DCNX9K

Why Firefly

Firefly has developed this course in close collaboration with the Cisco development teams that have delivered the Nexus 9000 series. We are privileged to have the unique capability to deliver the best learning experience for students on this new platform.

Course Description

Configuring Cisco Nexus 9000 Switches in NX-OS Mode is a two-day hands-on course that covers the Cisco Nexus 9000 next-generation switches. Nexus 9000 switches are highly programmable, high density 1/10/40G Ethernet switches that offer highest performance, extensibility to 100GE switching, lowest cost per port and extremely high flexibility and programmability for next generation automation and orchestration. Nexus 9000 switches build on existing NX-OS technology to bring two new data center network deployment options for customers.

This course focuses on the first deployment option, known as Standalone Mode. This mode offers significant extensions to NX-OS in the area of programmability, including:

- A RESTful API, Python scripting, Linux BASH access, and direct ASIC-level access for traffic flow monitoring
- Support for open-systems automation and orchestration DevOps platforms, including Puppet, Chef, and Cisco’s own onePK
- Support for software-defined networking (SDN) and emerging overlay network technologies, including VxLAN, OpenFlow, and the OpenDaylight controller.

The course and the hands-on labs focus on the hardware architecture of the Nexus 9000 and the new programmability features and interfaces that have been added to NX-OS. Prior knowledge of NX-OS and the Nexus 5000, 6000, or 7000 platforms is highly recommended.

Who Should Attend

This course is a technical training designed for systems engineers, network engineers and architects, and Data Center architects who will be designing, implementing, and managing Data Center networks utilizing the Cisco Nexus 9000.

Prerequisites

- Experience with Cisco NX-OS
- Understanding of Cisco Data Center network architecture

Learning Objectives

- Discuss Cisco products that address market trends in the data center
- Discuss the details of the Nexus 9000 hardware
- Discuss the details of the Nexus 9000 architecture to include Nexus 9500, 9300, line card architecture and packet forwarding
- Discuss Enhanced NXOS features available on the Nexus 9000 switches
- Discuss the operation and configuration details of VxLAN
- Discuss the programmability, automation, and visibility options available on the Nexus 9000 switches
- Discuss design possibilities with the Nexus 9000 switches
Lesson 1: Cisco 9000 Solution Overview
Data Center Trends
Nexus 9000 Overview
Introduction to Enhanced NXOS

Lesson 2: Nexus 9000 Hardware
9500 Chassis
Line Card Modules
Supervisors
Fabric Modules
Power Supplies
System Controllers
9300 Switches
FEX Support
40G and 100GE Networking
Supported Optics

Lesson 3: Hardware Architecture
9500 Architecture
Line Card Architecture
9300 Architecture
Packet Forwarding

Lesson 4: Enhanced NXOS
Enhanced NXOS Feature Overview
High Availability
Management

Lesson 5: VXLAN
Introduction to Overlay
VxLAN Overview
VxLAN Control Plane
VxLAN Forwarding Plane
Configuring VXLAN

Lesson 6: Programmability and Automation
Programming Features
Automation Features
Visibility and Monitoring Features

Lesson 7: Nexus 9000 Topology Designs
Traditional Data Center Topologies
Spine and Leaf Topologies
Overlay Topologies

Labs
Lab 1: Cisco Nexus 9300 Configuration Baseline
Lab 2: Cisco Nexus 9300 VXLAN Implementation
Lab 3: Cisco Nexus 9300 NX-API and Postman
Lab 4: Cisco Nexus 9300 Python Scripts (Local)
Lab 5: Cisco Nexus 9300 Python Scripts (Remote)
Lab 6: Cisco Nexus 9300 Python Scripts (Web)