Implementing Cisco Service Provider Advanced Routing Solutions (SPRI) v1.0

What you'll learn

The Implementing Cisco Service Provider Advanced Routing Solutions (SPRI) training teaches you theories and practices to integrate advanced routing technologies including routing protocols, multicast routing, policy language, Multiprotocol Label Switching (MPLS), and segment routing, expanding your knowledge and skills in service provider core networks.

This training prepares you for the 300-510 Implementing Cisco® Service Provider Advanced Routing Solutions (SPRI) exam. This training also earns you 40 Continuing Education (CE) credits towards recertification.

How you'll benefit

This training will help you:

Gain the high-demand skills to maintain and operate advanced technologies related to Service Provider core networks

Increase your knowledge and skills for implementing Service Provider core advanced technologies though hands-on application and practical instruction

Prepare to take the 300-510 SPRI exam

What to expect in the exam

The 300-510 SPRI exam certifies your knowledge of implementing service provider advanced routing technologies including routing protocols, policy language, MPLS, and segment routing. After you pass 300-510 SPRI, you earn the Cisco Certified Specialist - Service Provider Advanced Routing Implementation certification, and you satisfy the concentration exam requirement for the CCNP Service Provider certification.

Who should enroll

This training is for professionals who need knowledge about implementing various Service Provider core technologies and advanced routing technologies.

Network administrators

System engineers

Project managers

Network designers

Technology areas

Service provider

Training overview

Objectives

After taking this training, you should be able to:

Describe the main characteristics of routing protocols that are used in Service provider environments

Implement advanced features of multiarea Open Shortest Path First (OSPFv2) running in Service Provider networks

Implement advanced features of multilevel Intermediate System to Intermediate System (ISIS) running in Service Provider networks

Configure route redistribution

Configure Border Gateway Protocol (BGP) in order to successfully connect the Service Provider network to the customer or upstream Service Provider

Configure BGP scalability in Service Provider networks

Implement BGP security options

Implement advanced features in order to improve convergence in BGP networks

Troubleshoot OSPF, ISIS, and BGP

Implement and verify MPLS

Implement and troubleshoot MPLS traffic engineering

Implement and verify segment routing technology within an interior gateway protocol

Describe how traffic engineering is used in segment routing networks

Implement IPv6 tunneling mechanisms

Describe and compare core multicast concepts

Implement and verifying the PIM-SM protocol

Implement enhanced Protocol-Independent Multicast - Sparse Mode (PIM-SM) features

Implement Multicast Source Discovery Protocol (MSDP) in the interdomain environment

Implement mechanisms for dynamic Rendezvous Point (RP) distribution

Prerequisites

Before taking this training, you should have the following knowledge and skills:

Intermediate to advanced knowledge of Cisco Internetwork Operating System (Cisco IOS®) or IOS XE and Cisco IOS XR Software configuration

Knowledge of IPv4 and IPv6 TCP/IP networking

Intermediate knowledge of BGP, OSPF, and ISIS routing protocols

Understanding of MPLS technologies

Understanding of multicast technologies

Familiarity with segment routing

The following Cisco trainings can help you gain the knowledge you need to prepare for this training:

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)

Implementing and Administering Cisco Solutions (CCNA®)

Understanding Cisco Service Provider Network Foundations (SPFNDU)

Implementing and Operating Cisco Service Provider Network Core Technologies (SPCOR)

Lab outline

Implement OSPF Special Area Types (IPv4 and IPv6)

Implement Multiarea IS-IS

Implement Route Redistribution

Influence BGP Route Selection

Implement BGP Route Reflectors

Implement BGP Security Options

Troubleshoot Routing Protocols

Implement MPLS in the Service Provider Core

Implement Cisco MPLS TE

Configure and Verify Interior Gateway Protocol (IGP) Segment Routing

Implement Tunnels for IPv6

Enable and Optimize PIM-SM

Implement PIM-SM Enhancements

Implement Rendezvous Point Distribution