




Cisco MDS 9000 Series Switches

Overview of Cisco Storage Networking Solutions






Cisco® MDS 9700 Series 64-Gbps ready Directors

| Cisco Model | Cisco MDS 9706 multilayer director | Cisco MDS 9710 multilayer director | Cisco MDS 9718 multilayer director |
|---|---|---|---|
| |  |  |  |
| Configuration | Chassis with 4-linecard capacity | Chassis with 8-linecard capacity | Chassis with 16-linecard capacity |
| Maximum 2/4/8/10/16/32-Gbps Fibre Channel ports per chassis | 192 | 384 | 768 |
| Maximum 10-Gbps Fibre Channel over Ethernet (FCoE) ports per chassis | 192 | 384 | 768 |
| Maximum 40-Gbps FCoE ports per chassis | 96 | 192 | 384 |
| Chassis throughput | 12.3Tbps | 24.6Tbps | 49.2Tbps |
| Maximum Fibre Channel over IP (FCIP) ports per chassis | 32x1/10 GE 8x40 GE | 64x1/10 GE 16x40 GE | 128x1/10 GE 32x40 GE |
| Port speed | 2/4/8/10/16/32-Gbps Fibre Channel 1/10/40-Gbps FCoE 1/10/40-Gbps ¹ FCIP | | |
| Port modules and Cisco part numbers | 48-port 4/8/16/32-Gbps Fibre Channel switching module 48-port 2/4/8/10/16-Gbps Fibre Channel switching module 24-port 2/4/8/10/16-Gbps Fibre Channel, 8-port 1/10 Gigabit Ethernet for FCIP, and 2-port 40 Gigabit Ethernet ¹ for FCIP 24-port 40-Gbps FCoE module 48-port 10-Gbps FCoE module | | |
| | | | DS-X9648-1536K9 DS-X9448-768K9 ² DS-X9334-K9 DS-X9824-960K9 DS-X9848-480K9 |

¹ 40 Gigabit Ethernet ports on the 24/10-SAN extension module will be enabled in the future



² 2: DS-X9448-768K9 is End of Sale as of Mar 2020

| Cisco Model | Cisco MDS 9706 multilayer director | Cisco MDS 9710 multilayer director | Cisco MDS 9718 multilayer director |
|---|--|---|---|
| |  |  |  |
| Supervisor Modules | DS-X97-SF1-K9 / DS-X97-SF4-K9 | | DS-X97-SF1E-K9 |
| Fabric Modules | DS-X9706-FAB1 or DS-X9706-FAB3 | DS-X9710-FAB1 or DS-X9710-FAB3 | DS-X9718-FAB1 |
| Max/Min Fabric modules for 32G line rate performance | Minimum 3x Fabric-3 or 6x Fabric-1 modules | Minimum 3x Fabric-3 or 6x Fabric-1 modules | Minimum 6x Fabric-1 modules |
| Maximum Power Supplies | 4 | 8 | 16 |
| Rack Units | 9 | 14 | 26 |
| Chassis per Rack | 3 | 2 | 1 |
| Power Supplies | DS-CAC97-3KW= AC PSU, DS-CDC97-3KW= DC PSU, DS-CHV-3.5KW= HVDC PSU | | |
| Licensing | SAN Analytics license Enterprise package license DCNM Advanced license Mainframe Package license ³ IOA License for 24/10 Module | | |
| FICON certification | Yes | Yes | No |
| Common Features | Future readiness (64G FC ready) Integrated SAN analytics ⁴ NVMe/FC ready Automation using Ansible, Restful API, Openstack Virtual Machine awareness Anti-counterfeit technology with secure boot Native on-switch RESTAPI and Python interpreter Multi-protocol support Simplified Management | | |




³ For MDS 9706 and MDS 9710 only

⁴ 32G module only

Cisco MDS 9000 Series 32-Gbps Fabric Switches

| Cisco Model | Cisco MDS 9132T 32G Multilayer Fabric Switch | Cisco MDS 9148T 32G Multilayer Fabric Switch | Cisco MDS 9396T 32G Multilayer Fabric Switch |
|--------------------------------|---|--|---|
| |  |  |  |
| Configuration | Semi-modular 1RU chassis; configurable to 8, 16, 24 or 32 ports | Fixed 1RU chassis; configurable to 24, 32, 40 or 48 ports | Fixed 2RU chassis; configurable to 48, 64, 80 or 96 ports |
| Ports | 16x4/8/16/32-Gbps Fibre channel (line rate) base switch 16x4/8/16/32-Gbps Fibre channel (line rate) expansion module | 48x4/8/16/32-Gbps Fibre channel (line rate) fixed switch | 96x4/8/16/32-Gbps Fibre channel (line rate) fixed switch |
| Port speed | 4/8/16/32-Gbps Fibre Channel sp | 4/8/16/32-Gbps Fibre Channel sp | 4/8/16/32-Gbps Fibre Channel sp |
| Port activation license | 8/16-Port | 8-Port | 16-Port |
| Licensing | SAN Analytics license Enterprise package license DCNM Advanced license Port Activation license | | |
| Features | Integrated SAN Analytics Modular high availability Autozone feature NVMe/FC ready Virtual Machine awareness Extended BB_Credits (Upto 8270 per port / 8300 per port group) Native on-switch REST API and PYTHON interpreter FC Trustsec Link encryption Power-On Auto Provisioning (POAP) and intelligent diagnostics Cisco In-Service Software Upgrade(ISSU) and downgrade (ISSD) Redundant hot-swappable power supplies and fan trays Anti-counterfeit technology with secure boot | | |

Cisco MDS 9000 Series 16-Gbps Fabric Switches

| Cisco Model | Cisco MDS 9148S 16G Multilayer Fabric Switch | Cisco MDS 9396S 16G Multilayer Fabric Switch | Cisco MDS 9250i 16G Multiservice Fabric Switch |
|--------------------------------|---|--|--|
| |  |  |  |
| Configuration | Fixed 1RU chassis; configurable to 12, 24, 36, or 48 ports enabled | Fixed 2RU chassis; configurable to 48, 60, 72, 84, or 96 ports enabled | Fixed 2RU chassis; configurable to 20 or 40 Fibre Channel ports enabled |
| Ports | 48 x 2/4/8/16- Gbps Fibre Channel (line rate) | 96 x 2/4/8/10/16- Gbps Fibre Channel (line rate) | 20 x 2/4/8/16-Gbps Fibre Channel (line rate) with option to expand to 40 8x10 Gigabit Ethernet for FCoE 2 x 1/10 Gigabit Ethernet for FCIP and iSCSI (Internet Small Computer Systems Interface) gateway |
| Port speed | 2/4/8/16-Gbps Fibre Channel | 2/4/8/16-Gbps Fibre Channel and 10-Gbps Fibre Channel | 2/4/8/16-Gbps Fibre Channel, 10-GEF CoE, and 1/10-GE FCIP and iSCSI (Internet Small Computer Systems Interface) gateway |
| Port activation license | 12-Port | 12-Port | 20 x FC Ports only |
| License keys | Enterprise package license DCNM Advanced license Port Activation license I/O Accelerator Services package ⁵ Data Mobility Manager package ⁵ Mainframe Package ⁵ XRC Acceleration Package for IBM series z ⁵ | | |
| Features | Power-On Auto Provisioning (POAP) and intelligent diagnostics High-performance Inter- Switch Links (ISLs) with multipath load balancing Role-based AAA services to support regulatory requirements Smart zoning and Virtual Output Queuing (VOQ) Hardware-based slow-port detection and recovery Native on-switch RESTAPI Multi-protocol support FICON certification ⁵ Remote SAN extension using FCIP ⁵ Intelligent fabric services: Cisco I/O Accelerator (IOA) 0 ⁵ | | |

⁵ For MDS 9200 only

Cisco MDS 9000 Series Software License Packages

| Licensed package | Features |
|---|--|
| SAN Analytics | This package includes features that enable On-board SAN Telemetry, SAN Insights DCNM visualization and SAN Telemetry Streaming to 3 rd Party tools for Visualization. SAN Insights is included in DCNM advanced license when switches have SAN Analytics license installed. |
| Enterprise license | <p>This package includes advanced traffic engineering and advanced security features for enterprise SANs like:</p> <ul style="list-style-type: none"> ▪ Advanced traffic management ▪ Inter-VSAN Routing (IVR) ▪ Quality of Service (QoS) ▪ Extended buffer-to-buffer credits ▪ Security ▪ Switch-to-switch and host-to-switch authentication ▪ Port security ▪ VSAN-based access control ▪ IP Security (IPsec) for Internet Small Computer Systems Interface and FCIP ▪ Internet Key Exchange (IKE) digital certificates ▪ Fabric binding for Fibre Channel |
| Cisco Data Center Network Manager (DCNM) license | Data Center Network Manager 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 Software innovations. |
| Cisco I/O Accelerator (IOA) license | 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. This license is applicable to MDS 9250i and 24/10 SAN Extension module only. |
| Mainframe license | <p>This package includes features required in mainframe environments. FICON is an architecture for high- speed connectivity between mainframe and I/O devices</p> <ul style="list-style-type: none"> ▪ VSAN for FICON and Fibre Channel Protocol (FCP) intermode channel-to-channel operations ▪ FICON Control Unit Protocol (CUP) ▪ Fabric binding ▪ Switch cascading ▪ IBM Total Storage virtual tape server ▪ IBM Total Storage 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 <p>(This license is applicable to MDS 9706, MDS 9710 and MDS 9250i only.)</p> |