



# Implementing and Configuring the Cisco Nexus 7000

# ICNX7

**Length**

3 days

**Format**

Lecture/lab

**Track**

Design & Deploy

**Version**

1.5

**Course Description**

In this 3-day course, you will learn how to implement an enterprise Data Center network infrastructure with the Nexus 7000 platform. This course provides a technical overview of the Nexus platform architecture, deployment and operations, including Virtual Device Contexts (VDCs), Layer 2 and Layer 3 features, Virtual Port Channels, Overlay Transport Virtualization, Quality of Service, security, and troubleshooting.

In the lab, you will explore the features of NX-OS and the Nexus platform by configuring VDCs, Layer 2 and 3 protocols, QoS, and security.

This version of the course is a significant update that includes new topics on site preparation, VDC design guidelines, Overlay Transport Virtualization (OTV), EPLD image management, hardware rate limiting, troubleshooting, and numerous other enhancements.

**Who Should Attend**

This course is designed for experienced Network Field Engineers who are already capable of implementing Layer 2 and Layer 3 services using Cisco IOS and the Cisco Catalyst switching platform.

**Recommended Prerequisites**

You will gain the most from this course if you have a basic understanding of the following topics:

- Strong knowledge of Layer 2 switching and Layer 3 routing protocols
- Experience with Cisco IOS platforms

**Related Training**

- Implementing and Configuring the Cisco Nexus 5000 and 7000 (ICNX5+7)
- Implementing and Configuring the Cisco Nexus 5000 (ICNX5)
- Implementing and Configuring the Cisco Nexus 1000V (ICNX1V)

**Learning Objectives**

After completing this course, you will be able to:

- Describe the features of the Nexus 7010 chassis, Supervisor Engine, and line cards
- Describe the architecture of NX-OS
- Describe the Connectivity Management Processor
- Configure switch management features like Call Home, logging, AAA, and RBAC
- Use configuration checkpoints and rollbacks
- Configure Layer 2 and Layer 3 services
- Configure Virtual Device Contexts
- Configure Overlay Transport Protocol
- Configure NX-OS Process Recovery
- Configure NX-OS Supervisor Redundancy
- Configure Virtual Port-Channel
- Configure Quality of Service
- Configure traffic integrity features and Control Plane Protection
- Configure access and admission control
- Configure Hardware Rate Limiting
- Use SPAN and Ethalyzer to monitor traffic



Learning Solutions



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## Course Outline

### **Lesson 1: Overview of the Nexus 7000**

Cisco Nexus 7000 Series Chassis Overview  
Supervisor Engine and Line Cards  
Fabric Modules  
Virtual Output Queuing Overview  
VoQ Operation  
Power Supplies and Cooling  
Connectivity Management Processor  
Site Preparation

### **Lab 1: The Nexus 7000 Hardware Platform**

### **Lesson 2: Overview of NX-OS**

Introducing NX-OS  
NX-OS Process Recovery  
NX-OS Supervisor Redundancy  
ISSU

### **Lesson 3: Introduction to Virtual Device Contexts**

Introducing Virtualization  
VDC Design  
VDC Configuration  
High Availability

### **Lesson 4: Managing the Nexus 7000**

SNMP and XML  
Generic OnLine Diagnosis  
Embedded Event Manager  
SMART Call Home  
Data Center Network Manager  
System Message Logging  
AAA  
Role-Based Access Control  
Configuration Rollback

### **Lab 2: Managing System Configuration**

### **Lesson 5: Layer 2 Protocols and Features**

Nexus 7000/NX-OS Layer 2 Overview  
VLANs and PVLANs  
Spanning-Tree Protocols  
Port-Channels  
Virtual Port-Channel (vPC)  
IGMP Snooping  
Unidirectional Link Detection  
Overlay Transport Protocol (OTV)

### **Lab 3: Layer 2 Switching**

### **Lesson 6: Layer 3 Protocols and Features**

Layer 3 Unicast Routing Overview  
First-Hop Routing Protocols  
Object Tracking  
Routing Virtualization  
Routing Protocols  
Policy Routing  
Tunnels  
Layer 3 Multicast

### **Lab 4: First Hop Redundancy Protocols**

### **Lab 5: Configuring Routing Protocols**

### **Lab 6: VDC and VRF Interoperation**

### **Lesson 7: Quality of Service**

Nexus 7000 Series QoS Overview  
Port QoS  
Forwarding Engine QoS  
Modular QoS CLI Overview  
Table Maps  
Class Map  
Policy Map  
Service Policy

### **Lab 7: QoS on the Nexus 7000**

### **Lesson 8: Security**

Introduction to Nexus/NX-OS Security  
Traffic Integrity  
Storm Control  
Control Plane Protection  
Hardware Rate Limiting  
Access Control  
Admission Control  
Data Confidentiality

### **Lab 8: Security**

### **Lesson 9: Troubleshooting**

Ethanalalyzer: Wireshark in NX-OS  
SPAN and RSPAN  
Troubleshooting Checklist

### **Lab 9: Troubleshooting the Nexus Control Plane**



Learning Solutions