



Implementing Advanced Cisco Storage Networking Solutions

Length
5 days

Format
Lecture/lab

Track
Support

Version
4.2

Course Description

IASNS is a 5-day lecture/lab course that provides learners with advanced skills in implementing and troubleshooting Cisco MDS 9000 storage networks.

This course focuses on advanced storage networking topics, including SAN virtualization, embedded storage services, advanced SAN security, advanced performance tuning, configuration of enterprise-class SAN management services, and iSCSI. Troubleshooting Cisco MDS fabrics is also covered in depth.

A significant portion of this course is devoted to hands-on exercises.

Who Should Attend

This course provides advanced technical training for system engineers, network engineers, and field engineers who need to deploy, configure, and manage MDS 9000 Series switches.

Recommended Prerequisites

- Implementing Cisco Storage Networking Solutions (ICSNS)

Related Training

- Designing Cisco Storage Networking Solutions (DCSNS)

IASNS

Learning Objectives

After you complete this course, you will be able to:

- Describe embedded storage services options on the MDS 9000 platform
- Configure SAN device virtualization
- Use the Cisco Data Mobility Manager to enable transparent data migration
- Design and deploy an enterprise SAN management infrastructure
- Configure port and fabric security
- Configure Storage Media Encryption
- Configure authentication, authorization, and accounting services
- Configure port bandwidth resources
- Configure protocol acceleration services
- Monitor switch health and SAN traffic profiles
- Configure QoS to prioritize application data flows
- Capture and view FC protocol traces using SPAN and RSPAN
- Construct a troubleshooting process
- Troubleshoot ports, device registration, E_Port isolation, zoning, and Domain Manager issues
- Implement iSCSI-to-FC connectivity
- Explain iSCSI HA and security options
- Configure iSCSI server load balancing (iSLB)



Learning Solutions

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Course Outline

Module 1: Managing Enterprise SANs

Lesson 1: Intelligent Fabric Services

MDS Intelligent Services Modules
Fabric-Based Applications
Data Mobility
Data Security Services
I/O Acceleration

Lesson 2: SAN Device Virtualization

MDS 9000 SAN Device Virtualization
FlexAttach

Lesson 3: Data Mobility Manager

Overview of Data Mobility Manager
Configuring Data Mobility Manager

Lesson 4: Federated Fabric Manager Servers

Federated Fabric Manager Servers
Fabric Manager Installation Prerequisites

Lesson 5: Management Infrastructure Implementation

Command Line Interface Commands
Command Line Interface Variables and Aliases
Overlay VSANs
Fabric-Device Management Interface Implementation
Cisco Discovery Protocol
CiscoWorks Resource Manager Essentials Implementation

Lab 1: SAN Device Virtualization

Lab 2: Data Mobility Manager

Lab 3: Management VSANs

Module 2: Securing the SAN

Lesson 1: Implementing Port and Fabric Security

Port Security Features
Port Security Configuration
Distributing Port Security
Fabric Binding for Fibre Channel
DHCHAP Overview
Configuring FCSP
Overview of IP ACLs
Configuring IP ACLs
TRustSec Link Encryption feature

Lesson 2: Storage Media Encryption

Overview of SME
Key Management
Provisioning

Lesson 3: Management Security

Configuring SSH
AAA Solutions and Services
Implementing AAA Services
AAA Service Options
Distributing AAA Configurations
Implementing RBAC
Configuring RBAC and User Accounts
Distributing RBAC Configurations

Lab 4: RBAC and RADIUS

Lab 5: Fabric and Port Security

Lab 6: Fabric Manager Server



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Module 3: Tuning SAN Performance

Lesson 1: Managing Port Resources

- Managing Buffer Credits
- Advanced Interface Parameters
- Port Bandwidth Reservation

Lesson 2: I/O Acceleration

- Protocol Acceleration Overview
- MDS 9000 I/O Accelerator Package
- Configuring I/O Accelerator
- Verifying IOA Configuration

Lesson 3: Monitoring SAN Performance

- Fabric Management Server
- Performance Manager
- Traffic Analyzer

Lesson 4: Congestion Control and QoS

- Virtual Output Queues
- Configuring FCC
- Configuring QoS
- QoS Behavior with Generation-1 and Generation-2 Switching Modules
- Zone-Based QoS

Lab 7: I/O Acceleration

Lab 8: Performance Monitoring

Lab 9: Quality of Service

Lab 10: Port Resources

Module 4: Troubleshooting the SAN

Lesson 1: Monitoring SAN Health

- RMON
- System Message Logging
- Onboard Failure Logging
- Command Scheduler

Lesson 2: Capturing and Analyzing SAN Traffic

- SPAN Overview
- RSPAN Overview
- Implementing RSPAN
- Port Analyzer Adapter Configuration
- The Cisco Fabric Analyzer
- Wireshark Overview

Lesson 3: Troubleshooting Process

- Troubleshooting Process
- Troubleshooting Port States
- Troubleshooting a Flapping Port
- SFP Diagnostics
- Online Health Management System
- Verifying Device Registration
- Troubleshooting FCID Assignment
- E_Port Isolation
- Verifying VSANs and Zoning
- Domain Manager Issues

Lab 11: Challenge Lab

Lab 12: RSPAN and the Cisco Fabric Analyzer



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Course Outline

Module 5: Implementing iSCSI

Lesson 1: iSCSI Configuration

- iSCSI Protocol Overview
- iSCSI Naming Schemes
- iSCSI Implementation on IPS Modules
- FC-to-iSCSI Routing Overview
- Overview of iSCSI Configuration Steps
- Verifying the Configuration
- iSCSI Configuration Options

Lesson 2: iSCSI High Availability and Security

- iSCSI High Availability
- iSCSI Security

Lesson 3: iSCSI Server Load Balancing

- Configuring iSLB Features and Prerequisites
- Configuring iSLB Initiators and Targets
- Configuring Load Balancing using VRRP

Lab 13: Deploying iSCSI

Lab 14: Configuring VRRP for iSCSI

Lab 15: iSCSI Server Load-Balancing (iSLB)



Learning
Solutions