Managing LAN Networks with Cisco Nexus Dashboard

Duration: 5 Days **Course Code: N1_MNDFC** **Delivery Method: Company Event**

Overview:

This five-day course on Cisco Nexus Dashboard covers data center and campus operations with VXLAN and EVPN, then addresses the Nexus Dashboard Fabric Controller (NDFC) to deploy and manage VXLAN and EVPN. The course is built on Cisco Nexus Dashboard release 4.2, with hands-on practice on NX-OS and Cisco IOS XE devices.
The course qualifies for 40 Cisco Continuing Education credits (CE) toward recertification.
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Target Audience:

The primary audience for this course is as follows:
- Systems Architects
- Systems Engineers
- Systems Administrators
- Technical Decision Makers
- Channel Partners

Objectives:

- Upon completing this course, the learner will be able to meet these overall objectives:
- Understand, configure, and troubleshoot VXLAN with EVPN
- Understand, articulate, and operationalize Nexus Dashboard use cases and benefits
- Operate and configure Nexus Dashboard
- Install and operate Nexus Dashboard services
- Configure the Nexus Dashboard Fabric Controller (NDFC)
- Explore fabric telemetry with Nexus Dashboard Insights
- Explore Nexus Dashboard APIs

Prerequisites:

The knowledge and skills that a learner should have before attending this course are as follows:

- Familiarity with Cisco Ethernet switching products
- Understanding of routing protocols
- Understanding of Cisco data center architecture

Testing and Certification

- N/A

Follow-on-Courses:

- None Recommended

Content:

Course Outline

Module 1. VXLAN EVPN with MP-BGP

- Spine and Leaf Fabric
- VXLAN as an Overlay
- BGP, OSPF, and IS-IS
- BUM Traffic Replication
- EVPN MP-BGP
- Multicast Control Plane
- BGP Control Plane
- Distributed IP Anycast Gateway
- Forwarding with Dual-Homed Endpoints (vPC)
- Inter-Subnet Forwarding (Routing)
- Non-IP Forwarding (Bridging)
- Cisco VXLAN QoS Configuration
- Multitenancy
- External Fabrics
- Troubleshooting Commands

Module 2. Nexus Dashboard Overview

- Introduction to Cisco Nexus Dashboard
- Introduction to Nexus Dashboard Architecture
- Fabric Controller (NDFC) Service Overview
- Insights (NDI) Service Overview
- Orchestrator (NDO) Service Overview
- Nexus Dashboard Federation and Single Pane of Glass (SPOG)
- Nexus Dashboard Installation, Configuration, and Deployment
- Form Factors and Deployment Models
- Unified Operations Model in Release 4.2

Module 3. Nexus Dashboard Fabric Controller (NDFC)

- Introduction to NDFC
- DCNM Migration to Nexus Dashboard
- Cisco NDFC LAN Solution Overview

Module 4. Discovering Existing Network Devices with Cisco NDFC

- Brownfield Onboarding Workflow
- Capacity Planning and Compatibility
- Configure Switches for Discovery

Module 5. Nexus Dashboard Fabric Controller Templates

- NDFC Templates
- Configuration Changes with Templates

Module 6. Nexus Dashboard for Multi-Site

- NDFC Multi-Site Architecture
- Multi-Site Domain (MSD) for VXLAN BGP EVPN
- NDFC VRF Management

Build VXLAN bridging with a PIM multicast control plane and verify it with the CLI and packet captures.

Lab 3. Configure EVPN BGP with Unicast Forwarding

Replace the multicast control plane with MP-BGP EVPN and validate the EVPN routes.

Lab 4. Configure EVPN BGP with Multicast Routing

Combine EVPN BGP with a multicast underlay for BUM traffic and verify forwarding.

Lab 5. Configure EVPN BGP with Route Reflectors

Introduce a spine route reflector to scale EVPN BGP neighbor relationships.

Lab 6. Configuring VXLAN Routing

Add Layer 3 VXLAN routing for inter-subnet forwarding within a tenant.

Lab 7. Adding an External Router

Configure the BORDER device for external connectivity between pods through the IPN.

Lab 8. Troubleshoot VXLAN with EVPN and BGP in the CLI

Establish a baseline and isolate VXLAN EVPN faults using CLI tools.

Lab 9. Nexus Dashboard Admin Console

Navigate the Nexus Dashboard admin console and perform initial administration.

Lab 10. Introduction to Nexus Dashboard Fabric Controller (NDFC)

Lab 12. Nexus Dashboard Fabric Controller Templates

Verify the fabric deployment and apply configuration changes through NDFC templates.

Lab 13. Nexus Dashboard External Fabric with IOS XE

Use NDFC to deploy an external fabric on the Cisco IOS XE BORDER router.

Lab 14. NDFC Multi-Site Configuration with Multisite Domain (MSD) Template

Build a multi-site domain, configure 802.1Q trunks, and enable connectivity between fabrics.

Lab 15. Managing and Monitoring the Network Using NDFC

Use NDFC tools to verify fabric configuration and operational health.

Lab 16. Nexus Dashboard Role-Based Access Control (RBAC)

Configure and test role-based access control on Nexus Dashboard.

Lab 17. Nexus Dashboard and NDFC RESTful API

Practice REST API calls to Nexus Dashboard and NDFC using JSON payloads.

Lab 18. Python Programming to Nexus Dashboard and NDFC

Use an IDE and Python to automate Nexus Dashboard and NDFC tasks.

Lab 19. Nexus Dashboard Fabric Controller Challenge Configuration

Apply VXLAN and NDFC skills in an open

Module 7. Managing and Monitoring the Data Center with Cisco NDFC

- Access Topology View
- Navigate the Map Views and Layout
- Compute and Virtualization Visualizers (vCenter, Kubernetes, OpenStack)
- Deploy Changes to the Fabric

Module 8. Nexus Dashboard Insights

- Introduction to Nexus Dashboard Insights
- GUI Overview
- Insights Explorer
- Connectivity Analysis for NX-OS Fabrics
- Resource Browser and Bug and PSIRT Advisories
- Flow Telemetry
- Delta Analysis
- Firmware Update Analysis
- Licensing

Module 9. Nexus Dashboard Integrations

- Nexus Dashboard Ecosystem Architecture
- Nexus Dashboard API
- Splunk Integration
- AppDynamics (AppD) Integration
- ServiceNow Integration
- NDFC SAN

Module 10. Using Nexus Dashboard Programmatically

- From Intent to Automation
- RESTful API
- JSON
- REST API Tools
- Python Programming Fundamentals
- Python Programming with RESTful API to Nexus Dashboard

Module 11. Nexus Dashboard Troubleshooting

- NDFC Backup and Restore
- NDFC Alarms
- Fabric Troubleshooting Tools
- NDFC Command Execution

Lab Outline

Labs are designed to give learners a complete practical experience, through the following activities. The lab set follows the Managing LAN Networks with Cisco Nexus Dashboard lab guide.

Lab 0. Access the NterOne Lab Devices

Connect to the assigned student pod and confirm access to all lab devices.

Explore the NDFC interface and locate its core features.

Lab 11. NDFC Bootstrap New NX-OS Data Center Fabric

Deploy a new VXLAN EVPN fabric in the pod using NDFC.

configuration challenge.

Lab 20. Troubleshooting with VXLAN with EVPN and BGP

Troubleshoot VXLAN EVPN issues using the skills developed throughout the course.

Lab 1. Explore and Test the Nexus and Catalyst Lab Topology Examine the pod topology and run baseline NX-OS verification, checkpoints, and rollbacks. Lab 2. Configure NX-OS VXLAN with Multicast Control Plane Using CLI		

Further Information:

For More information, or to book your course, please call us on 00 971 4 446 4987

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