

## Cisco MDS SAN Enablement with LABS Outline (8 Hours) \$995.00

The Cisco MDS SAN Enablement course provides a focused technical overview of Cisco MDS Storage Area Network (SAN) switches, Cisco Smart Licensing, Nexus Dashboard Fabric Controller (NDFC), SAN Analytics, security capabilities, and performance optimization practices. The course is designed to help storage, data center, and network professionals understand how Cisco MDS platforms support scalable, reliable, and secure Fibre Channel SAN environments. Participants explore Cisco MDS switch models such as the MDS 9124V, MDS 9148V, and MDS 9700 Series, with emphasis on use cases ranging from mid-sized SAN fabrics to large director-class deployments.

Through instructor-led discussion, demonstrations, and optional hands-on labs, attendees learn how to manage licensing, automate SAN operations with NDFC, perform fabric discovery, configure policy-based zoning, and use telemetry-driven analytics for proactive operations. The course also introduces advanced SAN capabilities such as Dynamic Ingress Rate Limiting (DIRL), Fabric Performance Impact Notifications (FPINs), Role-Based Access Control (RBAC), Virtual SANs (VSANs), encryption, secure erase, buffer credit management, flow control, and quality of service policies.

The lab component reinforces these topics through practical configuration and monitoring tasks, including initial switch setup, Smart Licensing registration, NDFC integration, SAN telemetry analysis, security configuration, and performance tuning.

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### Agenda Overview

#### 1. Introduction to Cisco MDS SAN Switches (30 Minutes)

- **Switch Models and Use Cases:**
  - Cisco MDS 9124V/9148V Fabric Switches for mid-sized SANs.
  - MDS 9700 Series for large-scale, director-class deployments.
- Key features: high density, advanced analytics, reliability, and security.
- **Interactive Session:** Discuss use cases for small-to-large SAN environments.

#### 2. Cisco Smart Licensing (30 Minutes)

- Benefits of transitioning to Smart Licensing: streamlined management and scalability.
- Licensing types: port-based licensing, activation, and registration processes.
- Deployment scenarios and transitioning strategies from traditional licensing.

- **Live Demo:** Licensing activation and compliance monitoring.

### 3. Nexus Dashboard Fabric Controller (NDFC) (60 Minutes)

- Overview of NDFC for SAN automation and policy management.
- Key capabilities:
  - Automated fabric discovery and topology mapping.
  - Policy-based zoning and access control.
  - Integration with telemetry and advanced performance monitoring.
- **Hands-On Example:** Fabric discovery and automated zoning demonstration.

### 4. SAN Analytics and Advanced Insights (60 Minutes)

- Deep dive into SAN Analytics features:
  - Real-time telemetry and deep packet inspection.
  - Key metrics for congestion management and fault detection.
- Proactive management with Dynamic Ingress Rate Limiting (DIRL) and Fabric Performance Impact Notifications (FPINs).
- **Use Cases:** Proactive issue resolution and performance optimization in large SANs.
- **Activity:** Review of telemetry data and insights with Nexus Dashboard integration.

### 5. Enhanced Security and Advanced Features (30 Minutes)

- Role-Based Access Control (RBAC), zoning, and logical segmentation using VSANs.
- In-flight encryption and secure erase features.
- Best practices for proactive security monitoring and compliance.
- **Interactive Discussion:** Security implementation in real-world SAN environments.

### 6. Performance Optimization Best Practices (30 Minutes)

- Buffer credit management and flow control optimization.
- Optimizing zoning configurations and applying QoS policies for traffic prioritization.
- Capacity planning and proactive telemetry-based management.
- **Practical Examples:** Real-world scenarios for maximizing SAN performance.

## LAB OUTLINE (4 Hours)

### Lab 1: Introduction to Cisco MDS SAN Switches (30 Minutes)

- Familiarize participants with Cisco MDS SAN Switch models and initial setup.
    - **Task 1:** Access the management interface of Cisco MDS switches.
    - **Task 2:** Explore hardware features of MDS 9124V and MDS 9700 series.
    - **Task 3:** Perform initial setup tasks (IP address configuration, time settings, and system checks).
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## Lab 2: Cisco Smart Licensing (40 Minutes)

- Enable participants to configure and manage Smart Licensing.
    - **Task 1:** Activate Smart Licensing on a Cisco MDS SAN switch.
    - **Task 2:** Register the device to a Smart Licensing portal.
    - **Task 3:** Configure port-based licensing and verify licensing status.
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## Lab 3: Nexus Dashboard Fabric Controller (NDFC) (60 Minutes)

- Gain hands-on experience with NDFC for fabric automation and management.
    - **Task 1:** Log into Nexus Dashboard and navigate the NDFC interface.
    - **Task 2:** Perform automated fabric discovery and topology mapping.
    - **Task 3:** Configure policy-based zoning for access control.
    - **Task 4:** Integrate SAN switches with NDFC for telemetry and performance monitoring.
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## Lab 4: SAN Analytics and Telemetry (50 Minutes)

- Understand SAN telemetry, analytics, and proactive performance monitoring.
    - **Task 1:** Enable SAN Analytics on a Cisco MDS switch.
    - **Task 2:** Collect and analyze telemetry data for congestion and fault detection.
    - **Task 3:** Demonstrate Dynamic Ingress Rate Limiting (DIRL) and Fabric Performance Impact Notifications (FPINs).
    - **Task 4:** Review practical use cases for telemetry in SAN optimization.
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## Lab 5: Enhanced Security Configurations (40 Minutes)

- Configure and verify security features on Cisco MDS switches.
    - **Task 1:** Implement Role-Based Access Control (RBAC) and secure zoning.
    - **Task 2:** Configure VSANs for logical segmentation and access control.
    - **Task 3:** Apply encryption for secure data transit.
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## Lab 6: Performance Optimization (30 Minutes)

- Optimize SAN performance using advanced Cisco MDS features.
  - **Task 1:** Configure buffer credits and flow control settings.
  - **Task 2:** Implement QoS policies for traffic prioritization.
  - **Task 3:** Monitor SAN performance using telemetry data.