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# Refurbished CISCO DS-C9706H-1K9 Datasheet

CISCO > STORAGE-NETWORKING

## Cisco MDS 9700 Series Multilayer Directors

## Features and benefits

### Performance and scalability

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| **Outstanding SAN performance** | The combination of 16-Gbps, 32-Gbps Fibre Channel switching modules and Cisco Fabric-3 crossbar switching modules enables up to three Tbps of front-panel Fibre Channel throughput between modules in each direction for each of the four MDS 9706 payload slots. MDS 9706 architecture, based on central arbitration and crossbar fabric, provides 32-Gbps line-rate, nonblocking, predictable performance across all traffic conditions for every port in the chassis. |

### Multiprotocol connectivity

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| **Multiprotocol architecture** | The multilayer architecture of the Cisco MDS 9700 Series Multilayer Directors enables a consistent feature set over a protocol-independent switch fabric. The MDS 9706 transparently integrates Fibre Channel, FCoE, FCIP, and FICON.<br>The MDS 9706 supports full line-rate Fibre Channel (2/4/8-Gbps, 4/8/16-Gbps, or 10-Gbps) ports on the Cisco MDS 9700 48-Port 16-Gbps Fibre Channel Switching Module for deployment in both open systems and FICON environments. The MDS 9710 supports 8/16/32-Gbps on the Cisco MDS 9700 48-Port 32-Gbps Fibre Channel Switching Module.<br>FICON: The MDS 9706 supports IBM System z FICON and Linux environments.<br>Multihop FCoE: The MDS 9706 supports 10-Gbps FCoE ports on the Cisco MDS 9700 48-Port FCoE Switching Module and 40-Gbps FCoE ports on the Cisco MDS 9700 24-Port FCoE Switching Module for deployment in multihop FCoE environments, extending connectivity from FCoE and Fibre Channel fabrics to FCoE and Fibre Channel storage devices.<br>SAN Extension FCIP: The Cisco MDS 9000 24/10-Port SAN Extension Module is supported on MDS 9700 Series Multilayer Directors. With 24 line-rate 8/10/16-Gbps Fibre Channel ports and eight 1 and 10 Gigabit Ethernet FCIP ports, this module enables deployment of large and scalable SAN extension solutions. |

### Software features

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| **Advanced traffic management** | Advanced traffic management capabilities in the MDS 9706 simplify deployment and optimization of large-scale fabrics:<br>Virtual Output Queue (VOQ): Help ensure line-rate performance on each port, independent of traffic pattern, by eliminating head-of-line blocking.<br>Up to 4095 buffer-to-buffer credits: Using extended credits, allocate up to 4095 buffer credits from a pool of more than 6000 buffer credits for a module to ports as needed to greatly extend the distance for Fibre Channel SANs. Alternatively, assign 4095 buffer credits to an individual port for optimal bandwidth utilization across distances.<br>Port channels: Aggregate up to 16 physical ISLs into a single logical bundle, optimizing bandwidth utilization across all links. The bundle can consist of any speed-matched ports from any module in the chassis, helping ensure that the bundle can remain active even if a module fails. The MDS 9000 Family switch architecture helps ensure that frames can never be reordered within a switch.<br>Fabric Shortest Path First (FSPF)-based multipathing: Get the intelligence to load-balance traffic across up to 16 Fibre Channel or FCoE equal-cost paths and, in the event of a switch failure, dynamically reroute traffic.<br>Quality of Service (QoS): Prioritize critical traffic to manage bandwidth and control latency. |
| **Intelligent network services** | VSAN technology, ACLs for hardware-based intelligent frame processing, and fabric wide QoS enable migration from SAN islands to enterprise-wide storage networks.<br>Integrated hardware-based VSANs and Inter-VSAN Routing (IVR): Integrating VSANs into port-level hardware allows any port in a system or fabric to be partitioned to any VSAN. Integrated hardware-based IVR provides line-rate routing between any ports in a system or fabric without the need for external routing appliances.<br>Intelligent storage services: The MDS 9706 interoperates with intelligent service capabilities on other MDS 9000 Family platforms and the intelligent services switch. You can accelerate storage applications for data replication, backup, and data migration to hosts and targets attached to the MDS 9706.<br>Smart Zoning: Using this feature, MDS 9700 Series director fabrics can provision hardware access control entries specified by the zone set more efficiently. Avoid superfluous entries that allow servers (initiators) to talk to other servers or storage devices (targets) to talk to other storage devices. Large zones with multiple initiators and multiple targets are now possible without consuming excessive hardware resources. Smart zones can correspond to applications, application clusters, hypervisor clusters, or other data center entities. Automate zoning tasks and save the time previously spent creating many small zones. |

| Management | |
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| **Ease of management** | The MDS 9700 Series includes built-in storage network management with all features available through a Command-Line Interface (CLI) or Cisco DCNM, a centralized management tool that simplifies management of unified fabrics. DCNM supports integration with third-party storage management applications to allow transparent interaction with existing management tools.<br>Adhering to the syntax of the widely known Cisco IOS Software CLI, the MDS 9000 Family CLI is easy to learn and delivers broad management capabilities. This highly efficient direct interface optimizes management. You can enable debugging modes for each switch feature and view a real-time updated activity log of control protocol exchanges. Log entries are time-stamped and listed in chronological order.<br>Cisco DCNM is the networking industry's first converged SAN and LAN management solution. It can manage all NX-OS devices, including the MDS 9000 Family and Cisco Nexus Family switches. The intuitive GUI simplifies day-to-day operations of Cisco unified fabrics in highly virtualized data center environments. DCNM supports:<br>Event and performance monitoring historically and at scale<br>Wizard- and template-based provisioning of NX-OS technologies and services<br>Cisco VMpath analytics with dynamic topology views for extended visibility into virtual infrastructure<br>Resource management through trend analysis of inventory and performance<br>Rule-based event notification and filtering<br>RBAC to provide separation between the network and storage teams<br>Cisco DCNM can federate up to 10 DCNM servers to manage up to 150,000 devices using a single management pane. The solution can scale to large enterprise deployments through scale-out server architecture with automated failover capability. Gain a resilient management system that centralizes infrastructure and path monitoring across geographically dispersed data centers. The DCNM base management function is available at no charge, and advanced features are unlocked with a license. DCNM can be installed on Linux and Microsoft Windows operating systems and supports both PostgreSQL and Oracle databases. |

## Optional licenses

| License | |
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| **Cisco MDS 9000 Family Enterprise Package** | Includes advanced traffic-engineering and network security features such as IVR, QoS and zone-based QoS, FC-SP, port security, VSAN-based access control, and fabric binding for open systems<br>Licensed per switch for all the ports on the switch |
| **Cisco DCNM for SAN Advanced Edition for Cisco MDS 9700 Series** | Includes advanced management capabilities such as VMware vCenter integration, performance trending, advanced provisioning, backup, and dashboards<br>Licensed per switch for all the ports on the switch |
| **Cisco MDS 9700 Series Mainframe Package** | Includes FICON protocol support and allows IBM CUP management for in-band management from IBM S/390 and z/900 processors<br>Also includes FICON tape read-write acceleration<br>Licensed per switch for all the ports on the switch |

# The next steps...

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