

Introducing Cisco Nexus 9000 Switches in NX-OS Mode (DCINX9K) v2.0

Course Description

The Introducing Cisco Nexus 9000 Switches in NX-OS Mode (DCINX9K) v2.0 course shows you how to implement, manage, and troubleshoot Cisco Nexus 9000 Series Switches in Cisco NX-OS mode. Through expert instruction and extensive hands-on learning, you will learn how to deploy capabilities including Virtual Extensible LAN (VXLAN), Multiprotocol Label Switching (MPLS), high availability features, Intelligent Traffic Director, troubleshooting tools and techniques, NX-OS programmability features, and open interface technologies. The course also provides an introduction to Cisco Data Center Network Manager (DCNM) for management.

Course Prerequisites

It is recommended, but not required, to have the following skills and knowledge before attending this course:

- Good understanding of networking protocols, routing, and switching
- Understanding of Cisco data center architecture
- Experience configuring advanced routing and switching technologies such as Border Gateway Protocol (BGP) and Open Shortest Path First (OSPF)

These Cisco courses can help you meet these prerequisites:

- Introducing Cisco Data Center Networking (DCICN)
- Introducing Cisco Data Center Technologies (DCICT)
- Implementing Cisco IP Routing (ROUTE)
- Implementing Cisco IP Switched Networks (SWITCH)

Course Objectives

Upon completion of this course, you will be able to:

- Describe Cisco Nexus 9000 Series Switch software and hardware components
- Describe key Cisco Nexus 9000 Series Switch NX-OS software features
- Manage Cisco Nexus 9000 Series Switch configurations using Ansible
- Implement VXLAN BGP eVPN on Cisco Nexus 9000 Series Switches
- Describe MPLS Layer 3 VPN implementation on Cisco Nexus 9000 Series Switches
- Manage Cisco Nexus 9000 Series Switches using NX-API and Python
- Implement Intelligent Traffic Director
- Troubleshoot and manage Cisco Nexus 9000 Series Switches using Bash shell and Guest shell
- Manage Cisco Nexus 9000 Series Switches using Cisco DCNM

Course Benefits

This course will help you to:

Learn how to deploy and troubleshoot the Cisco Nexus 9000 Series Switches in NX-OS mode to support performance, resiliency, scalability, and enhanced operations for data centers

- Use programmability features to configure and manage the Cisco Nexus 9000 Series Switches, helping your IT organization meet high-priority business needs, save time, and reduce errors due to manual processes
- Gain knowledge and skills through Cisco's unique combination of lessons and hands-on practice using enterprise-grade Cisco learning technologies, data center equipment, and software
- Succeed in today's demanding data center operations roles

Job Roles

Data Center Engineers

- Data Center Architects
- Network Designers
- Network Administrators
- Network Engineers
- Systems Engineers
- Consulting Systems Engineers
- Technical Solutions Architects
- Field Engineers
- Cisco Integrators and Partners

Course Outline

Section 1: Describing Cisco Nexus 9000 NX-OS Solution

- Section 2: Implementing VXLAN in Data Center
- Section 3: Implementing MPLS in Data Center
- Section 4: Configuration Management, Automation, and Programmability
- Section 5: Cisco Nexus 9000 Topology Options
- Section 6: Troubleshooting Cisco Nexus 9000 Switches
- Section 7: Managing Cisco Nexus 9000 Switches with Cisco DCNM

Lab Outline

Discovery 1: Provision Baseline Connectivity with Ansible

- Discovery 2: Implement VXLAN with BGP eVPN Signaling
- Discovery 3: Manage Switch Over Cisco NX-API
- Discovery 4: Program Switch with Python
- Discovery 5: Configure Intelligent Traffic Director
- Discovery 6: Troubleshoot and Manage Switches Using Bash and Guest Shell
- Discovery 7: Provision VXLAN and Manage Switch with Cisco DCNM

Course Delta Information (if applicable)

This content was expanded from a 2-day (v1.0) to a 3-day (v2.0) course. The entire course was updated, and descriptions of the new Cisco Nexus 9000 Series Switch hardware components and platforms were added.

This table provides a high-level summary of how the content was converted.

v1.0 (Previous)	v2.0 (Updated)	Changes and Reasons
Lesson 1	Section 1 Topic 1	Previous lesson length was twice shortened. ACI- and SDN-related information is updated. General information about the Cisco Nexus 9000 Series Switches moved to Section 1 Topic 2.
Lesson 2	Section 1 Topic 2	Previous lesson length was twice shortened. Topic updated with new hardware information. Explanation of the naming convention for the Cisco Nexus 9000 Series Switches hardware components are added. Description of support for fabric extenders, cabling and optics are removed.
Lesson 3	Section 1 Topic 3	Previous lesson length was four times shortened. Detailed description of the fabric module and line card data plane for different Cisco Nexus 9000 platforms is removed.
Lesson 4	Section 1 Topic 4	Previous lesson length was twice shortened. HA subtopic moved to the... Management features subtopic moved to the separate Topic 5 (Section 1). VXLAN subtopic moved to the separate Section
Lesson 4	Section 1 Topic 5	Management features overview. Main content moved to the Section
	Section 1 Topic 6	Description of the latest NX-OS features (FCoE, interface features, L2, L3, VXLAN, MPLS, multicast, security, QoS, etc.)
Lesson 5	Section 2 Topics 1-4	Added overlay protocols comparison. Detailed description of the principles of VXLAN BGP eVPN control plane is added. Subtopic about VXLAN support on the Cisco Nexus 9000 is removed.
	Section 3 Topics 1-4	Section about implementing MPLS protocol in the Data Center is added. It covers the topics: Label switching overview, MPLS layer 3 VPN control plane, MPLS data plane, Special connectivity in MPLS layer 3 VPNs.
Lesson 6	Section 4 Topic 1	Added comparison of XML and JSON. Topics related to Python are moved to Section 4 Topic 4, topics related to NX-API are moved to Section 4 Topic 2. Description of bash, guest and Broadcom shell is moved to Section 6 Topic 2.
Lesson 6	Section 4 Topic 2	Description of NX-API and sandbox functionality.
Lesson 6	Section 4 Topic 3	Description of XMPP on the Cisco Nexus 9000 is removed. Description of work with

v1.0 (Previous)	v2.0 (Updated)	Changes and Reasons
		Ansible and Puppet was added.
Lesson 6	Section 4 Topic 4	Description of programming Cisco NX-OS with Python.
Lesson 7	Section 5 Topics 1-3	Updated content. Removed description of DFA.
Lesson 8		Description of the Cisco ACI Fabric was removed from the course.
Lesson 4	Section 6 Topic 1	Description of HA features on the Cisco Nexus 9000.
Lesson 6	Section 6 Topic 2	Description of shell access methods.
	Section 6	Updated Cisco ACI migration options; Section extended to include information about Cisco ACI extensions and interconnections possibilities, such as stretched fabric, GOLF, multi-pod, multi-site deployments
	Section 7	New section about managing the switches with Cisco DCNM

