

The Cisco MDS 9718 Director: A beast in a box

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The Cisco Multilayer Director 9718 switch is the very definition of data center big iron -- a director-class, 'Data center in a Chassis'. The MDS 9718 is a switch that is 26 rack units (more than half a full-height rack) and supports up to 768 2/4/8/16Gb Fibre Channel or 10G Fibre Channel over Ethernet (FCoE) ports, or up to 384 40Gb FCoE ports. Each of the 16 slots can handle 1.5Tbps, for a total non-blocking capacity of 24Tbps. The MDS 9718 is also the industry's first SAN director to support REST API calls directly to the switch and is also the industry's first 32G ready director.

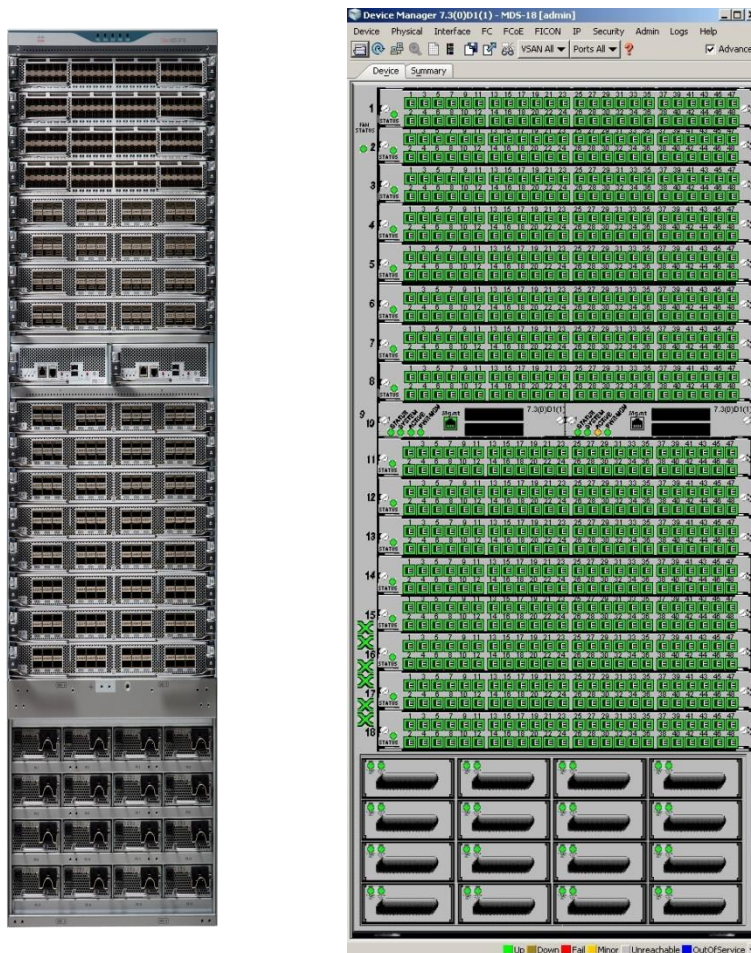


Figure 1. The Cisco MDS 9718 Director-Class Switch

Performance

In addition to supporting line cards from the MDS 9706 and 9710 switches, the MDS 9718 is 32Gb Fibre Channel ready, and in the near future will support 768 ports of 32Gb Fibre Channel with full non-blocking performance. At 16Gb speeds it offers three times the performance of the competition and 200% more line rate 16Gb port density. It can also support up to 384 ports of 40Gb FCoE. This enables a collapsed backbone architecture in even the largest data centers, making administration and troubleshooting much easier while supporting the latest standards, including 32Gb Fibre Channel and 40Gb FCoE. The 40Gb module provides the industry's fastest interconnect speed for inter-switch links for both FCoE as well as for Fibre Channel fabrics.

High-Availability – Redundancy

With dual redundant supervisors, power supplies and fans, and high availability configurations of line cards, the MDS 9718 supports a completely redundant fabric, from power supplies, to supervisor, to sets of line cards. Three fan trays mean that any one tray can be removed and serviced without needing to power down the unit. The power supplies are arranged in two grids of 2x4 power supplies with an N+1 configuration providing for servicing power supplies without any interruption in service. Since each grid may be connected to separate electrical services, it is possible to set things up so that even a generator going off-line will not take the switch down.

Power-on Auto-provisioning

Configuration is also much easier than with previous models, with Power On Auto Provisioning – a DHCP plus configuration loading and auto-downloading of the control software image, allowing anything from simply setting the IP address of the management interface to completely configuring the whole switch, including loading the latest version of the OS. If desired, the MDS 9718 can also be configured via a file loaded onto a USB stick, so that even if network connectivity or a DHCP server is not available, there is still no need for a serial cable to create the initial configuration.

Hitless Software upgrade (ISSU)

For switches already in service, the Hitless Software Upgrade (ISSU: In-Service Software Upgrade), provides for software upgrades to be applied without interrupting the data network, since when one supervisor is upgraded, it takes over the operation of the switch and then the other supervisor is upgraded.

The supervisor has been upgraded to handle the larger number of ports and higher throughput, with 32GB of RAM, and eight 2.1GHz cores, compared to 8GB and four cores with earlier models. Nearly all management tasks can be performed through the web-based GUI.

Native support for the RESTful APIs allows control and monitoring of the switch from third-party programs, allowing sysadmins to use an interface they're already trained on as desired.

Network services

As one would expect from a switch that can support a large data center on its own, the MDS 9718 offers a full set of Fibre Channel services. What one might not expect is the ease of administration – while the command line is still there for experienced Cisco administrators, the GUI provides access to nearly all of the same functionality, with an easy to use interface that lets the administrator quickly drill down to find problems or

change settings. To aid programmability, the MDS 9718 will also support native RESTful API calls directly to the switch.

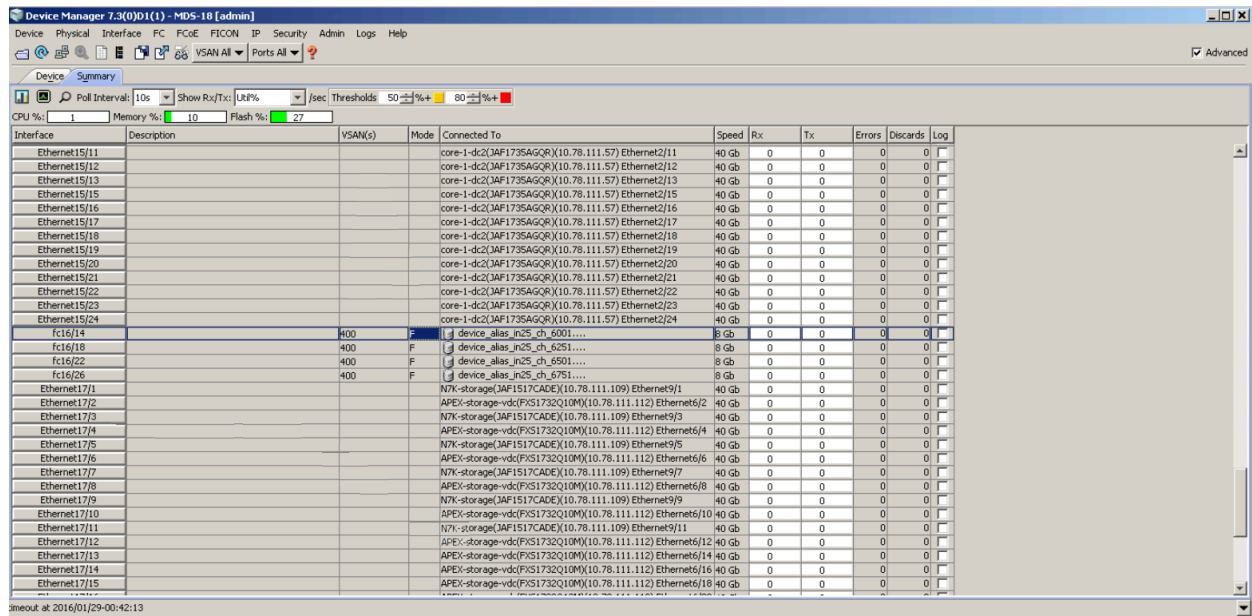


Figure 2. The Device Manager interface

VSAN and Inter-VSAN routing

The MDS 9718 supports virtual SAN (VSAN) functionality, allowing the administrator to create fabrics to align with specific sets of physical or virtual clusters of servers and storage. If needed, the 9718 can also route traffic between VSANs to allow data connections between devices on separate VSANs.

Interoperability with other 9700 Series switches

The MDS 9718 is interoperable with other MDS 9700 Series switches, not merely in terms of connectivity, but in terms of line cards, power supplies and fans, allowing a single pool of spares and consolidation of smaller devices without having to buy all new line cards.

Smart zoning

With support for up to 256 Fibre Channel logins (FLOGI) per port, 1,000 per line card, and 4,000 per switch, as well as up to 20,000 Fibre Channel name space (FCNS) entries per fabric, 16,000 zones and 32,000 zone members, the MDS 9718 is up to the task of managing virtually any Fibre Channel infrastructure.

Multi-protocol support

With full support for Fibre Channel and FCoE, the MDS 9718 can support multiple protocols needed to run and scale a data center. Administrative support includes a threshold manager that can send alerts via e-mail, SMS, SNMP and the recently introduced REST API calls.

SSG-NOW Take

It goes without saying, that SSG-NOW is impressed with the capabilities of this switch. Handling rampant storage growth and infrastructure consolidation is a huge problem for IT professionals. Scaling infrastructure to meet storage growth necessitates increases in performance that can only be provided by 16Gbps Fibre Channel and 40Gb FCoE. It takes a real beast of a switch to meet these challenges.●

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