

### Overview

Cisco's NX-OS is the underlying system software that powers the award winning Cisco MDS 9000 Family of multilayer switches. The standard NX-OS software package is bundled at no charge with the Cisco MDS 9000 series switches and includes a base set of features. Cisco Systems believes the standard features are required by most customers to build storage area networks (SAN). The Cisco MDS switch also has a set of additional advanced traffic engineering and advanced security features recommended for all Enterprise SANs. The additional features are bundled together in the Cisco MDS 9000 Enterprise package.

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### Feature List

- FC Port security
  - VSAN-based access control
  - Fibre Channel Security Protocol (FC-SP) authentication
  - Advanced traffic engineering-quality of service (QoS)
  - IP security (IPsec) protocol for iSCSI and FCIP using the MPS-14/2 module or Cisco MDS 9216i Switch
  - IPsec and IKE for IPv4
  - IKE digital certificates
  - Extended credits using the MPS-14/2 module or the Cisco MDS 9216i Switch
  - Enhanced VSAN routing inter-VSAN routing (IVR) over Fibre Channel
  - IVR Network Address Translation (NAT) over Fibre Channel
  - Zone-based traffic prioritizing
  - Zone-based FC QoS
  - Extended BB\_Credits
  - Fibre Channel write acceleration
  - SCSI flow statistics
  - FCIP encryption
  - Fabric binding for Fibre Channel
  - SAN device virtualization
  - Cisco TrustSec Fibre Channel Link Encryption
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### Customer Benefits

- Inter-VSAN Routing enables sharing of resources across VSANs without compromising the VSAN benefits of scalability, reliability, availability and security.
- Inter-VSAN Routing can be used in conjunction with FCIP to create more efficient business continuity and disaster recovery solutions.
- The QoS feature in Cisco SAN-OS allows for data traffic to be classified into distinct levels for service differentiation.
- Switch to switch and host to switch authentication helps to eliminate disruptions that may occur due to unauthorized devices connecting to a large enterprise fabric.
- LUN Zoning provides a single point of control for managing secure access to LUNs across heterogeneous storage subsystems.
- Read only zoning is especially useful for sharing volumes across servers for read-only operations for backup, data-warehousing etc.
- Individual port security assures SAN security is not compromised due to unauthorized devices connecting to a switch port.
- VSAN-based access control adds a layer of security where only administrators can configure switches within specified VSANs.

### Features/Functionality

<b>Inter VSAN Routing</b>	Inter-VSAN routing enables selective transfer of data traffic between specific initiators and targets on different virtual SANs (VSANs) without merging VSANs into a single logical fabric. Fibre Channel control traffic does not flow between VSANs, nor can initiators access resources except for the ones designated with Inter-VSAN Routing.	
<b>Quality of Service (QoS)</b>	The QoS feature allows for data traffic to be classified into distinct levels for service differentiation.	
<b>Switch-Switch and Host-Switch Authentication</b>	Fibre Channel Security Protocol (FC-SP) capabilities in Cisco SAN-OS provide switch-switch and host-switch authentication.	
<b>LUN Zoning</b>	Cisco SAN-OS hardware enforced LUN Zoning ensures LUNs (Logical Unit Numbers) are accessible only by specified hosts.	
<b>Read-Only Zones</b>	Cisco MDS switches support a type of Small Computer System Interface (SCSI) command as a zoning attribute. In conjunction with other zoning attributes, when a SCSI command type attribute is restricted to SCSI read commands, read-only zones can be created.	
<b>Port Security</b>	Locks down the mapping of an entity to a switch port. The entity can be a host, target, or switch and is identified by its Worldwide Number (WWN).	
<b>VSAN Based Access Control</b>	Enables customers to define roles where the scope of the roles is limited to certain VSANs. For example, a network administrator role can be set up to allow configuration of all platform-specific capabilities, while VSAN-administrator roles can be set up to only allow configuration and management of specific VSANs.	
<b>Ordering Information</b>	MDS Enterprise Package license for 1 MDS series switch for HP BladeSystem c-Class	TC317A
	MDS Fabric Manager Server & Enterprise Package license bundle for 1 MDS series switch for HP BladeSystem c-Class	TC318A
	MDS 9100 Enterprise Package license for 1 Cisco MDS 9100 series switch	A7515A
	MDS 9200 Enterprise Package license for 1 Cisco MDS 9200 series switch	A7516A
	MDS 9500 Enterprise Package license for 1 Cisco MDS 9500 series switch	A7517A
<b>Software Prerequisites</b>	Cisco Fabric Manager	Refer to Cisco Enterprise Package release notes <a href="http://www.cisco.com/en/US/products/ps5989/prod_release_notes_list.html">http://www.cisco.com/en/US/products/ps5989/prod_release_notes_list.html</a>
	Java Virtual Machine	Refer to Cisco Enterprise Package release notes <a href="http://www.cisco.com/en/US/products/ps5989/prod_release_notes_list.html">http://www.cisco.com/en/US/products/ps5989/prod_release_notes_list.html</a>
	Windows®	Refer to Cisco Enterprise Package release notes <a href="http://www.cisco.com/en/US/products/ps5989/prod_release_notes_list.html">http://www.cisco.com/en/US/products/ps5989/prod_release_notes_list.html</a>
	Solaris	Refer to Cisco Enterprise Package release notes <a href="http://www.cisco.com/en/US/products/ps5989/prod_release_notes_list.html">http://www.cisco.com/en/US/products/ps5989/prod_release_notes_list.html</a>
	Red Hat Linux	Refer to Cisco Enterprise Package release notes <a href="http://www.cisco.com/en/US/products/ps5989/prod_release_notes_list.html">http://www.cisco.com/en/US/products/ps5989/prod_release_notes_list.html</a>

### Features/Functionality

**Hardware Prerequisites**

- Refer to Cisco Enterprise Package Release Notes  
[http://www.cisco.com/en/US/products/ps5989/prod\\_release\\_notes\\_list.html](http://www.cisco.com/en/US/products/ps5989/prod_release_notes_list.html)
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**Distribution Media**

Cisco MDS 9000 Enterprise Package is a firmware resident Java based application within an MDS 9000 series switch.

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**Software Licensing**

Cisco MDS 9000 Enterprise package is licensed per MDS 9000 series switch

### Service and Support, HP Care Pack and Warranty Information

#### Software Warranty

HP warrants that the software media will be free of physical defects for a period of 90 days from delivery.

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**HP Care Pack Services:** Packaged server and storage services for increased uptime, productivity and ROI

When you buy HP server and storage products and solutions, it's also a good time to think about what levels of support you may need. Our portfolio of service options reduce deployment and management worries while helping you get the most out of your server and storage investments. We take a holistic approach to your environment, bridging servers, blades, storage, software and network infrastructures with our packaged HP Care Pack Services for servers and storage.

**Protect your business beyond warranty**

When it comes to robustness and reliability, standard computing equipment warranties have matured along with technology. Good news that can also create problems stemming from depending on standard warranties designed to only protect against product defects and some downtime causes. Using a standard approach to warranty uplifts, such as HP Care Pack Services, helps reduce downtime risks and provides operational consistency for mission-critical and standard business computing.

**HP Care Pack Services:** Upgrading or extending standard server and storage warranties cost effectively

HP Care Pack Services offer a standard reactive hardware and software support services suite sold separately, or combined with our Support Plus and Support Plus 24 services. The portfolio also provides a combination of integrated proactive and reactive services, such as Proactive 24 Service and Critical Service. In addition with HP Proactive Select, you can acquire the specific proactive constancy and technical services. HP Proactive Select menu offers a broad set of service options that you can mix and match depending on your specific requirements. Proactive service options include offers for server, storage, network, SAN device, software, environment and education services.

HP server and storage lifecycle support services offers a full spectrum of customer care—from technology support to complex migrations to complete managed services. HP Factory Express provides customization, integration and deployment services for turnkey solutions. HP Education Services offer flexible, comprehensive training on to help your IT staff get the most out of your server and storage investments. HP Financial solutions extend innovative financing and cost-effective asset management programs—from purchase to equipment retirement.

Learn more: [www.hp.com/services/servers](http://www.hp.com/services/servers) and [www.hp.com/services/storage](http://www.hp.com/services/storage)

**NOTE:** Care Pack Services availability may vary by product and country.

HP Care Pack Services are sold by HP and HP Authorized Service Partners:

- Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools.
- Customers purchasing from a commercial reseller can find HP Care Pack Services at <http://www.hp.com/go/lookuptool>

#### **Recommended HP Care Pack Services for optimal satisfaction with your HP product.**

##### **3-Year HP Support Plus 24**

For a higher return on your server and storage investment, HP Support Plus 24 provides integrated hardware and software support services designed specifically for your technology. Available 24x7, this 3-year combined reactive support option delivers onsite hardware support and over-the-phone software support around-the-clock. Leverage the full strength of HP Technology Services - customers can trust the services professionals at HP to work collaboratively with them, putting our strategic and technical know-how to work across their entire infrastructure.

- Improve uptime with responsive hardware and software services
- Enjoy consistent service coverage across geographically dispersed sites

### Service and Support, HP Care Pack and Warranty Information

- Update HP software at a predictable cost
- Increase customer satisfaction-with no interoperability gaps

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6638EEE>

#### Product is customer installable

#### HP Assessment Service for SANs

The HP Assessment Service for SANs offers customized technical and operational guidance to customers employing HP storage subsystems and the interconnecting storage area network (SAN) infrastructure. In a typical engagement, HP or one of our authorized business partners will perform a detailed discovery using HP's proprietary toolset to gain an understanding of the configuration of your storage devices and SAN topology.

The findings from this process will be compared to HP best practices and industry standards as defined by IT Service Management (ITSM) disciplines. The results of the evaluation will be quickly and efficiently processed into information you can leverage. This information, in the form of a comprehensive HP SAN Assessment report, will be summarized by HP or one of our authorized business partners with recommendations that are intended to improve availability levels and ongoing management of your storage and SAN environment.

- Recommendations to optimize your customer's SAN based on comprehensive discovery information
- Decrease the potential for unplanned downtime and encourage higher productivity by exposing single points of failure and other potential SAN configuration issues
- Clear documentation allows for optimal SAN management, more efficient future SAN implementations and lower IT staff involvement
- Service requires no SAN downtime and is easily adapted as a periodic review to help keep SANs performing efficiently as business evolves

<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA1-2941ENW.pdf>

#### Optional HP Care Pack Services that will enhance your HP product experience.

##### 5-Year HP Support Plus 24

As an alternative to our recommended support level, for customers who need to improve uptime with responsive 24x7 product support:

HP Support Plus 24 helps you increase performance and availability with comprehensive, consistent hardware and software services. Working with your IT team, HP Services engineers deliver onsite hardware support and over-the-phone software support around-the-clock 365 days per year. Service coverage encompasses HP products and selected multivendor hardware and software.

In addition, this convenient HP Care Pack packaged service makes software updates available to you at substantial savings.

Choose Support Plus 24 when you need to:

- Improve uptime with responsive hardware and software services available anytime
- Cost-effectively obtain expert 24x7 multivendor hardware and software support
- Enjoy consistent service coverage across geographically dispersed sites
- Update HP and selected third-party software at a predictable cost
- Take advantage of subscription savings on software updates

<http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6638EN.pdf>

### Service and Support, HP Care Pack and Warranty Information

#### **HP Enhanced Implementation Service for SANs**

For customers who are building a new or expanding an existing Fibre Channel, FCOE, FCIP, SAS or iSCSI SAN:

HP Enhanced Implementation Service for SANs - For customers who are building a new SAN or expanding their existing one, we offer the HP Enhanced Implementation Service for SANs. This provides complete design and implementation services for Fibre Channel, FCOE, FCIP, SAS and iSCSI SAN connectivity components.

<http://h20195.www2.hp.com/v2/GetPDF.aspx/5981-8527EN.pdf>

#### **eSupport**

HP eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

#### **Support Portal**

The HP support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

#### **Features include:**

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires an HP service agreement. To access the support portal, visit

<http://www.hp.com/support>

#### **Customer Technical Training**

HP Education Services

In today's cost-conscious business environment, IT professionals, developers, consultants and users face an interesting challenge: how to keep up with the latest technologies and expand important skills while delivering profitable results on current projects. To help address this challenge, HP offers innovative training solutions that help keep you up-to-date on virtualization, server, storage, Insight Control, Citrix, Microsoft® and open source/Linux-related topics-while spending less time away from business-critical activities.

#### **HP Services Awards**

HP Technology Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction.

#### **Additional Services Information**

To learn more on HP ProLiant servers, HP BladeSystem servers and HP storage products, please contact your HP sales representative or HP Authorized Channel Partner. Or visit [www.hp.com/services/proliant](http://www.hp.com/services/proliant) or [www.hp.com/services/bladestem](http://www.hp.com/services/bladestem) or <http://www.hp.com/services/storage>

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