

## DCNML

# Managing LAN Infrastructure with Cisco Data Center Network Manager

24 horas

Data Center &amp; Cloud

Cisco

## INTRODUÇÃO

The course, Managing LAN Infrastructure with Cisco Data Center Network Manager (DCNML) enhances your knowledge of managing LAN Infrastructure with Cisco Data Center Network Manager (DCNM) implementing a spine-and-leaf network fabric using DCNM with Virtual Extensible LAN (VXLAN), Ethernet VPN (EVPN), and Border Gateway Protocol (BGP).

You will learn how the integration of spine-and-leaf network fabric with Cisco Data Center Network Manager increases overall data center infrastructure uptime and reliability, thereby improving business continuity.

It provides a robust framework and comprehensive feature set that meets the routing, switching, and storage administration needs of data centers.

Cisco DCNM streamlines the provisioning for the unified fabric and monitors the SAN (Storage area network) and LAN (Local area network) components.

This course will help you:

- Acquire the advanced skills and techniques to use spine-leaf topologies to provide better scalability and more seamless capacity and support for devices and lines;
- Gain the necessary skills to maximize the benefits of DCNM by integrating automation, and greater visibility into network infrastructure and elimination of configuration errors with templated deployment models.

## OBJETIVO DO CURSO

After taking this course, you should be able to:

- Describe the components and functionality of DCNM;
- Describe the software define network protocols of VXLAN, eVPN and BGP;
- Deploy a DCNM environment in high-availability environment;
- Operate the DCNM discovery process to acquire management of all devices;
- List high lever navigation features of DCNM and utilize the DCNM GUI (Graphical User Interface) to optimize data center topologies;
- Manage and monitor data center LAN fabric from DCNM;
- Program RESTful APIs native to DCNM to perform any network management task;
- Troubleshoot and monitor the network using DCNM troubleshooting tools;
- Describe the benefits of DCNM Network Insights.

## **PÚBLICO-ALVO**

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This course is ideal for the following professionals:

- Data Network Engineers and Administrators
- Data Center Technical Managers

## **PRÉ-REQUISITOS**

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Before enrolling in this course, you should have knowledge in the following areas:

- Understanding of Cisco routing and switching in a data center;
- CCNA certification recommended;
- Fundamentals of network management.

## Course Introduction

Course Outline

Course Goals & Objectives

## Introducing Cisco DCNM LAN

Cisco DCNM Introduction

Cisco DCNM LAN Solution Overview

Cisco DCNM LAN Features

End-to-End Visibility with Cisco DCNM

Cisco DCNM Simplified Configuration and Provisioning

Monitor Resources and Manage Events and Alarms

## Deploying VXLAN EVPN with Cisco DCNM LAN

Describe the software define network protocols of VXLAN, EVPN and BGP

VXLAN Overlays and Underlays

Easy Fabric VXLAN EVPN Underlay Model

Configuration Policy and How It Is Used

Configuration Compliance in Cisco DCNM

Cisco DCNM to deploy Easy Fabric Virtual Port Channels

Easy Fabric Save and Deploy Diffs and Configuration Troubleshooting

## Deploying Cisco DCNM

Cisco DCNM High Availability

Deployment Options Upon Installation

Cisco DCNM Installation Requirements

Install Cisco DCNM

Verify the Installation

Cisco DCNM Server Cluster

Manage Cisco DCNM Licensing

Supported Upgrade Path

POAP Preprovisioning

## Discovering Existing Network Devices with Cisco DCNM

Operate the DCNM Discovery Process to Acquire Management of All Devices

Configure Switches for Discovery

## Exploring the Data Center with Cisco DCNM Topology

Utilize DCNM GUI to Optimize Data Center Topologies

Access Topology View in the GUI

Navigate the Map Views and Layouts

Use the Topology Toolbar Search Function

Access Other Topology Features

## Managing and Monitoring the Data Center with Cisco DCNM LAN

Manage and Monitor Data Center LAN fabric from DCNM

Manage the Configuration Archive

Deploy Changes to the Fabric

Enable Freeform Configurations on Fabric Switches

Cisco DCNM Fabric Builder VXLAN-EVPN Fabrics

- Cisco DCNM MSD Fabric Creation
- Deploy EBGPeering Session from Fabric
- Cisco DCNM Templates Library
- Modify and Create New Cisco DCNM Templates
- Border Gateway Setup as Part of MSD
- Back Up and Restore Fabric Configurations
- Create Programmable Reports for Auditing
- Software Upgrades and Downgrades
- Cisco DCNM Snapshots
- Set Up Alarms and Alerts and Monitor Device and Fabric Health

### **Automating Cisco DCNM Programmatically**

- Program RESTful APIs Native to DCNM to Perform Any Network Management Task
- Explore APIs for the Network
- REST API Tool
- REST, JSON, and Postman
- Cisco DCNM REST APIs for Automation

### **Troubleshooting and Monitoring Cisco DCNM**

- Troubleshoot and Monitor the Network Using DCNM Troubleshooting Tools
- Troubleshoot and Monitor Cisco DCNM

### **Describing Network Insights**

- Describe the Benefits of DCNM Network Insights
- Network Insights Advisor
- Network Insights Resource Analysis

### **Lab outline**

#### **Lab 1: Access the Lab Devices**

- Access lab environment and test connection to all lab devices/Topology
- Task 1: Connect to Your Assigned Student Pod
- Task 2: Conditional: Remote Desktop Connection

#### **Lab 2: Explore and Test DCNM Lab Topology**

- Validate Basic Configuration of Spine-and-Leaf Topology
- Task 1: Initial Leaf1 Configuration
- Task 2: Initial Spine Configuration
- Task 3: Initial Leaf2 Configuration
- Task 4: Wireshark Packet Decodes in Your Pod
- Task 5: NX-OS Checkpoints and Rollbacks

#### **Lab 3: Configure NX-OS VXLAN with BGP Control Plane Using CLI**

- Configure Spine-and-Leaf Network: VXLAN, OSPF, and EVPN EBGPeering using CLI
- Task 1: Configure VXLAN with a BGP Control Plane
- Task 2: Configure Leaf1 for VXLAN and OSPF
- Task 3: Configure Leaf2 for VXLAN and OSPF
- Task 4: Enable OSPF on the Spine Router
- Task 5: Configure EVPN BGP Without Route Reflectors for VXLAN Control Plane
- Task 6: Verify EVPN BGP Without Route Reflectors for VXLAN Control Plane

#### **Lab 4: Configure and Execute DCNM POAP**

Task 1: Verify Cisco NX-OS Serial Numbers

Task 2: Explore the DCNM Web Interface

Task 3: Configure DCNM POAP

#### **Lab 5: Managing the Network Using DCNM**

Perform Network Configuration Changes on Leaf-and-Spine Network Using Cisco DCNM

Task 1: Explore the DCNM Inventory

Task 2: Configure Access Port with DCNM

Task 3: Configure a Routed Port with DCNM

Task 4: Configure a Trunk Port with DCNM

Task 5: Configure DCNM Challenge Task

Task 6: Enable Performance Collection

Task 7: Explore the Topology View

#### **Lab 6: Managing the Data Center Using DCNM Templates**

Perform Network Configuration Changes on Spine-and-Leaf Nexus Devices using Templates

Task 1: Explore the Template Library

Task 2: Deploy Show Templates

Task 3: Inspect Result of Easy Fabric Template Deployment

Task 4: Deploy DCNM Templates to Change Configurations on Leaf1

Task 5: Deploy Templates to Change Configurations on Leaf2 from DCNM

Task 6: Verify Full VXLAN EVPN BGP Functionality

#### **Lab 7: Troubleshooting VXLAN with DCNM**

Troubleshoot a VXLAN with BGP and Route Reflectors with a New Configuration

Task 1: Troubleshoot VXLAN in DCNM