

IASNS

Why Firefly



We take care to keep our courseware current and reflect as close as possible the latest general release of the technology. With this release, IASNS labs are now based on newer code than our competitors are delivering with the Cisco off-the-shelf courseware. This version of the firmware (NX-OS 5.2.6) also positions our customers to be ready for the DC-CCIE Lab exam. Key IASNS v4.4r1 updates covered in this course that are not covered in the standard version of this course include: DCCM-SAN Server installation Lab and Performance Manager using DCCM-SAN Lab.

Length:
5 Days

Format:
Lecture/Lab

Course Version:
4.4r1

Product Version:
NX-OS 5.2.6

Course Description

IASNS is a five-day lecture/lab course that provides learners with advanced skills in implementing and troubleshooting Cisco MDS 9000 storage networks running the NX-OS 5.2.6 code. 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.

Prerequisites

You will gain the most from this course if you have the following knowledge: Implementing Cisco Storage Networking Solutions (ICSNS).

Learning Objectives

- Describe intelligent fabric services on the MDS 9000 platform
- Use the Cisco Data Mobility Manager to enable transparent data migration
- Design and deploy an enterprise SAN management infrastructure
- Describe I/O consolidation using FCOE Implementing DCCM-SAN and Federated DCCM
- Describe SSH, (AAA) with Role-based Access control (RBAC)
- Describe how to configure port and fabric security and IPSEC
- Describe how to configure Storage Media Encryption
- Implement RMON, logs and Performance Manager
- Describe how to configure I/O Acceleration (IOA)
- Describe how to configure QoS to prioritize application data flows
- Describe how to capture and view FC protocol traces using SPAN and RSPAN
- Describe how to troubleshoot issues deploying Generation 1, 2, and 3 linecards
- Implement iSCSI-to-FC connectivity
- Explain iSCSI HA and security options
- Describe how to Configure iSCSI server load balancing (iSLB)



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Module 1: Managing Enterprise SANs

Lesson 1: Intelligent Fabric Services

- MDS Intelligent Services Modules
- Fabric-Based Applications
- SANTap
- Network-Accelerated Serverless Backup
- Data Security Services
- Data Mobility
- I/O Acceleration

Lesson 2: Data Mobility Manager

- Overview of Data Mobility Manager
- Configuring Data Mobility Manager
- Cisco DMM SAN Topologies

Lesson 3: 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

Lesson 4: Fibre Channel over Ethernet

- FCoE Consolidated Data Center Design
- I/O consolidation Using the Nexus 5000
- Current FCoE Architecture
- FCOE ENode MAC Address
- FCoE Initialization Protocol
- Converged Enhanced Ethernet
- Priority Flow control
- Data Center Bridging Exchange
- Cisco Nexus 5K Interfaces

Lesson 5: Federated DCNM-SAN Servers

- DCNM-SAN Server Install
- Federated DCNM-SAN Servers
- DCNM-SAN Installation Prerequisites

Module 2: Securing the SAN

Lesson 1: Management Security

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

Lesson 2: Implementing Port and Fabric Security

- Port Security Features
- Port Security Configuration
- Distributing Port Security
- Fabric Binding for Fibre Channel
- FC-SP (DHCHAP) Overview
- Configuring FCSP
- Overview of IP ACLs
- Configuring IP ACLs
- Configuring Certificate Authorities (CA) and Digital Certificates
- Configuring IPsec Network Security
- TRustSec Link Encryption feature

Lesson 3: Storage Media Encryption

- Overview of SME
- Key Management
- Implementing SME

Module 3: Tuning SAN Performance

Lesson 1: Monitoring SAN Performance

- RMON
- System Message Logging
- Onboard Failure Logging
- Command Scheduler
- Configuring the Embedded Event Manager
- Performance Manager and DCNM-SAN Web Browser view

Lesson 2: I/O Acceleration

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

Lesson 3: Congestion Control and QoS

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

Module 4: Troubleshooting the SAN

Lesson 1: Capturing and Analyzing SAN Traffic

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

Lesson 2: Troubleshooting Gen 1-2-3 modules

- Managing Buffer Credits
- Advanced Interface Parameters
- Port Bandwidth Reservation
- Verifying Port Index Allocation
- Troubleshooting Supervisor Upgrades

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

Appendix: SDV_FlexAttach

Lab 1: Data Mobility Manager

Lab 2: Management VSANs

Lab 3: RBAC and RADIUS

Lab 4: Fabric and Port Security

Lab 5: DCNM-SAN Server

Lab 6: SME

Lab 7: Performance Monitoring

Lab 8: I/O Acceleration

Lab 9: Quality of Service

Lab 10: Challenge Lab

Lab 11: RSPAN and the Cisco Fabric Analyzer

Lab 12: Port Resources

Lab 13: Deploying iSCSI

Lab 14: Configuring VRRP for iSCSI

Lab 15: iSCSI Server Load-Balancing (iSLB)