



Optimizing Converged Cisco Networks

Length
5 days

Format
Lecture/lab

Track
CCNP

Version
1.0

Course Description

As converged networks and mobility become more and more important in daily business, these technologies need to be optimized in order to support business requirements. This course covers the role of the underlying IP network in supporting voice-over-IP and wireless LAN solutions, focusing on the use of QoS and security techniques. You will work on case studies and several labs based on Cisco Integrated Services Routers (ISR).

Who Should Attend

This course provides in-depth technical training for system engineers, network engineers, and field engineers who need to design, deploy, configure, and manage Cisco IOS routes and switches.

Recommended Prerequisites

- CCNA certification or equivalent knowledge and experience
- Ability to complete the initial configuration of a Cisco IOS switch or router
- Ability to create interswitch connections and run show commands
- Basic knowledge of routing protocols
- Basic knowledge of WAN technologies (Frame Relay, PPP, and HDLC)
- Basic knowledge of standard and extended ACLs

Related Training

- BCMSN
- BCSI
- ICSW

ONT

Learning Objectives

After you complete this course, you will be able to:

- Describe requirements for converged networks with a focus on performance and wireless security
- Describe Cisco VoIP implementations
- Describe methods for implementing QoS on a converged network
- Explain the key IP QoS mechanisms used to implement the DiffServ QoS model
- Configure Cisco AutoQoS for the Enterprise
- Describe and configure wireless security, and basic wireless management





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Course Outline

Module 1: Describe Network Requirements

Describing Network Requirements

Module 2: Describe Cisco VoIP Implementations

Introducing VoIP Networks
Digitizing and Packetizing Voice
Encapsulating Voice Packets for Transport
Calculating Bandwidth Requirements
Implementing Voice Support in an Enterprise Network

Module 3: Introduction to IP QoS

Introducing QoS
Identifying Models for Implementing QoS
Identifying Methods for Implementing QoS

Module 4: Implement the DiffServ QoS Model

Classification and Marking
Using NBAR for Classification
Queuing Implementations
Configuring WFQ
Configuring CBWFQ and LLQ
Congestion Avoidance
Traffic Policing and Shaping
WAN Link Efficiency Mechanisms
Implementing QoS Preclassify
Deploying End-to-End QoS

Module 5: Implement Cisco AutoQoS

Introducing Cisco AutoQoS
Mitigating Common Cisco AutoQoS Issues

Module 6: Implement Wireless Scalability

Implementing WLAN QoS
Introducing 802.1x
Configuring Encryption and Authentication on Lightweight Access Points
Managing WLANs

Course Labs

Lab 2-1: Setting Up and Initializing the ONT Lab
Lab 2-2: Placing and Examining VoIP Calls
Case Study 3-1: Selecting a Converged Network Strategy
Lab 3-2: Introducing MQC and the SDM QoS Wizard
Lab 4-1: Configuring NBAR
Lab 4-2: Configuring FIFO and WFQ Queuing Mechanisms
Lab 4-3: Configuring the LLQ Queuing Mechanism
Lab 4-4: Configuring Class-Based Header Compression
Lab 4-5: Configuring LFI
Lab 4-6: Configuring QoS Preclassify
Lab 5-1: Configuring QoS with Cisco AutoQoS
Lab 5-2: Using MQC to Tune QoS Mechanisms Configured with Cisco AutoQoS
Lab 5-3: Troubleshooting Converged Networks
Lab 6-1: Setting Up the Wireless LAN Controller
Lab 6-2: Configuring Security Using WPA-PSK
Lab 6-3: Configuring Advanced Security Using LEAP
Lab 6-4: Configuring Cisco WCS for WLANs



Learning Solutions