Cisco Data Center Networking Infrastructure-1

Length
5 days

Format
Lecture/lab

Track
DCNI Support Specialist

Version
2.0

DCNI-1

Course Description

Cisco Data Center Networking Infrastructure-1 (DCNI-1) is a 5-day hands-on training that teaches you how to implement an enterprise Data Center routing and switching infrastructure with Cisco Catalyst 6500 and 4900 platforms.

This course covers a wide range of advanced features, focusing on the Catalyst 6500 platform. Topics covered include Virtual Switch Services (VSS), IOS Software Modularity, advanced QoS, the Embedded Event Manager (EEM) and other automated diagnostics tools. You will also learn how to deploy integrated security and network management services with the Catalyst 6500 Series Firewall Services Module (FWSM) and Network Analysis Module (NAM). Lastly, you will learn how to configure the Catalyst 6500 and 4900 for high availability.

Who Should Attend

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

Recommended Prerequisites

- CCNP, CCIE Routing & Switching, or CCIE Service Provider certifications, or equivalent knowledge and experience

Learning Objectives

After completing this course, you will be able to:

- Identify the Catalyst 6500, 4900, and Blade Switch hardware options
- Describe Data Center network architecture
- Configure Catalyst 6500 advanced features, including Virtual Switch Services (VSS)
- Implement firewall services using the Catalyst 6500 Firewall Services Module (FWSM)
- Configure and use the Catalyst 6500 Network Analysis Module (NAM) to monitor network traffic
- Deploy Catalyst 6500 high availability features, including supervisor redundancy

Related Training

- Implementing a Cisco Data Center Networking Infrastructure with the Cisco Nexus Platform (DCNI-2)
- Cisco Data Center Networking Infrastructure Design (DCNI-D)

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Course Outline

Module 1: Implementing the Cisco Catalyst 6500 and 4900 Series

Lesson 1: Data Center Architecture Overview
Data Center Evolution
The Enterprise Composite Network Model
The Data Center Network Architecture

Lesson 2: Catalyst 6500 and 4900 Series Switches
Introduction to Cisco Catalyst 4900 Family Switches
Cisco Catalyst 4900 Family Switch Architecture
Introduction to Cisco Catalyst 6500 Family Switches
Positioning Cisco Catalyst 4900 and 6500 in the Data Center

Lesson 3: Catalyst 6500 Switch Supervisors
Supervisor Architecture Overview
Supervisor 720 with PFC3A/B/BXL
Supervisor 720-10G-3C/CXL
Supervisor 32
Supervisor Operating System

Lesson 4: Switch Module and Power Supply Options
Line Cards Overview
Line Cards Architecture
Line Cards Design Considerations
Deploying Line Cards
Service Modules Overview
Power Supplies

Lesson 5: Implementing VSS
VSS 1440 Overview
VSS 1440 Architecture
VSS 1440 Operation
Deploying VSS 1440
Configuring VSS 1440

Lesson 6: IOS Software Modularity
Modular IOS Overview
Implementing IOS Software Modularity
Using IOS Software Modularity

Lesson 7: Implementing NetFlow
NetFlow and NDE Overview
Configuring NetFlow and NDE Overview

Lesson 8: Implementing QoS
Cisco Catalyst 6500 Series Switch QoS Overview
Ingress QoS Processing
Ingress QoS Policing
Egress QoS Policing
Port- vs. VLAN-Based QoS
Modular QoS CLI
VSS 1440 and QoS
Configuring QoS
Control Plane Policing and CPU Rate Limiting

Lesson 9: Implementing EEM
EEM Overview
Configuring EEM

Lesson 10: Utilizing Automated Diagnostics
Automated Diagnostic Overview
Using Diagnostic for Troubleshooting

Lesson 11: Implementing SPAN, RSPAN, and ERSPAN
SPAN Overview
Configuring SPAN
RSPAN Overview
Configuring RSPAN
ERSPAN Overview
Configuring ERSPAN

Lesson 12: Cisco Blade Switches
Cisco Blade Switches
Blade Switch for HP Blade Servers
Blade Switches for Dell Blade Servers
Blade Switches for FCS Blade Servers

Lab: Deploying and Examining the VSS 1440 Operation
Demonstration: Deploying and Examining IOS Software Modularity
Lab: Deploying QoS
Lab: Deploying and Examining EEM
Lab: Deploying Automated Diagnostics
Lab: Deploying SPAN

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Course Outline

Module 2: Implementing FWSM for a Data Center Network Infrastructure

Lesson 1: Implementing Traffic Flows
Firewall Overview
FWSM Overview
FWSM Initial Configuration
Firewall Modes
Configuring the Translation

Lesson 2: Implementing Management Access
Configuring Management Access
Configuring AAA Services

Lesson 3: Implementing ACLs
Configuring Layer 2 Filtering
Configuring ACLs

Lesson 4: Implementing Contexts
FWSM Virtualization Overview
Configuring FWSM Contexts
Managing Context Resources

Lesson 5: Implementing Routing
Configuring Static Routing
Configuring Dynamic Routing

Lesson 6: Implementing Failover
Failover Overview
Failover Operation
Configuring Failover

Lesson 7: Implementing Deep Packet Inspection
Deep Packet Inspection Overview
URL Filtering Overview

Lab: Deploying the FWSM in Transparent Mode
Lab: Deploying Multiple Contexts on FWSM
Lab: Deploying the FWSM in Routing Mode
Lab: Deploying the FWSM Failover

Module 3: Implementing Network Analysis with NAM

Lesson 1: Introducing the NAM
Network Traffic Monitoring Overview
NAM Service Module
NAM Data Sources
Plan for NAM Deployment

Lesson 2: Initial Configuration
NAM Installation
NAM Initial Configuration

Lesson 3: Monitoring, Viewing, and Saving Data
Scenario 1: Live Network Monitoring and Analysis
Action 1: Port Monitoring
Action 2: Detailed Port Monitoring
Action 3: Using NDE with NAM
Scenario 2: Response Time Monitoring
Scenario 3: URL Monitoring
Scenario 4: Troubleshooting
Action 1: Thresholds and Alarms
Action 2: Trigger Packet Captures

Lesson 4: NAM Maintenance
NAM Software Upgrade
NAM Troubleshooting

Lab: Deploying Initial NAM Configuration
Lab: Deploying Collection Mechanisms

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Course Outline

Module 4: Implementing High Availability Data Center Features

Lesson 1: Implementing High Availability Features
First-Hop High Availability Overview
HSRP Overview
Configuring HSRP
VRRP Overview
Configuring VRRP
GLBP Overview
Configuring GLBP

Lesson 2: Implementing Stateful Switchover
Supervisor Redundancy Overview
Using RPR and RPR+
SSO Overview

Lesson 3: Implementing Non-Stop Forwarding
Cisco Catalyst 6500 Series Switch SSO with NSF

Lab: Deploying High Availability