Implementing Cisco Quality of Service

Duration: 5 Days   **Course Code: QOS**   **Version: 3.0**

Overview:

The Implementing Cisco Quality of Service (QOS) course provides learners with an in-depth knowledge of QoS requirements, conceptual models such as best effort, IntServ, and DiffServ, and the implementation of QoS on Cisco platforms. The curriculum covers the theory of QoS, design issues, and configuration of various QoS mechanisms to facilitate the creation of effective administrative policies providing QoS.

Case studies and lab exercises included in the course help learners to apply the concepts from the individual modules to real-life scenarios.Learners are provided with design and usage rules for advanced QoS features, giving them the opportunity to design and implement efficient, optimal, and trouble-free multiservice networks. This version of the course also includes QoS for modern wireless networks and Software-defined networks.

This course is worth 40 Credits on the Continuing Education Program

Company Events

These events can be delivered exclusively for your company at our locations or yours, specifically for your delegates and your needs. The Company Events can be tailored or standard course deliveries.

Target Audience:

This course is aimed at pre-and post-sales technical engineers responsible for designing, implementing, or troubleshooting networks, as well as network architects responsible for designing multiservice networks to carry voice, video and data traffic in enterprise or service provider environments.

Objectives:

- **After you complete this course you will be able to:**

- Explain the need for QoS, describe the fundamentals of QoS policy, and identify and describe the different models that are used for ensuring QoS in a network.

- Explain the use of MQC and AutoQoS to implement QoS on the network and describe some of the mechanisms used to monitor QoS implementations.

- Given a converged network and a policy defining QoS on the network and describe some of the mechanisms used to monitor QoS implementations.

- Use Cisco QoS queing mechanisms to manage network congestion.

- Use Cisco QoS congestion avoidance mechanisms to reduce the effects of congestion on the network.

- Describe how link efficiency mechanisms can be used collectively to improve bandwidth efficiency and reduce delay.

- Describe the need for wireless quality of service (QoS) in WLANs due to the expansion of high-bandwidth data applications and time-sensitive multimedia applications in vertical and enterprise environments, and the need for a unified approach to support multi-vendor time-sensitive applications and accelerate the adoption rate of QoS.

- Describe the need for quality of service (QoS) in modern Software Defined Networks (SDN) for ensuring reliable performance of crucial applications and services.

- Describe the steps and best practices for optimally deploying QoS and understand the network elements involved in an enterprise end-to-end QoS deployment, as well as the importance of QoS interaction between the enterprise and service provider networks.

Prerequisites:

Attendees should meet the following prerequisites:

- Valid CCNA

Testing and Certification

Recommended preparation for exam(s):

- There is no exam currently aligned to this course.

Content:

Introduction to QoS

■ Review Converged Networks
■ Understand QoS
■ Describe Best-Effort
■ Describe Integrated Services Models
■ Describe the Differentiated Services Model

Implement and Monitor QoS

■ MQC Introduction
■ Monitor QoS
■ Define Campus AutoQoS
■ Define WAN AutoQoS

Classification

■ Classification Overview
■ MQC for Classification
■ NBAR for Classification
■ Use of QoS Preclassify

Marking

■ Marking Overview
■ MQC for Marking
■ Campus Trust Boundaries

Congestion Management

■ Queuing Introduction
■ Configure WFQ
■ Configure CBWFQ and LLQ
■ Configure Campus Congestion Management

Congestion Avoidance

■ Congestion Avoidance Introduction
■ Configure Class-Based WRED
■ Configure ECN
■ Describe Campus-Based Congestion Avoidance

Traffic Policing and Shaping

■ Traffic Policing and Shaping Overview
■ Configure Class-Based Policing
■ Campus Policing
■ Configure Class-Based Shaping
■ Configure Class-Based Shaping on Frame Relay Interfaces
■ Configure Frame Relay Voice-Adaptive Traffic Shaping and Fragmentation

Link Efficiency Mechanisms

■ Link Efficiency Mechanisms Overview
■ Configure Class-Based Header Compression
■ Configure LFI

Introducing QoS for Modern Wireless Networks

■ Introducing Enhanced Distributed Channel Access
■ Designing Wi-Fi 6 QoS
■ Describing Unified Wired and Wireless QoS

Introducing QoS for Software-Defined Networks

■ QoS for Cisco SD-Access
■ QoS for SD-Data Center
■ QoS for Cisco SD-WAN

Deploying End-to-End QoS

■ Apply Best Practices for QoS Policy Design
■ End-to-End QoS Deployments

Labs

■ Case Study 1-1: QoS Mechanisms
■ Lab 2-1: IP SLA Setup and QoS Baseline Measurement
■ Lab 2-2: Configuring QoS with Cisco AutoQoS
■ Case Study 3-1: Classification and Marking
■ Lab 3-2: Classification and Marking Using MQC
■ Lab 3-3: Using NBAR for Classification
■ Lab 3-4: Configuring QoS Preclassify
■ Lab 3-5: Campus Classification and Marking Using MQC
■ Lab 4-1: Configuring Fair Queuing
■ Lab 4-2: Configuring LLQ-CBWFQ
■ Lab 4-3: Configuring Campus-Based Queuing Mechanisms
■ Case Study 5-1: WRED Traffic Profiles
■ Lab 5-2: Configuring DSCP-Based WRED
■ Lab 5-3: Configuring WTD Thresholds
■ Lab 6-1: Configuring Class-Based Policing
■ Lab 6-2: Configuring Class-Based Shaping
■ Lab 7-1: Configuring Class-Based Header Compression
■ Lab 7-2: Configuring LFI

Further Information:

For More information, or to book your course, please call us on Head Office Tel.: +974 40316639

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