Cisco MDS 9396T 32-Gbps 96-Port Fibre Channel Switch

Contents

Product Overview

The next-generation Cisco® MDS 9396T 32-Gbps 96-Port 2-rack unit Fibre Channel Switch (Figure 1) provides high-speed Fibre Channel connectivity in the SAN. This switch offers state-of-art analytics and telemetry capability built into its next-generation Application-Specific Integrated Circuit (ASIC) platform. The Non-Volatile Memory express (NVMe)-ready switch allows seamless transition to Fibre Channel Non-Volatile Memory Express (FC-NVMe) workloads whenever available without any hardware upgrade in the SAN. This high-density, highly reliable and scalable, enterprise class switch is ideal for medium to large departmental SANs.

For standalone SANs, this switch can serve dense hyperscale server environments that spawn thousands of virtual Host Bus Adapters (vHBAs) serving several virtual machine instances, providing each of them with predictable throughput, consistent latency and highly available paths by distributing the physical SAN connectivity across six different port groups of 16 ports each. Autozone allows these standalone deployments to benefit from automatic zoning of host and storage ports without requiring any manual zoning configuration. These smaller port groups enable a design with smaller failure domains rather than one large failure domain consisting of all switch ports.

The number of hosts can be expanded further by connecting this switch as an N-Port ID Virtualization (NPIV) core switch to any existing top-of-rack switch in N-Port Virtualization (NPV) mode. Large-scale departmental SANs can deploy this switch as end-of-row, middle-of-row, or even top-of-rack in either forward or reverse airflow directions, connecting to existing MDS directors in the SAN core.

Figure 1.
Cisco MDS 9396T 32-Gbps 96-Port Fibre Channel Switch

Main Features

The main features of the MDS 9396T 32-Gbps 96-Port Fibre Channel Switch include:

- **High density and scale:** Ninety-six 32-Gbps line rate Enhanced Small Form-Factor Pluggable (SFP+) ports provide an aggregate bandwidth of 3-Tbps per switch for highly scalable designs for hyperscale environments that drive several thousands of virtual machine instances within the rack. This switch provides at least 6 ports that can be configured with up to 8270 Buffer-To-Buffer (B2B) credits that can be connected to remote data centers as far as 612 km (380 miles) using native Fibre Channel connectivity at 32-Gbps speeds. These distances become even greater at lower speeds.

- **Fully integrated SAN analytics:** This feature-rich switch also offers state-of-the-art SAN analytics and telemetry capabilities that have been built into this-next generation hardware platform. This new state-of-the-art technology couples the next-generation port ASIC with a fully dedicated Network Processing Unit designed to complete analytics calculations in real time on the 32-Gbps line card. The telemetry data extracted from the inspection of the frame headers are calculated on board (within the switch) and, using an industry-leading open format, can be streamed to any analytics-visualization platform.
- **High performance:** The MDS 9396T architecture, with centralized nonblocking arbitration, provides consistent 32-Gbps low-latency performance across all traffic conditions for every Fibre Channel port on the switch.
- **Capital Expenditure (CapEx) savings:** The 32-Gbps ports allow users to deploy them on existing 16- or 8-Gbps transceivers, reducing initial CapEx and investment protection with an option to upgrade to 32-Gbps transceivers and adapters whenever needed.
- **High availability:** MDS 9396T switches continue to provide the same outstanding availability and reliability as the previous generation of Cisco MDS 9000 Series Switches by providing redundancy on all major components such as the power supply and fan. Dual power supplies also facilitate redundant power grids. Port-channel link members can be stitched across the six 16-port port groups, thus providing higher availability compared to traditional fixed switches with a single ASIC or port group.
- **Grow in-small increments:** The MDS 9396T Fibre Channel Switch provides an option to deploy as few as 48 32-Gbps Fibre Channel ports in the entry-level variant, and then grow in increments of 16 ports to up to 96 ports. This allows four possible configurations of 48, 64, 80, and 96 ports.
- **Next-generation ASIC:** The MDS 9396T Fibre Channel Switch is powered by the same high-performance 32-Gbps Cisco ASIC with an integrated network processor that powers the Cisco MDS 9700 48-Port 32-Gbps Fibre Channel Switching Module. Among all the advanced features that this ASIC enables, one of the most notable is inspection of Fibre Channel and Small Computer System Interface (SCSI) headers from every storage workload without the need for any external taps or appliances. The recorded flows can be analyzed on the switch and also exported using a dedicated 1/10G SFP+ port for telemetry and analytics purposes.
- **Intelligent network services:** Slow-drain detection and isolation, Virtual SAN (VSAN) identifier, Access Control Lists (ACLs) for hardware-based intelligent frame processing, smart zoning, and fabricwide Quality of Service (QoS) enable migration from SAN islands to enterprisewide storage networks. Traffic encryption is optionally available to meet stringent security requirements.
- **Sophisticated diagnostics:** The MDS 9396T provides intelligent diagnostics tools such as Inter-Switch Link (ISL) diagnostics, HBA diagnostics with leading HBA vendors, read diagnostic parameters, protocol decoding, network analysis tools, and integrated Cisco Call Home capability for greater reliability, faster problem resolution, and reduced service costs.
- **Virtual machine awareness:** The MDS 9396T provides visibility into all virtual machines accessing the storage LUNs in the fabric. This feature is available through HBAs capable of priority tagging the Virtual Machine Identifier (VMID) on every Fibre Channel frame. Virtual-machine awareness can be extended to intelligent fabric services such as analytics1 to visualize performance of every flow originating from each virtual machine in the fabric.
- **Programmable fabric:** The MDS 9396T provides powerful Representational State Transfer (REST) and Cisco NX-OS Software API capabilities to enable flexible and rapid programming of utilities for the SAN.
- **Single-pane management:** Cisco Data Center Network Manager (DCNM), which currently manages the entire suite of Cisco data center products, can be used to provision, manage, monitor, and troubleshoot the MDS 9396T.

- **Secure-boot and anti-counterfeiting technology:** The MDS 9396T uses onboard hardware that protects the entire system from malicious attacks by securing access to critical components, such as the bootloader, system image loader, and Joint Test Action Group (JTAG) interface.

SAN Architectural Benefits

The new 32-Gbps fabric switches address the requirement for a highly scalable, virtualized, intelligent SAN infrastructure in current-generation data center environments. The industry is already poised to transition to 32-Gbps fixed switches with the availability of 32-Gbps HBAs and storage arrays from vendors. Additionally, as low-latency flash arrays and extremely dense virtualization deployments become more pervasive, fixed switches are expected to provide 32-Gbps connectivity to the SAN core.

This solution offers several important benefits:

- **Server port consolidation:** The demand for 32-Gbps fabric switches will increase as hyperscale virtualization doubles the virtual machine density per rack, increasing the need for higher bandwidth HBA ports per rack of blade or standalone servers. Soon, 32-Gbps HBA ports will consolidate the current 16-Gbps HBA installed base, accompanied by the need to increase the server capacity in the same rack. Hence, the MDS 9396T, with its high port density of 96 ports, provides an excellent solution for both top-of-rack and end-of-row deployments, depending on the density within the rack. The flexibility to increase the port density from a 48-port base to up to 96 ports is an added advantage.
- **Simplification:** Through consolidation, the SAN administrator can reduce complexity and simplify management. As an NPIV core, the MDS 9396T 32-Gbps 96-Port Fibre Channel Switch in network virtualization mode can scale out top-of-rack switches in N-Port Virtualization (NPV) mode, in a very cost-efficient manner with time without adding the burden of managing the NPV switches.
- **Multiprotocol convergence:** 32-Gbps links benefit from lower latency than lower bandwidth links, bringing better performing storage workloads to your storage array. Greater bandwidth also helps ensure less ISL congestion for the newer storage protocols that are expected to be available on externally attached storage arrays; for instance, NVMe over Fibre channel can share a link with existing SCSI workloads.
- **Scale and performance:** This Fixed Form-factor switch supports the performance and scale required to deploy a dedicated, standalone Fibre Channel SAN connecting both initiators and targets without requiring any other switching infrastructure.

Platform Compatibility

For detailed information about hardware and software compatibility as well as product interoperability, see the MDS 9000 series switch interoperability matrix.

Product Specifications

Table 1 lists the specifications for the MDS 9396T 32-Gbps 96-Port Fibre Channel Switch.

Table 1. Product Specifications

Protocols	• Fibre Channel standards • FC-PH, Revision 4.3 (ANSI INCITS 230-1994) • FC-PH, Amendment 1 (ANSI INCITS 230-1994/AM1-1996) • FC-PH, Amendment 2 (ANSI INCITS 230-1994/AM2-1999) • FC-PH-2, Revision 7.4 (ANSI INCITS 297-1997) • FC-PH-3, Revision 9.4 (ANSI INCITS 303-1998) • FC-PI, Revision 13 (ANSI INCITS 352-2002) • FC-PI-2, Revision 10 (ANSI INCITS 404-2006) • FC-PI-3, Revision 4 (ANSI INCITS 460-2011) • FC-PI-4, Revision 8 (ANSI INCITS 450-2008) • FC-PI-5, Revision 6 (ANSI INCITS 479-2011) • FC-PI-6 (ANSI INCITS 512-2015) • FC-FS, Revision 1.9 (ANSI INCITS 373-2003) • FC-FS-2, Revision 1.01 (ANSI INCITS 424-2007) • FC-FS-2, Amendment 1 (ANSI INCITS 424-2007/AM1-2007) • FC-FS-3, Revision 1.11 (ANSI INCITS 470-2011) • FC-FS-4 • FC-LS, Revision 1.62 (ANSI INCITS 433-2007) • FC-LS-2, Revision 2.21 (ANSI INCITS 477-2011) • FC-LS-3, Includes revision 3.53 • FC-SW-2, Revision 5.3 (ANSI INCITS 355-2001) • FC-SW-3, Revision 6.6 (ANSI INCITS 384-2004) • FC-SW-4, Revision 7.5 (ANSI INCITS 418-2006) • FC-SW-5, Revision 8.5 (ANSI INCITS 461-2010) • FC-SW-6 • FC-GS-3, Revision 7.01 (ANSI INCITS 348-2001) • FC-GS-4, Revision 7.91 (ANSI INCITS 387-2004) • FC-GS-5, Revision 8.51 (ANSI INCITS 427-2007) • FC-GS-6, Revision 9.4 (ANSI INCITS 463-2010) • FC-GS-7, Includes revision 10.8 • FCP, Revision 12 (ANSI INCITS 269-1996) • FCP-2, Revision 8 (ANSI INCITS 350-2003) • FCP-3, Revision 4 (ANSI INCITS 416-2006) • FCP-4, Revision 2b (ANSI INCITS 481-2011) • FC-SB-2, Revision 2.1 (ANSI INCITS 349-2001) • FC-SB-3, Revision 1.6 (ANSI INCITS 374-2003) • FC-SB-3, Amendment 1 (ANSI INCITS 374-2003/AM1-2007)

	• FC-SB-4, Revision 3.0 (ANSI INCITS 466-2011) • FC-SB-5, Revision 2.00 (ANSI INCITS 485-2014) • FC-BB-6, Revision 2.00 (ANSI INCITS 509-2014) • FC-BB-2, Revision 6.0 (ANSI INCITS 372-2003) • FC-BB-3, Revision 6.8 (ANSI INCITS 414-2006) • FC-BB-4, Revision 2.7 (ANSI INCITS 419-2008) • FC-BB-5, Revision 2.0 (ANSI INCITS 462-2010) • FC-VI, Revision 1.84 (ANSI INCITS 357-2002) • FC-SP, Revision 1.8 (ANSI INCITS 426-2007) • FC-SP-2, Revision 2.71 (ANSI INCITS 496-2012) • FAIS, Revision 1.03 (ANSI INCITS 432-2007) • FAIS-2, Revision 2.23 (ANSI INCITS 449-2008) • FC-IFR, Revision 1.06 (ANSI INCITS 475-2011) • FC-FLA, Revision 2.7 (INCITS TR-20-1998) • FC-PLDA, Revision 2.1 (INCITS TR-19-1998) • FC-Tape, Revision 1.17 (INCITS TR-24-1999) • FC-MI, Revision 1.92 (INCITS TR-30-2002) • FC-MI-2, Revision 2.6 (INCITS TR-39-2005) • FC-MI-3, Revision 1.03 (INCITS TR-48-2012) • FC-DA, Revision 3.1 (INCITS TR-36-2004) • FC-DA-2, Revision 1.06 (INCITS TR-49-2012) • FC-MSQS, Revision 3.2 (INCITS TR-46-2011) • Fibre Channel classes of service: Class 2, Class 3, and Class F • Fibre Channel standard port types: E, F, and B • Fibre Channel enhanced port types: SD, ST, and TE • FC-NVMe • In-band management using IP over Fibre Channel (RFC 2625) • IPv6, IPv4, and Address Resolution Protocol (ARP) over Fibre Channel (RFC 4338) • Extensive IETF-standards-based TCP/IP, SNMPv3, and Remote Monitoring (RMON) MIBs
Fibre Channel ports	• Fixed switch form-factor with 96 SFP+ ports • Entry-level 48-port preactivated base model • Incremental ports ◦ 16-port upgrade license offers the option of incrementally upgrading to 64, 80, and 96 ports
Security	• VSAN fabric isolation • Intelligent packet inspection at port level • Hardware zoning by Access Control Lists (ACLs) • Fibre Channel Security Protocol (FC-SP) switch-to-switch authentication • FC-SP host-to-switch authentication • RBAC using RADIUS, TACACS+ or LDAP Authentication, Authorization, and Accounting (AAA) functions • Secure FTP (SFTP) • Secure Shell Version 2 (SSHv2) • Simple Network Management Protocol Version 3 (SNMPv3) implementing Advanced Encryption Standard (AES) • Control-plane security • Cisco TrustSec payload encryption • Secure Boot and Anti-counterfeit technology
Performance	• Port speed: 4/8/16/32-Gbps autosensing with 32 Gbps of dedicated bandwidth per port

	• Aggregate bandwidth of 3 Tbps end-to-end full duplex • Buffer credits: Up to 8300 for a group of 16 ports, with a default of 500 buffer credits per port and a maximum of 8270 buffer credits for a single port in the group • Port groups: 6 port groups of 16 ports each • Port channel: Up to 16 load-balanced physical links grouped in one port channel
Diagnostics	• Power-On-Self-Test (POST) diagnostics • Online Health Management System (OHMS) diagnostics • Internal loopbacks • SPAN • Fibre Channel traceroute • Fibre Channel ping • Fibre Channel debug • Cisco Fabric Analyzer • Syslog • Port-level statistics • Link Diagnostics (E-port and F-port links) • Read Diagnostic Parameter
Serviceability	• Configuration file management • Call Home • Port beaconing • Link Cable beacon • System LEDs • SNMP traps for alerts
Reliability and availability	• Cisco In-Service Software Upgrade (ISSU) • Hot-swappable, dual redundant power supplies • Hot-swappable fan tray with switch integrated temperature and power management • Hot-swappable SFP+ optics • Stateful process restart • Any port configuration for port channels • Fabric-based multi pathing • Per-VSAN fabric services • Port tracking • VRRP for management IP interface • FEC with HBA ports • Buffer-to-buffer state change notification with HBA ports
Network management	• Management access through 2 out-of-band 10/100/1000 Mbps Ethernet ports ◦ mgmt0: 10/100/1000BASE-T port ◦ mgmt1: 1/10G SFP+ port[#] • RS-232 serial console port • USB power-on auto-provision port • Access protocols • Command-Line Interface (CLI) using the console and Ethernet port • SNMPv3 using the Ethernet port and in-band IP over Fibre Channel access • Storage Networking Industry Association (SNIA) Storage Management Initiative Specification (SMI-S) • NX-API for restful access via HTTPS • Distributed device alias service • Network security

	• Per-VSAN Role-Based Access Control (RBAC) using LDAP, RADIUS and TACACS+-based Authentication, Authorization, and Accounting (AAA) functions • SFTP • SSHv2 implementing AES • SNMPv3 implementing AES • Cisco Data Center Network Manager
Programming interfaces	• Scriptable CLI • Cisco DCNM web services API • NX-API restful interfaces • On-board Python interpreter • Cisco Embedded Event Manager • Cisco NX-OS Software scheduler
Physical dimensions (H x W x D) and weight	• Dimensions: 3.39 x 17.42 x 22.28 in. (8.61 x 44.25 x 56.59 cm), 2RU • Rack-mountable in standard 19-inch Electronic Industries Alliance (EIA) rack • Weight of fully configured chassis: 41.62 lb (18.88 kg)
Power	• 80 Plus Platinum certified power supplies • Power supply ◦ 1200W AC/ HVAC/ HVDC Bidirectional airflow (2 per switch) ◦ Power grid redundancy (1+1) • Two power cords ◦ Standard CAB-HVAC-C14-2M IEC C14 to Saf-d-grid connector on the power supply receptacle ◦ See Table 6 for configurable AC power cords that connect to AC sockets specific to regions • AC input: 90V to 305V • DC input: 192V to 400V • Frequency: 50 to 60 Hz (nominal) • Typical power consumption ◦ 246W for Idle 96-port switch with (1+1) PSU redundancy without optics modules ◦ 330W for 96-port switch with 48 32G optics modules under typical conditions ◦ 555W for 96-port switch with 96 32G optics modules under typical conditions • Airflow ◦ 2 fan trays as standard configuration ◦ Back to front (toward ports) using port-side exhaust fans ◦ Front to back (inward from ports) using port-side intake fans ◦ Maximum 255 Cubic Feet per Minute (CFM) ◦ Nominal 110 CFM (25C)
Temperature range	• Temperature, ambient operating: ◦ 32° to 104°F (0° to 40°C) ◦ Temperature, ambient nonoperating and storage: -40° to 158°F (-40° to 70°C) • Relative humidity, ambient (noncondensing) operating: 10 to 90% • Relative humidity, ambient (noncondensing) non-operating and storage: 10 to 95% • Altitude, operating: -197 to 6500 ft (-60 to 2000m)

Approvals and compliance	• Safety compliance • CE Marking • UL 60950 • CAN/CSA-C22.2 No. 60950 • EN 60950 • IEC 60950 • TS 001 • AS/NZS 3260 • IEC60825 • EN60825 • 21 CFR 1040 • EMC compliance • FCC Part 15 (CFR 47) Class A • ICES-003 Class A • EN 55022 Class A • CISPR 22 Class A • AS/NZS 3548 Class A • VCCI Class A • EN 55024 • EN 50082-1 • EN 61000-6-1 • EN 61000-3-2 • EN 61000-3-3
Fabric services	• Name server • Registered State Change Notification (RSCN) • Login services • Fabric Configuration Server (FCS) • Broadcast • In-order delivery
Advanced functions	• VSAN • IVR • Port channel with multipath load balancing • Flow-based and zone-based QoS
Supported Cisco optics, media, and transmission distances	• For detailed information about all supported transceivers, see Cisco MDS 9000 Family pluggable transceivers **documentation**

[#] Hardware is capable. Feature can be activated through a Cisco NX-OS Software upgrade.

Ordering Information

Table 2 describes optional licenses that can be purchased to enable additional features and capabilities on the Cisco MDS 9396T.

Table 3 provides ordering information for the MDS 9396T 32-Gbps 96-Port switch base modules.

Table 4 provides ordering information for the MDS 9396T switch spares that are orderable separately.

Table 5 provides ordering information for the MDS 9396T switch bundles.

Table 6 provides ordering information for the supported power cords.

Table 7 provides ordering information for the supported transceivers.

Table 8 provides ordering information for the minimum required software versions.

Table 9 provides ordering information for the accessory kits.

Table 2. Optional Licenses

License type	Description	Part number
Cisco MDS 9300 SAN Insights Package	Three-year switch-based license for on-board Analytics, Streaming Telemetry and SAN Insights on Data center network manager and other telemetry receivers.	L-D-M93S-AXK9=
Cisco MDS 9000 Family Enterprise Package	Includes advanced traffic-engineering and network security features such as IVR, QoS, and zone-based QoS, Fibre Channel Security Protocol (FC-SP), port security, traffic encryption, VSAN-based access control, and fabric binding for open systems. Licensed per switch for all the ports on the switch.	M9300ENT1K9=, L-M9300ENT1K9=
Cisco DCNM for SAN Advanced Edition for Cisco MDS 9300 Series	Includes advanced management capabilities such as VMware vCenter integration, performance trending, advanced provisioning, backup, reports and dashboards. Licensed per switch for all the ports on the switch. Host the licenses on either switch or server. The switch-based licenses are denoted with an X in the SKU.	DCNM-SAN-M93-K9=, L-DCNM-S-M93-K9=, DCNM-S-M93XK9=, L-DCNM-S-M93XK9=
Cisco MDS 9396T 16-Port On-Demand Activation	Enables 16 additional Fibre Channel ports on demand to grow from the 48-port base to up to 96 ports.	M9396T-PL16, M9396T-PL16=

Table 3. Base Modules

Description	Part number
MDS 9396T 32G 2 RU Fibre Channel Switch, with 48 active Fibre Channel ports, 2 fans, 2 PSU, port side exhaust	DS-C9396T-48EK9
MDS 9396T 32G 2 RU Fibre Channel Switch, with 48 active Fibre Channel ports, 2 fans, 2 PSU, port side intake	DS-C9396T-48IK9
MDS 9396T 32G Fibre Channel Switch 16-Port Activation License for Base	M9396T-PL16, M9396T-PL16=

Table 4. Spare Modules

Description	Part number
MDS 9396T 32G 2 RU Fibre Channel switch, with 48 active Fibre Channel ports, 2 fans, 2 PSU, port side exhaust, spare	DS-C9396T-48EK9=
MDS 9396T 32G 2 RU Fibre Channel switch, with 48 active Fibre Channel ports, 2 fans, 2 PSU, port side intake, spare	DS-C9396T-48IK9=
AC PSU Bidirectional airflow, spare	DS-CAC-1200W=
MDS 9396T fan tray, port-side exhaust, spare	DS-C96S-FAN-E=
MDS 9396T fan tray, port-side intake, spare	DS-C96S-FAN-I=

Table 5. Bundled Configurations

Description	Part number
MDS 9396T 32G Fibre Channel switch, with 48 active ports + 48x32G SW optics, 2 fans, 2 PSUs, port side exhaust	DS-C9396T-48ETK9
MDS 9396T 32G Fibre Channel switch, with 48 active ports + 48x32G SW optics, 2 fans, 2 PSUs, port side intake	DS-C9396T-48ITK9
MDS 9396T 32G Fibre Channel switch, with 96 active ports + 96x32G SW optics, 2 fans, 2 PSUs, port side exhaust	DS-C9396T-96ETK9
MDS 9396T 32G Fibre Channel switch, with 96 active ports + 96x32G SW optics, 2 fans, 2 PSUs, port side intake	DS-C9396T-96ITK9
MDS 9396T 32G Fibre Channel switch 16 port activation license + 16 X 32G SW optics, spare	M9396T-PL16TE
MDS 9396T 32G Fibre Channel switch 16 port activation license + 16 X 32G SW optics	M9396T-PL16T

Table 6. Power Cords

Description	Part number
Power Cord, 250VAC 10A IRAM 2073 Plug, Argentina	CAB-9K10A-AR
Power Cord, 250VAC 10A 3112 Plug, Australia	CAB-9K10A-AU
Power Cord, 250VAC 10A GB1002 Plug, China	CAB-9K10A-CH
Power Cord, 250VAC 10A CEE 7/7 Plug, EU	CAB-9K10A-EU
Power Cord, 250VAC 10A SI16S3 Plug, Israel	CAB-9K10A-ISR
Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy	CAB-9K10A-IT
Power Cord, 125VAC 13A KSC8305 Plug, Korea	CAB-9K10A-KOR

Description	Part number
Power Cord, 250VAC 10A SABS 164/1 Plug, South Africa	CAB-9K10A-SA
Power Cord, 250VAC 10A, Straight C15, MP232 Plug, SWITZ	CAB-9K10A-SW
Power Cord, 125VAC 15A CNS10917-2, Taiwan	CAB-9K10A-TWN
Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK	CAB-9K10A-UK
Power Cord, 125VAC 13A NEMA 5-15 Plug, North America	CAB-9K12A-NA
Power Cord, 250VAC 10A, Brazil	CAB-250V-10A-BR
Cabinet Jumper Power Cord, 250 VAC 13A, C14-C15 Connectors	CAB-C15-CBN
Cabinet Jumper Power Cord, 250 VAC 13A, C14-C15 Connectors, China, Republic of Korea	CAB-C15-CBN-CK
Cabinet Jumper Power Cord, 250 VAC 13A, C14-C15 Connectors, EU, Russian Federation, Belarus, Kazakhstan and Australia	CAB-C15-CBN-EURA

Table 7. Transceivers

Description	Part number
32G Fibre Channel Shortwave Optics	DS-SFP-FC32G-SW*
32G Fibre Channel Longwave Optics	DS-SFP-FC32G-LW=*
16G Fibre Channel Shortwave Optics	DS-SFP-FC16G-SW*
16G Fibre Channel Longwave Optics	DS-SFP-FC16G-LW=*
8G Fibre Channel Shortwave Optics	DS-SFP-FC8G-SW=*
8G Fibre Channel Longwave Optics	DS-SFP-FC8G-LW=*

*For detailed information about all supported transceivers, see the Cisco MDS 9000 Family pluggable transceivers documentation.

Table 8. System Requirements

Item	Requirement
Cisco NX-OS Software for switch	Cisco MDS NX-OS 8.3(1) or later
Cisco Data Center Network Manager	Cisco DCNM 11(0) or later

Table 9. Accessories

Description	Part number
MDS 9396T Accessory Kit for Cisco	DS-9396T-KIT-CSCO
MDS 9396T Accessory Kit for Cisco, spare	DS-9396T-KIT-CSCO=

Description	Part number
MDS 9396T Accessory Kit for Dell/EMC	DS-9396T-KIT-EM
MDS 9396T Accessory Kit for HDS	DS-9396T-KIT-HDS

Service and Support

Cisco does not recommend the removal of its products batteries due to safety reasons. Please utilize the Cisco Takeback and Recycle Program.

Using the Cisco Lifecycle Services approach, Cisco and its partners provide a broad portfolio of end-to-end services and support that can help increase your network's business value and ROI. This approach defines the minimum set of activities needed, by technology and by network complexity, to help you successfully deploy and operate Cisco technologies and optimize their performance throughout the lifecycle of your network.

For More Information

For more information about the Cisco MDS 9396T Fibre Channel Switch, visit https://www.cisco.com/go/storage or contact your local account representative.

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