

Cisco MDS 9513 for IBM System Storage



The Cisco MDS 9513 for IBM System Storage offers dual Supervisor-2 Modules with up to 528 Fibre Channel ports in a 14U enclosure

High performance and manageability for SANs

The **Cisco MDS 9513 for IBM System Storage™** supports 1, 2 and 4 Gbps Fibre Channel switch connectivity and intelligent network services to help improve the security, performance and manageability required to consolidate dispersed SAN islands into a large enterprise SAN.

Improved internal bandwidth for higher scalability

The Cisco MDS 9513 for IBM System Storage utilizes two **Supervisor-2 Modules**, designed to support high availability. The Supervisor-2 Module is designed to provide industry leading scalability, intelligent SAN services, non-disruptive software upgrades, stateful process restart and failover and redundant operation. Dual crossbar switching fabric modules provide a total internal switching bandwidth of 2.4 Tbps for inter-connection of up to eleven Fibre Channel switching modules.

Highlights

- **Provides Fibre Channel throughput of up to 4 gigabit per second (Gbps) per port and up to 64 Gbps with each PortChannel Inter-Switch Link connection**
- **Offers scalability from 12 to 528 4 Gbps Fibre Channel ports**
- **Offers 10 Gbps ISL ports for inter-Data Center links over metro optical networks**
- **Offers Gigabit Ethernet (GbE) IP ports for iSCSI or FCIP connectivity over global networks**
- **High-availability design with support for non-disruptive firmware upgrades**
- **Includes Virtual SAN (VSAN) capability for SAN consolidation into virtual SAN “islands” on a single physical fabric**
- **Enterprise, SAN Extension over IP, Mainframe, Storage Services Enabler and Fabric Manager Server Packages provide added intelligence and value**

Connectivity, compatibility and traffic management

Fibre Channel switching modules are designed to improve performance, flexibility and density. The Cisco MDS 9513 for IBM System Storage requires a minimum of one, and allows a maximum of eleven, Fibre Channel switching modules. These modules are available in 12-, 24- or 48-port 4 Gbps configurations, allowing the Cisco MDS 9513 to support 12 to 528 Fibre Channel ports per chassis. Optionally, a 4-port 10 Gbps Fibre Channel module is available for high performance inter-switch link (ISL) connections over metro optical networks.

12-, 24- and 48-port switching modules: Configuring the switch for the application environment

The **12-port 4 Gbps Fibre Channel switching module** is designed to deliver high performance for demanding storage networking applications. Autosensing 1, 2 and 4 Gbps ports

deliver up to 96 Gbps of continuous aggregate bandwidth, providing up to 8 Gbps throughput per port. The 12-port switching module is well suited for attaching high-performance 4 Gbps enabled servers and storage subsystems as well as connecting to other switches using 4 Gbps ISL connections.

The **24-port 4 Gbps Fibre Channel switching module** is designed for high performance storage networking applications. Twenty-four autosensing 1, 2 and 4 Gbps ports are designed to deliver sustained bandwidth required to meet the performance requirements of enterprise-class storage and servers. Port bandwidth reservation enables 1, 2 or 4 Gbps switching bandwidth to be dedicated to a port including highest performance ISL ports. The 24-port switching module is well suited for attaching high-performance servers and storage subsystems as well as connecting to other switches using ISL connections.

The **48-port 4 Gbps Fibre Channel switching module** is designed to deliver a balance of performance and port density. Forty-eight autosensing 1, 2 and 4 Gbps ports are designed to deliver the sustained bandwidth required to meet a wide range performance needs for a mixture of SMB and enterprise-class storage and servers. Port bandwidth reservation enables 1, 2 or 4 Gbps switching bandwidth to be flexibly dedicated ports to meet a wide range of application requirements. This module is designed to provide a low-cost means of attaching lower performance servers and storage subsystems to the high-performance crossbar switch fabric without requiring ISLs.

4-port switching module: Configuring the switch for metro business continuity

The **4-port 10 Gbps Fibre Channel switching module** is designed to deliver high bandwidth links for metro business continuity solutions. The module uses hot-swappable X2 form-factor

pluggable, SC type transceivers. The module is well suited for ISL links between data centers across metro optical networks.

A switch designed for high availability

The Cisco MDS 9513 combines support for non-disruptive software upgrades, stateful process restart/failover and redundancy of active hardware components to support director-class availability. The Supervisor-2 Module has the ability to automatically restart failed processes and complete synchronization between the active and standby Supervisor Modules to help support stateful failover without disruption to traffic.

Simplified storage network management

The Cisco MDS 9513 provides three principal modes of management: the Cisco MDS 9000 command-line

interface (CLI), Cisco Fabric Manager and integration with third-party storage management tools. The Cisco MDS 9513 presents the user with a consistent, logical CLI. Adhering to the syntax of the widely known Cisco IOS® CLI, the Cisco MDS 9000 Family CLI has broad functionality.

Multiprotocol support and traffic management features

IP and Multiprotocol Storage Service Module features offer Gigabit Ethernet ports for iSCSI or FCIP connectivity, software configurable on a port-by-port basis. **IP Storage Service Module** feature provides eight iSCSI ports.

Multiprotocol Services Module offers two Gigabit Ethernet iSCSI ports and fourteen Fibre Channel ports. **SAN Extension over IP Package** for IP

Services Modules and Multiprotocol Services Module features add FCIP support. SAN Extension over IP Package helps improve performance with FCIP Compression, Write Acceleration and Tape Acceleration and helps improve security with Inter-VSAN Routing for FCIP.

Security for large enterprise SANs

The Cisco MDS 9513 for IBM System Storage is designed to provide security measures at possible points of attack to help prevent unauthorized access.

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.

Advanced security and management

The **Enterprise Package** feature is designed to provide advanced security and management capabilities. The package helps improve management with Quality of Service (QoS) and can help improve security with Inter-VSAN Routing for Fibre Channel and enhanced network security capabilities including Switch-Switch and Host Authentication.

The Fabric Manager Server Package

is designed to extend Cisco Fabric Manager by providing historical performance data collection, centralized management services and support for advanced application integration. The package provides Fibre Channel statistics monitoring, performance thresholds, reporting, graphing and

performance database capabilities which can help simplify management of large enterprise and metro SAN infrastructures.

The **Mainframe Package** feature is designed to enable mainframe storage network applications including IBM FICON® protocol; FICON Control Unit Port (CUP); FICON and FCP inter-mixing; FICON Switch Cascading and Fabric Binding.

Storage Network Applications

The **Storage Services Module**, based upon the 32-port Switching Module, is a highly specialized feature that provides intelligent storage services in addition to 1 and 2 Gbps Fibre Channel switching. When combined with the **Storage Services Enabler Package**, the module is designed to enable independent software vendors (ISVs) to

develop intelligent fabric applications.

This feature helps expand the portfolio of IBM System Storage Proven™ business continuity solutions. For the most current IBM System Storage Proven application information, visit:

ibm.com/storage/proven

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 provide segregation and security of traffic and retaining independent control of configurations on a VSAN-by-VSAN basis.

Cisco MDS 9513 for IBM System Storage at a glance¹

Physical characteristics

Dimensions	62.3 cm H x 44.1 cm W x 71.1 cm D (24.5" x 17.37" x 28.0")
Rack height	14U
Weight (fully configured chassis)	179 kg (300 lb)

Directors are rack-mountable in a standard 19-inch EIA rack, meeting Cisco requirements defined in the recommended installation procedures.² IBM TotalStorage SAN Cabinet Model C36 (2109-C36) meets these requirements

Operating environment

Temperature	0° to 40° C (32° to 104° F)
Relative humidity	10% to 90%

Power supplies	6000 W AC
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Input	100 to 240 V AC 50-60 Hz nominal
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Output	6000 W (200V AC @ 16A)
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Hot-swap components	Supervisor-2 and switching modules, transceivers, power supplies and fan trays
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IBM product numbers

2054-E11—Cisco MDS 9513 for IBM System Storage includes dual crossbar switching fabric cards, two Supervisor-2 modules and dual AC power supplies. All models include SAN-OS 3.0 firmware with Fabric Manager, VSAN and Port Channel capabilities and one year IBM warranty.³

FC 2208—8 Port IP Services Module

FC 2210—SAN Extension over IP for 8 Port IP Services Module

FC 2214—Multiprotocol Services Module

FC 2216—SAN Extension over IP for Multiprotocol Services Module

FC 2400—Storage Services Module

FC 2404—4-port 10 Gbps Fibre Channel Switching Module (no optics)

FC 2412—12-port 4 Gbps Fibre Channel Switching Module (no optics)

FC 2424—24-port 4 Gbps Fibre Channel Switching Module (no optics)

FC 2448—48-port 4 Gbps Fibre Channel Switching Module (no optics)

FC 5040—Fibre Channel 10 Gbps longwave X2 transceiver

FC 5210—Tri-rate shortwave SFP transceiver (1 and 2 Gbps FC and Gig Ethernet)

FC 5220—Tri-Rate LW SPF Transceiver (1 and 2 Gbps FC and Gig Ethernet)

FC 5230—Shortwave 2 Gbps SPF Transceiver

FC 5240—Longwave 2 Gbps 4 km SPF Transceiver

FC 5250—Ethernet Copper GbE SFP Transceiver

FC 5434—Fibre Channel 4 Gbps shortwave SFP transceiver, 4 pack

FC 5444—Fibre Channel 4 Gbps longwave SFP transceiver, 4 Km, 4 pack

FC 5454—Fibre Channel 4 Gbps longwave SFP transceiver, 10 Km, 4 pack

FC 5811—Flash Memory Card

FC 7021—MDS 9000 Enterprise Package

FC 7026—MDS 9500 Fabric Manager Server Package

FC 7036—MDS 9500 Mainframe Package

FC 7040—Storage Services Enabler Package

Cisco MDS 9513 for IBM System Storage at a glance¹

Fiber optic cables Multimode, 50u fiber optical cables with SC and/or LC connectors are available

Base warranty One year, 24x7, same day, on-site IBM warranty.

Operating systems supported Microsoft® Windows®, UNIX®, Linux®, NetWare, IBM OS/400®, IBM z/OS®

Supported systems⁴ IBM System p™ and selected IBM RS/6000® servers; IBM System x™ and selected IBM Netfinity® servers; other Intel® processor-based servers running the Linux, Microsoft Windows NT® or Microsoft Windows 2000 operating systems; selected Sun and HP servers; IBM TotalStorage Enterprise Storage Server® (ESS); IBM System Storage DS8000 Disk Systems; IBM System Storage DS6000™ Disk Systems; IBM System Storage DS4000 Disk Systems; IBM System Storage TS1120 Tape Drive; IBM TotalStorage 3494 Tape Library; IBM System Storage TS3100, TS3200, TS3310 and TS3500 Tape Libraries.

For more information

Contact your IBM representative or IBM Business Partner or visit:

ibm.com/storage/cisco

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¹ For complete and current Cisco specifications, please visit www.cisco.com/go/ibm/storage.

² Because this switch is designed with side-to-side airflow, Cisco recommends a minimum air space of 16 cm (6 in) between walls and the chassis air vents, and a minimum separation of 30 cm (12 in) between two chassis to prevent overheating.

³ Each model includes eleven slots for 4-, 12-, 24- and 48-port Fibre Channel switching modules. The base configuration requires selection of a minimum of one switching module

⁴ For the most current list of supported servers and storage, please visit ibm.com/storage/cisco



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