Intelligent storage networking to help simplify enterprise SANs

Cisco® MDS 9216 Multilayer Fabric Switch

The Cisco MDS 9216 Multilayer Fabric Switch offers up to 48 Fibre Channel ports

Highlights

- **Supports throughput of up to 2Gbps per port and up to 32Gbps with each Port Channel Inter-Switch Link (ISL) connection**
- **Offers scalability from 16 to 48 Fibre Channel ports**
- **Offers eight Gigabit Ethernet ports for iSCSI or FCIP connectivity**
- **Features modular design with excellent availability capabilities**
- **Uses intelligent network services to help simplify Storage Area Network (SAN) management and reduce total cost**
- **Helps provide security for large enterprise SANs**
- **Includes Virtual SAN (VSAN) capability for SAN consolidation into virtual SAN islands on a single physical fabric**
- **Offers compatibility with a broad range of IBM servers as well as disk and tape storage devices**

High performance and manageability for SANs

The Cisco MDS 9216 Multilayer Fabric Switch provides 1Gbps and 2Gbps Fibre Channel switch connectivity and intelligent network services to help improve the security, performance and manageability required to consolidate geographically dispersed storage devices into a large enterprise SAN. Administrators can use the Cisco MDS 9216 to help address the needs for high performance and reliability in SAN environments ranging from small workgroups to very large, integrated enterprise SANs. Up to 14 Cisco MDS 9216 Multilayer Fabric Switches may be installed in a single 42U rack, with up to 672 ports in a single footprint.

Connectivity, compatibility and traffic management

The Cisco MDS 9216 Multilayer Fabric Switch includes 16 Fibre Channel ports in the base model and accepts one optional 16- or 32-port module, allowing the switch to support 16, 32 or 48 Fibre Channel ports per chassis. The optional switching modules are designed for hot-swap capability.
Cisco Fabric Manager provides flexible views of the SAN

Fibre Channel ports provide an autosensing 1Gbps and 2Gbps interface for high-performance connectivity and compatibility with legacy devices. These ports use small form-factor pluggable (SFP) optic transceivers and support LC interfaces. Individual ports can be configured with either shortwave SFPs for connectivity up to 300 meters at 2Gbps (500 meters at 1Gbps) or longwave SFPs for connectivity up to 10 km (at either 1Gbps or 2Gbps). Ports can be configured to operate in standard expansion port (E_Port), fabric port (F_Port) and fabric loop port (FL_Port) modes as well as in unique Cisco port modes.

**16- and 32-port switching modules: configuring the switch for the application environment**
The 16-port switching module supports high performance for the most demanding storage networking applications. Autosensing 1Gbps and 2Gbps ports are capable of delivering up to 64Gbps of continuous aggregate bandwidth, which provides up to 200MB/sec per port. The 16-port switching module can attach high-performance servers and storage subsystems as well as connect to other switches using ISL connections.

**A modular switch designed for high availability**
The Cisco MDS 9216 Multilayer Fabric Switch uses Fabric Shortest Path First (FSPF) multipath routing, using intelligence to load balance across a maximum of 16 equal-cost paths and to dynamically reroute traffic if a switch fails.

The basic Cisco MDS 9216 configuration has redundant power supplies and cooling components. Hot-swappable components include an optional switching module, SFP optics, power supplies and a fan tray with integrated temperature and power management.

**Simplified storage network management**
The Cisco MDS 9216 provides three principal modes of management: the Cisco MDS 9000 Family command-line interface (CLI), Cisco Fabric Manager and integration with third-party storage management tools.

The Cisco MDS 9216 presents the user with a consistent, logical CLI. Adhering to the syntax of the widely known Cisco IOS, Fabric Manager is a responsive Java™ interface which allows remote management from any location on the network.
Cisco Fabric Manager may be used independently or in conjunction with third-party management applications. Cisco provides an extensive application programming interface (API) for integration with third-party and user-developed management tools.

### Multiprotocol support and traffic management features

The unique architecture of the Cisco MDS 9216 Fabric Switch allows integration of new transport protocols for greater flexibility. For example, the Cisco MDS 9216 is designed to support Fibre Channel, Internet SCSI (iSCSI) and Fibre Channel over IP (FCIP).

IP Storage Services Module features offer eight Gigabit Ethernet ports for iSCSI or FCIP connectivity, software configurable on a port-by-port basis. The IP Storage Services Module feature provides eight iSCSI ports. The Tri-Rate Longwave SPF Transceiver feature is required for each port to be
Additionally, data plane traffic is secured through VSANs, which are designed to segregate traffic between multiple virtual fabrics within the single physical fabric infrastructure, and through hardware-enforced zoning, which further segregates traffic within each VSAN.

**Capabilities to help reduce TCO**

VSAN capability allows more efficient SAN utilization by creating multiple isolated environments within a single SAN fabric. Each VSAN can be zoned as a typical SAN and maintains its own fabric services for added scalability and resilience. VSANs allow the cost of the SAN infrastructure to be shared among more users, while helping to segregate and secure traffic and retain independent control of configurations on a VSAN-by-VSAN basis.

Another example of the cost-effectiveness of the Cisco MDS 9216 is its compatibility with other Cisco switches. It shares common switching modules across all Cisco MDS 9000 switches. This functionality enables customers to relocate switching modules as their requirements change.

**For more information**

For more information, contact your IBM representative or IBM Business Partner. Or visit [ibm.com/storage/cisco](http://ibm.com/storage/cisco).