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

Overview

This course 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 course also prepares you for the CCNP-Service Provider exam 300-510.

Prerequisite Comments

Before taking this course, 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

Target Audience

This course 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

Course Objectives

After taking this course, 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

Course Outline

1 - COURSE OUTLINE

IMPLEMENTING AND VERIFYING OPEN SHORTEST PATH FIRST MULTI AREA NETWORKS
IMPLEMENTING AND VERIFYING INTERMEDIATE SYSTEM TO INTERMEDIATE SYSTEM MULTILEVEL NETWORKS
INTRODUCING ROUTING PROTOCOL TOOLS, ROUTE MAPS, AND ROUTING POLICY LANGUAGE
IMPLEMENTING ROUTE REDISTRIBUTION
INFLUENCING BORDER GATEWAY PROTOCOL ROUTE SELECTION
SCALING BGP IN SERVICE PROVIDER NETWORKS
SECURING BGP IN SERVICE PROVIDER NETWORKS
IMPROVING BGP CONVERGENCE AND IMPLEMENTING ADVANCED OPERATIONS
TROUBLESHOOTING ROUTING PROTOCOLS
IMPLEMENTING AND VERIFYING MPLS
IMPLEMENTING CISCO MPLS TRAFFIC ENGINEERING
IMPLEMENTING SEGMENT ROUTING
DESCRIBING SEGMENT ROUTING TRAFFIC ENGINEERING (SR TE)
DEPLOYING IPV6 TUNNELING MECHANISMS
IMPLEMENTING IP MULTICAST CONCEPTS AND TECHNOLOGIES
IMPLEMENTING PIM-SM PROTOCOL
IMPLEMENTING PIM-SM ENHANCEMENTS
IMPLEMENTING INTERDOMAIN IP MULTICAST
IMPLEMENTING DISTRIBUTED RENDEZVOUS POINT SOLUTION IN MULTICAST NETWORK