ProTech Professional Technical Services, Inc.

Configuring Cisco Nexus 9000 Switches in NX-OS Mode (DCINX9K)

Course Summary

Description

Implementing the Cisco Nexus 9000 (DCINX9K) is a 2-day, hands-on course that focuses on deployment and operations of the Cisco Nexus 9000 Series switches. Participants will learn how to configure and manage Cisco Nexus 9000 Series switches using the NX-OS CLI, Python scripts, bash shell, NX-API, and Open-Flow. 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 Software in the area of programmability, including:
A RESTful API, Python scripting, Linux bash access, 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.

Objectives

After taking this course, students will be able to:

- Describe Cisco products that address market trends in the data center
- Describe Cisco Nexus 9000 Series Switch hardware components
- Describe the hardware architecture of modular chassis, modular chassis line cards, and fixed configuration in the Cisco Nexus 9000 Series Switch
- Describe features offered in NX-OS that are available on the Cisco Nexus 9000 Series Switches
- Configure VXLAN features on Cisco Nexus 9000 Series Switches
- Describe the programmability, automation, and management features available on Cisco Nexus 9000 Series Switches Describe common topology options for configuring Cisco Nexus 9000 Series Switches
- Describe the benefits of adopting Cisco Application Centric Infrastructure (ACI) fabric mode on Cisco Nexus 9000 Series Switches

Topics

- Course Introduction
- Describing the Cisco Nexus 9000 Solution
- Describing Cisco Nexus 9000 Series Hardware
- Describing Cisco Nexus 9000 Series Hardware Architecture
- Describing Cisco Nexus Operating System
- Describing VXLAN on Cisco Nexus 9000 Series Switches
- Describing Network Programmability and Automation
- Describing Topology Options for Cisco Nexus 9000 Series Switches
- Describing the Cisco ACI Fabric

Audience

DCINX9K is a two-day, instructor-led training program that is designed for systems and field engineers who install and implement the Cisco Nexus 9000 Switches in NX-OS mode. This course covers the key components and procedures you need to know to install, configure, manage, and troubleshoot the Cisco Nexus 9000 Switch platform.

Prerequisites

Before taking this course, students should have experience with Cisco NX-OS Software, and an understanding of Cisco Data Center network architecture.

Duration

Three days

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Course Outline

I. *Course Introduction*

II. *Describing the Cisco Nexus 9000 Solution*
   A. Data Center Trends
   B. Cisco Nexus 9000 Solution
   C. Enhancements to Cisco NX-OS Software

III. *Describing Cisco Nexus 9000 Series Hardware*
   A. Cisco Nexus 9500 Modular Chassis
   B. Cisco Nexus 9500 Supervisor Modules
   C. Cisco Nexus 9500 System Controllers
   D. Cisco Nexus 9500 Fans and Power Supplies
   E. Cisco Nexus 9500 Fabric Modules
   F. Cisco Nexus 9500 Line Card Modules
   G. Cisco Nexus 9300 Fixed Configuration Switches
   H. Cisco Nexus 9000 Support for Fabric Extenders
   I. Cabling for 40G and 100GE Networking
   J. Optics Supported by Cisco Nexus 9000 Series Switches

IV. *Describing Cisco Nexus 9000 Series Hardware Architecture*
   A. Architecture of the Cisco Nexus 9500 Modular Switches
   B. Architecture of the Cisco Nexus 9500 Card Modules
   C. Packet Forwarding in the Cisco Nexus 9000 Series Switches
   D. Architecture of the Cisco Nexus 9300 Switches

V. *Describing Cisco Nexus Operating System*
   A. NX-OS Features of Cisco Nexus 9000 Series Switches
   B. High-Availability Features of Cisco Nexus 9000 Series Switches
   C. Management Features of the Cisco Nexus 9000 Switch Family

VI. *Describing VXLAN on Cisco Nexus 9000 Series Switches*
   A. Network Overlays in Data Center Design
   B. VxLAN Overview
   C. VxLAN Control Plane Operation
   D. VxLAN Data Plane Operation
   E. VxLAN Support on the Cisco Nexus 9000
   F. Configuring VxLAN Gateway

VII. *Describing Network Programmability and Automation*
   A. Describe Programming Features of the Cisco Nexus 9000 Series Switches
   B. Automation Features on the Cisco Nexus 9000 Series Switches
   C. Monitoring Features on the Cisco Nexus 9000 Series Switches

VIII. *Describing Topology Options for Cisco Nexus 9000 Series Switches*
   A. Traditional Data Center Topologies on the Cisco Nexus 9000 Series Switches
   B. Spine and Leaf Topologies on the Cisco Nexus 9000 Series Switches
   C. Overlay Topologies on the Cisco Nexus 9000 Series Switches

IX. *Describing the Cisco ACI Fabric*
   A. Key Concepts of the Cisco ACI Fabric
   B. Components of Cisco ACI Fabric
   C. The Benefits of Using the Cisco ACI Fabric

Labs
   - Lab 1: Preparing the Cisco Nexus 9300 Series Switch Configuration Baseline
   - Lab 2: Implementing VXLAN Bridging on the Cisco Nexus 9300 Series Switch
   - Lab 3: Using Cisco Nexus 9300 Series Switch NX-API and Postman
   - Lab 4: Using NX-API to Remotely Monitor the Switch
   - Lab 5: Using Cisco Nexus 9300 Series Switch Python Scripts