

Implementing Cisco Service Provider Next Generation Core Network Services

Duration: 5 Days **Course Code: SPCORE**

Overview:

The Implementing Cisco Service Provider Next-Generation Core Network Services (SPCORE) course introduces the concepts of Multiprotocol Label Switching (MPLS) and describes its implementation. It explains the MPLS Traffic Engineering (MPLS TE) services built on the MPLS technology. MPLS is a high-performance method for forwarding packets through a network and enables routers at the edge of a network to apply simple labels to packets. This practice allows the core devices—ATM switches or existing routers in the center of the service provider core—to switch packets according to labels, with minimal lookup overhead. The course also enables learners to use the technology principles of basic quality of service (QoS), and QoS with MPLS, to implement advanced features and functions. The focus of the course is on the technology issues of MPLS and on best practices for implementing QoS from the service provider perspective, as well as how to configure some of those features and functions in an existing routed environment.

The course also includes classroom activities with remote labs that are useful to gain practical skills on deploying Cisco IOS, IOS XE, and IOS XR features to operate and support the service provider network.

Target Audience:

This course is designed for: Network administrators, network engineers, network managers, and systems engineers who would like to implement MPLS and MPLS TE in the core portion of service provider environments, and ensure QoS in the service provider backbone. Network designers and project managers. The course is also recommended for all individuals preparing for CCNP Service Provider certification.

Objectives:

- Upon completing this course, the learner will be able to meet these overall objectives:
- Describe the features of MPLS, and how MPLS labels are assigned and distributed
- Discuss the requirement for traffic engineering in modern networks that must attain optimal resource utilization
- Introduce the concept of QoS and explain the need to implement QoS
- Classify and mark network traffic to implement an administrative policy requiring QoS
- Introduce different Cisco QoS queuing mechanisms used to manage network congestion
- Introduce the concept of traffic policing and shaping, including token bucket, dual token bucket, and dual-rate policing

Prerequisites:

The knowledge and skills that a learner must have before attending this course are as follows:

- Basic computer literacy
- Basic Microsoft Windows navigation skills
- Basic Internet usage skills
- Basic knowledge of networking concepts
- Intermediate knowledge of Cisco IOS/IOS XE and Cisco IOS XR Software configuration

To gain the prerequisite skills and knowledge, Cisco strongly recommends the knowledge of the following courses:

- Building Cisco Service Provider Next-Generation Networks, Part 1 (SPNGN1)
- Building Cisco Service Provider Next-Generation Networks, Part 2 (SPNGN2)
- Deploying Cisco Service Provider Network Routing (SPROUTE)
- Deploying Cisco Service Provider Advanced Network Routing (SPADVROUTE)

Testing and Certification

- SPCORE is one of four courses required for the Cisco Certified Network Professional (CCNP) Service Provider Certification

Follow-on-Courses:

- Implementing Cisco Service Provider Next-Generation Edge Network Services (SPEDGE)
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Content:

Multiprotocol Label Switching

- Introducing MPLS
- Running Label Distribution Protocol
- Implementing MPLS in the Service Provider Core

MPLS Traffic Engineering

- Introducing MPLS Traffic Engineering Components
- Running MPLS Traffic Engineering
- Implementing MPLS TE
- Protecting MPLS TE Traffic

QoS in the Service Provider Network

Understanding QoS

- Implementing Cisco QoS and QoS Mechanisms
- Implementing MPLS Support for QoS

QoS Classification and Marking

- Understanding Classification and Marking
- Using the Modular QoS CLI
- Implementing Advanced QoS Techniques

QoS Congestion Management and Avoidance

- Managing Congestion
- Implementing Congestion Avoidance

QoS Traffic Policing and Shaping

- Understanding Traffic Policing and Shaping
 - Implementing Traffic Policing
 - Implementing Traffic Shaping
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Further Information:

For More information, or to book your course, please call us on +254 713 027 191

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