

# Implementing and Operating Cisco Service Provider Network Core Technologies (SPCOR) v1.0

## What you'll learn

The Implementing and Operating Cisco Service Provider Network Core Technologies (SPCOR) v1.0 training teaches you how to configure, verify, troubleshoot, and optimize next-generation, Service Provider IP network infrastructures. It provides a deep dive into Service Provider technologies including core architecture, services, networking, automation, quality of services, security, and network assurance.

This training also helps you prepare to take the 350-501 Implementing and Operating Cisco<sup>®</sup> Service Provider Network Core Technologies (SPCOR) exam, which is part of the CCNP<sup>®</sup> Service Provider certification and the Cisco Certified Specialist – Service Provider Core certification. This training also earns you 64 Continuing Education (CE) credits towards recertification.

## How you'll benefit

This training will help you:

Configure, verify, troubleshoot, and optimize next-generation, Service Provider IP network infrastructures

Deepen your understanding of Service Provider technologies including core architecture, services, networking, automation, quality of services, security, and network assurance

Prepare to take the 350-501 Implementing and Operating Cisco<sup>®</sup> Service Provider Network Core Technologies (SPCOR) exam

Who should enroll Network administrators Network engineers Network managers System engineers Project managers Network designers Technology areas Service provider netwoking Enterprise networking



### **Training overview**

### Objectives

After taking this training, you should be able to:

Describe the Service Provider network architectures, concepts, and transport technologies

Describe the Cisco Internetwork Operating System (Cisco IOS<sup>®</sup>) software architectures, main IOS types, and their differences

Implement Open Shortest Path First (OSPF) in the Service Provider network

Implement Integrated Intermediate System-to-Intermediate System (IS-IS) in the Service Provider network

Implement Border Gateway Protocol (BGP) routing in Service Provider environments

Implement route maps and routing policy language

Describe IPv6 transition mechanisms used in the Service Provider networks

Implement high-availability mechanisms in Cisco IOS XR software

Implement traffic engineering in modern Service Provider networks for optimal resource utilization

Describe segment routing and segment routing traffic engineering concepts

Describe the VPN technologies used in the Service Provider environment

Configure and verify Multiprotocol Label Switching (MPLS) L2VPN in Service Provider environments

Configure and verify MPLS L3VPN in Service Provider environments

Implement IP multicast services

Describe the Quality of Service (QoS) architecture and QoS benefits for SP networks

Implement QoS in Service Provider environments

Implement control plane security in Cisco devices

Implement management plane security in Cisco devices

Implement data plane security in Cisco devices

Describe the Yet Another Next Generation (YANG) data modeling language

Implement automation and assurance tools and protocols

Describe the role of Cisco Network Services Orchestrator (NSO) in Service Provider environments

Implement virtualization technologies in Service Provider environments

Prerequisites

Intermediate knowledge of Cisco IOS or IOS XE



Familiarity with Cisco IOS or IOS XE and Cisco IOS XR Software configuration Knowledge of IPv4 and IPv6 TCP/IP networking Intermediate knowledge of IP routing protocols Understanding of MPLS technologies Familiarity with VPN technologies Lab outline Deploy Cisco IOS XR and IOS XE Basic Device Configuration Implement OSPF Routing Implement Integrated IS-IS Routing Implement Basic BGP Routing Filter BGP Prefixes Using RPL Implement MPLS in the Service Provider Core Implement Cisco MPLS Traffic Engineering (TE) Implement Segment Routing Implement Ethernet over MPLS (EoMPLS) Implement MPLS L3VPN Implement BGP Security Implement Remotely Triggered Black Hole (RTBH) Filtering