPS 140-2 compliance.   Other enhanced security features are available with the Enterprise Package.

Physical Specifications

Features

MDS-9220i: Dimensions Height 1.72 x Width 17.3 x Depth 20.12 inches, 1RU

MDS-9220i Weight Fully Configured - 21.61 pounds (9.8 kg)

Power

Features

MDS-9220i power supply: 500W AC

Power cords: Notched C15 socket connector connecting to C16 plug on power supply

AC input characteristics

100 to 240V AC (10% range)

50 to 60 Hz (nominal)

MDS-9220i Airflow (front to back and back to front)

200 linear feet per minute (LFM) through system fan assembly

Environment Specifications

Features

Temperature, ambient operating: 32 to 104°F (0 to 40°C)

Temperature, ambient non-operating and storage: 40 to 158°F (-40 to 70°C)

Relative humidity, ambient (noncondensing) operating: 10 to 90%

Relative humidity, ambient (noncondensing) non-operating and storage: 10 to 95%

Altitude, operating: -197 to 6500 ft (-60 to 2000m)

Regulatory Compliance

Features	Technical Specification
Safety	• CE Marking • UL 60950 • CAN/CSA-C22.2 No. 60950 • EN 60950 • IEC 60950 • TS 001 • AS/NZS 3260 • IEC60825 • EN60825 • 21 CFR 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 • VCCI Class A • EN 55024 • EN 50082-1 • EN 61000-6-1 • EN 61000-3-2 • EN 61000-3-3

Connectrix MDS-9220i Feature Summary

The Connectrix MDS-9220i multi-service switch is optimized platforms for deploying high-performance SAN extension solutions, distributed intelligent fabric services and cost-effective multiprotocol connectivity for both open systems and mainframe FICON environments. With a compact form factor and advanced capabilities, the MDS-9220i is an ideal solutions for departmental and remote branch-office SANs as well as in large-scale SANs in conjunction with Connectrix MDS 9700 Series Directors. The MDS-9220i connects to existing native Fibre Channel networks, protecting current investments in storage networks and both support NVMe/FC. The SAN Extension over IP application package license is enabled as standard on the Gigabit Ethernet IP storage services ports, enabling features such as Fibre Channel over IP (FCIP) and compression on the switch without the need for additional licenses.

Professional Services

Installation and configuration

Save valuable in-house administrative time by using a Dell Technologies engineer for system deployment and implementation. Dell provides practical choices for hardware and software deployment with using onsite or remote delivery options to fit every budget and operating model. **ProDeploy Plus** is the most complete onsite deployment option designed to add more capacity or migrate to newer, more advanced technology. Ideal for customers seeking onsite cutover assistance to mitigate risk when migrating to the new network. Choose ProDeploy Plus for hands free implementation and peace of mind. For more information go to ProDeploy Enterprise Suite.

Health Check and pre-deployment design service

Although Fibre Channel networks are highly reliable and robust, no network is immune to congestion and backpressure that can slow network traffic or cause outages, especially when there is a mixture of old and new infrastructure. The Fibre Channel Infrastructure Assessment service is ideal for large or medium size enterprises that require unbiased facts and professional expertise to identify performance issues and help guide capacity planning, using specialized software monitoring and analytic tools. Get results with the Fibre Channel Infrastructure Assessment. Download the data sheet.

The benefits of buying from your SAN from Dell Technologies

There are four main reasons customers choose Dell Connectrix for their Storage Area Networks:
1. Single-Vendor Support
    - Eliminate multi-vendor complexity with single-vendor support for your *entire* environment to include servers, storage, networking, software and more. Other vendors focus on just the network while Dell understands the entire multi-vendor environment.
2. Insights with Dell APEX AIOps Infrastructure Observability
    - Dell provides access to a cloud-based monitoring software to give IT administrators the intel they need to easily manage the Dell environment
    - Dell APEX AIOps Infrastructure Observability makes daily IT management tasks easier with 24x7 insights to help you make better, faster decisions and save significant time and costs
3. Minimized risk and deployment time
    - Risk and deployment time are decreased with the same vendor for storage and networking
4. Dell E-Lab proven interoperability
    - Industry's premier and trusted testing lab provides end-to-end interoperability assurance across servers, HBAs, storage networks, storage systems, solutions and more

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