Cisco MDS 9148 Fibre Channel Switch for IBM System Storage offers up to 48 ports with 8 Gbps, 4 Gbps, 2 Gbps, and 1 Gbps Fibre Channel switch connectivity

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At a glance

The Cisco MDS 9148 for IBM® System Storage™ 48 port Fibre Channel switch (2417-C48) is a standalone, 48 port switch featuring:

- 48 fixed auto-sensing 8 Gbps, 4 Gbps, 2 Gbps, and 1 Gbps Fibre Channel ports
- Base switch with 16 active ports and an additional 8, 16, 24, or 32 ports can be activated on demand using the appropriate port activation feature
- Optional 8 and 4 Gbps SFP Transceivers available in short and long wavelength
- Enterprise Package to support Inter VSAN Routing (optional)

Overview

The Cisco MDS 9148 Multilayer fabric switch (2417-C48), is designed to provide an affordable, highly-capable, and scalable storage networking solution for small, midrange, and large enterprise customers. The switch provides line rate 8-Gbps ports based on a purpose-built "switch-on-a-chip" application-specific integrated circuit (ASIC) with high performance, high density, and enterprise-class availability. The switch is designed to offer outstanding value by providing flexibility, high-availability, security, and ease of use, in a compact one-rack-unit (1RU) form factor at an affordable price. With the flexibility to expand from 16 to 48 ports in 8-port increments, the Cisco MDS 9148 offers the densities required to scale from an entry-level departmental switch to top-of-the-rack switch to edge connectivity in enterprise SANs. The Cisco MDS 9148 offers non-blocking architecture, with all 48 2/4/8-Gbps ports operating at line rate concurrently.

The Cisco MDS 9148 is designed to support quick configuration with plug-and-play features and task wizards that allow it to be deployed quickly and easily in networks of any size. Powered by Cisco MDS 9000 NX-OS Software, it includes advanced storage networking features and functions, and is compatible with Cisco MDS 9500 Series Multilayer Directors and Cisco MDS 9200 Series Multilayer Fabric Switches, providing end-to-end service delivery in core-edge deployments.

Key prerequisites

Cisco MDS 9000 NX-OS Software Release 5.0(1a), or later

Planned availability date

June 4, 2010

Description

The Cisco MDS 9148 for IBM System Storage fabric switch (2417-C48), is designed for mid-sized business and enterprise connectivity solutions. It offers advanced storage networking capabilities for the midrange market, allowing organizations of all sizes to enjoy the benefits of intelligent storage area networks (SANs). It is well-suited as a standalone or top-of-the-rack switch.

Product highlights

Flexibility and scalability: The Cisco MDS 9148 offers up to 48 auto-sensing Fibre Channel ports capable of speeds of 8 Gbps, 4 Gbps, 2 Gbps, and 1 Gbps in a compact 1 RU form-factor chassis, with 8 Gbps of dedicated bandwidth for each port and an aggregate platform bandwidth of 384 Gbps. The switch comes with a pre-configured model with 16 ports. The 16 and 32 models may be upgraded to enable additional ports on-site with an 8-port Cisco MDS 9148 On-Demand Port Activation License.

High-performance connectivity: The Cisco MDS 9148 is an ideal platform for a standalone departmental storage area network (SAN) switch, top-of-the-rack switch, and edge switch in enterprise core-edge SANs.

Intelligent storage networking services at an affordable price: The Cisco MDS 9148, powered by Cisco MDS 9000 NX-OS Software, offers intelligent storage networking capabilities such as virtual SANs (VSANs), Inter-VSAN routing, PortChannels, quality of service (QoS), and security for cost-effective design, deployment, and management of departmental and enterprise SANs.

Support for virtualalized environments and infrastructure: Consolidation of servers due to server virtualization technologies has increased the number of fabric logins needed on a SAN. The Cisco MDS 9148 uses NX-OS software intelligence to provide storage access for virtual machine server environments. With full N_Port ID Virtualization (NPIV) support and Cisco N_Port Virtualization (NPV) technologies, the MDS 9148 is built in with increased scalability. Together with Cisco's Virtual SAN (VSAN) technology, Cisco MDS 9148 is the only entry level SAN switch that has the capability to extend server virtualization. NPV and Cisco FlexAttach technology on the MDS 9148 also makes it possible for seamless server deployments and movement without reconfiguring the SAN.

High availability platform for mission-critical deployments: The Cisco MDS 9148 is designed for environments requiring high availability. It offers support for non-disruptive software upgrades, dual hot-swappable power supplies (with integrated fans for redundancy), hot-swappable fans, VSANs could be used for fault isolation, and PortChannels for ISL resiliency.

Extensive security framework: The Cisco MDS 9148 supports RADIUS and TACACS+, port security, fabric binding, Fibre Channel Security Protocol (FC-SP) host-to-switch and switch-to-switch authentication, Secure FTP (SFTP), Secure Shell Version 2 (SSHv2) and Simple Network Management Protocol Version 3 (SNMPv3), implementing Advanced Encryption Standard (AES), VSANs, hardware-enforced zoning, broadcast zones, and per-VSAN role-based access control (RBAC).

Simplified storage management: The Cisco MDS 9148 supports a SAN plug-and-play capability and includes built-in storage network management, with all features available through a command-line interface (CLI) or the Cisco Fabric Manager, a centralized management tool with task-based wizards that simplify management of a standalone switch or multiple switches and fabrics.

Sophisticated diagnostics: Industry-leading intelligent diagnostics, such as Fibre Channel Ping, Fibre Channel Traceroute, Switched Port Analyzer (SPAN), Cisco Fabric Analyzer, and integrated Call Home capability can help enhance reliability, facilitate faster problem resolution, and reduce service costs.

Reduced total cost of ownership: Common platform architecture and the use of Cisco MDS 9000 NX-OS Software intelligent storage networking services across all Cisco MDS 9000 family switches can help reduce ongoing operating expenses by providing a consistent set of provisioning, management, and diagnostic capabilities.

Product number

Description	Machine type	Model	Feature number
Cisco MDS 9148 Fabric Switch	2417	C48	
9148 8 Port Activation			4006
MDS 9200 Enterprise Pkg			4011
MDS 9200 Fabric Mgr Srv Pkg			4111
FC 4 Gb SW SFP			5430
FC 4 Gb LW 4 km SFP			5440
FC 4 Gb LW 10 km SFP			5450
5 m 50u LC/LC Fiber Cable			5605
25 m 50u LC/LC Fiber Cable			5625
FC 8 Gb SW SFP+			5830
FC 8 Gb 10 km LW SFP+			5850
Cab Pwr Cord, 250 VAC 20 A			9220
Power Cord North America			9241
Power Cord (Australia)			9242
Power Cord (Europe)			9243
Power Cord CD12 (Italy)			9244
Power Cord (Argentina)			9245
Power Cord (UK)			9246
Power Cord (South Africa)			9247
Power Cord (Switzerland)			9248
Bulk Order MES Feature			9555

Publications

Technical documentation for Cisco products is provided by Cisco Systems. For a list of available documentation and instructions for ordering a set of manuals on CD-ROM, visit

http://www.cisco.com/go/ibm/storage

Documentation for Cisco products is available only in English.

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Global Technology Services

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http://www.ibm.com/services/continuity

For details on education offerings related to specific products, visit

http://www.ibm.com/services/learning/index.html

Select your country, and then select the product as the category.

Technical information

Specified operating environment

Physical specifications

Cisco MDS 9148 Switch for IBM System Storage (2417-C48):

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Width:   43.59 cm (17.16 in)
Depth:   47.98 cm (18.89 in)
Height:   4.47 cm ( 1.72 in)
Weight:    10 kg (22.2 lb), with dual power supplies
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To assure installability and serviceability in non-IBM industry-standard racks, review the installation planning information for any product-specific installation requirements.

For information on the technical specifications of Cisco products, including operating environment and physical specifications, visit

http://www.cisco.com/go/ibm/storage

Operating environment

Cisco MDS 9148 Fabric Switch (2417-C48):

Environmental

- Ambient operating temperature; 32 to 104° F (0 to 40° C)
- Ambient non-operating temperature; -40 to 158° F (-40 to 70° C)
- Humidity (RH), ambient (non-condensing) operating is 10% to 90%
- Humidity (RH), ambient (non-condensing) non-operating and storage is 5% to 95%
- Altitude, operating -197 to 6500 ft (-60 to 2000 m)

Power and cooling

- Input: 100 to 240 VAC nominal (+/-10% for full range)
- Frequency: 50 to 60 Hz nominal (+/-3 Hz for full range)
- Airflow
  - Rear to front (toward ports)
- Power consumption:

  With 4 Gbps optics (48 ports fully populated): 99 W with 0.89 A at 110 VAC and 0.45 A at 220 VAC
  With 8 Gbps optics (48 ports fully populated): 101 W with 0.90 A at 110 VAC and 0.46 A at 220 VAC

Safety

- UL 60950 -1
- CAN/CSA-C22.2 No. 60950 -1
- EN 60950 -1
- IEC 60950 -1
- AS/NZS 60950
- IEC 60825
- EN 60825
- 21 CFR 1040

EMC

- FCC Part 15 (CFR 47) Class A
- ICES-003 Class A
- EN55022 Class A
- CISPR22 Class A
- AS/NZS CISPR22 Class A
- VCCI Class A
- EN55024
- KN24
- EN50082-1
- EN61000-3-2
- EN61000-3-3
- EN61000-6-1
- CISPR24
- NEBS
- GR-63-Core NEBS Level 3
- GR-1089-Core NEBS Level 3
- ETSI
- ETS 300 019 Storage Class 1.1
- ETS 300 019 Transportation Class 2.3
- ETSI 300 019 Stationary Use Class 3.1

For information on the technical specifications of Cisco products, including operating environment, recommended installation procedures, and physical specifications, visit

   http://www.cisco.com/go/ibm/storage

Hardware requirements

For a complete list of hardware requirements, cross-product requirements, prerequisites, and/or product dependencies, visit

   http://www.cisco.com/go/ibm/storage

Software requirements

Minimum software requirement:

- Cisco MDS 9000 NX-OS Software Release 5.0(1a), or later.

For a complete list of software requirements, cross product requirements, prerequisites, and product dependencies, visit

   http://www.cisco.com/go/ibm/storage

Compatibility

Security

- VSANs
- Zoning
  - Hardware-enforced zoning
  - Logical-unit-number (LUN) zoning and read-only zones
- FC-SP for host-to-switch and switch-to-switch authentication
- Port security
- Management access
  - SSHv2
  - SNMPv3
  - IP ACLs

Compatibility

Fibre Channel protocols

- FC-PH, Revision 4.3
- FC-PH-2, Revision 7.4
- FC-PH-3, Revision 9.4
- FC-GS-2, Revision 5.3
- FC-GS-3, Revision 7.01
- FC-FLA, Revision 2.7
- FC-FG, Revision 3.5
- FC-SW-2, Revision 5.3
- FC-AL, Revision 4.5
- FC-AL-2, Revision 7.0
- FC-PLDA, Revision 2.1
- FC-VI, Revision 1.61
- FCP, Revision 12
- FCP-2, Revision 7
- FC-SB-2, Revision 2.1
- FC-BB, Revision 4.7
- FC-FS, Revision 1.9
- FC-PI, Revision 13
- FC-MI, Revision 1.99
- FC-Tape, Revision 1.17
- IP over Fibre Channel (RFC 2625)
- Extensive IETF-standards-based TCP/IP, SNMPv3, and Remote Monitoring (RMON) MIBs
- Class of service: Class 2, Class 3, Class F
- Fibre Channel standard port types: E, F, FL
- Fibre Channel enhanced port types: SD, TE

For the most current and complete description of the Cisco Systems MDS 9000 family of storage networking products, visit

  http://www.cisco.com/go/ibm/storage

For specific configuration support dates and other details on availability, server models, operating system levels, storage attachment capabilities, and throughput connectivity speeds, visit

http://www.ibm.com/storage/cisco

Support for some configurations may not be available on the initial planned availability date.

Planning information

Customer responsibilities

Planning information, including customer responsibilities, physical planning, and installability is available in the specific product planning manuals on the following Web site

http://www.cisco.com/go/ibm/storage

You are responsible for downloading or obtaining from IBM, and installing designated Machine Code (microcode, basic input/output system code (called "BIOS"), utility programs, device drivers, and diagnostics delivered with an IBM machine) and other software updates in a timely manner from an IBM Internet Web site or from other electronic media, and following the instructions that IBM provides. You may request IBM to install Machine Code changes; however, you may be charged for that service.

Cable orders

A fiber optic cable is required for attaching the Cisco MDS 9148 for IBM System Storage switch to host computer system adapters, or other Fibre Channel storage area components. The fiber optic cable must be customer supplied, and must meet specifications defined by Cisco Systems.

In many situations, the required lengths and installation of fiber optic cables will be unique to each customer's configuration and facility specifications. Product support services, offered by IBM Global Services' Site and Connectivity Solutions, can provide assistance for these unique cabling and installation requirements.

Security, auditability, and control

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communications facilities.

Terms and conditions

Volume orders: Contact your IBM representative.

Warranty period

One year

Warranty service

If required, IBM provides repair or exchange service depending on the types of warranty service specified for the machine. IBM will attempt to resolve your problem over the telephone, or electronically via an IBM Web site. You must follow the problem determination and resolution procedures that IBM specifies. Scheduling of service will depend upon the time of your call and is subject to parts availability. If applicable to your product, parts considered Customer Replaceable Units (CRUs) will be provided as part of the machine's standard warranty service.

Service levels are response time objectives and are not guaranteed. The specified level of warranty service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country- and location-specific information. This product is covered by the following type(s) of service.

CRU service

IBM provides replacement CRUs to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM upon your request. CRUs are designated as being either a Tier 1 or a Tier 2 CRU.

Tier 1 CRU

Installation of Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.

Tier 2 CRU

You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge.

Based upon availability, CRUs will be shipped for next-business-day delivery. IBM specifies, in the materials shipped with a replacement CRU, whether a defective CRU must be returned to IBM. When return is required, 1) return instructions and a container are shipped with the replacement CRU and 2) you may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

The following parts have been designated as Tier 1 CRU parts:

- Power supply
- Fan assembly
- SFP
- Cable

On-site service

IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose.

Service level is 9 hours per day, Monday through Friday, excluding holidays, next-business-day response. Calls must be received by 5 p.m. local time in order to qualify for next business day response.

Non-IBM parts support

Warranty service: This product contains non-IBM parts. Normal IBM warranty service will apply using manufacturer provided field replaceable unit (FRU) parts.

Warranty service upgrades

During the warranty period, warranty service upgrades provide an enhanced level of On-site Service for an additional charge. Service levels are response-time objectives and are not guaranteed. See the Warranty services section for additional details.

IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM Web site. You must follow the problem determination and resolution procedures that IBM specifies. Scheduling of service will depend upon the time of your call and is subject to parts availability.

Fabric Manager and Fabric Manager Server are products used to manage the SAN network and are supported by Cisco Systems.

On-site service

IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose. The following on-site response-time objectives are available as warranty service upgrades for your machine. Available offerings are:

- 9 hours per day, Monday through Friday, excluding holidays, next business day response
- 24 hours per day, 7 days a week, same day response
- 24 hours per day, 7 days a week, 4 hour average response
- 24 hours per day, 7 days a week, 2 hour average response

Customer Replaceable Units (CRUs) may be provided as part of the machine's standard warranty CRU Service except that you may install a CRU yourself or request IBM installation, at no additional charge, under one of the On-site Service levels specified above. For additional information on the CRU Service, see the warranty information.

Maintenance services options

If required, IBM provides repair or exchange service depending on the types of maintenance service specified for the machine. IBM will attempt to resolve your problem over the telephone or electronically, via an IBM Web site. You must follow the problem determination and resolution procedures that IBM specifies. Scheduling of service will depend upon the time of your call and is subject to parts availability. Service levels are response-time objectives and are not guaranteed. The specified level of maintenance service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country- and location-specific information. The following service selections are available as maintenance options for your machine type.

On-site service

IBM will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose.

Service levels are:

- 9 hours per day, Monday through Friday, excluding holidays, next business day response
- 24 hours per day, 7 days a week, Same Day response
- 24 hours per day, 7 days a week, 4 hour average response
- 24 hours per day, 7 days a week, 2 hour average response

    European Announcement Letter ZS03-0150 for IBM Customer Agreement (ICA)
    European Announcement Letter ZS04-0135 for Enterprise Agreement Contract
    European Announcement Letter ZS98-0118 for ServiceSuite™ Contract
    European HW Operations Guide and Service Level Description Table available at

    http://www-5.ibm.com/services/europe/maintenance/

Warranty service upgrades

Usage plan machine

No

IBM hourly service rate classification

Two

When a type of service involves the exchange of a machine part, the replacement may not be new, but will be in good working order.

Field-installable features

Yes

Model conversions

No

Machine installation

Customer setup. Customers are responsible for installation according to the instructions IBM provides with the machine.

Graduated program license charges apply

No

Licensed internal code and licensed machine code

This product does not contain licensed internal code or licensed machine code.

Educational allowance

A reduced charge is available to qualified education customers. The educational allowance may not be added to any other discount or allowance.

The educational allowance is 15% for the products in this announcement.

Pricing

Country prices must be obtained from your local pricing function.

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