

SPCOR: Implementing and Operating Cisco Service Provider Network Core Technologies v1.0

Course Code: SPCOR

Duration: 5 days

Instructor-led Training (ILT) | Virtual Instructor-led Training (VILT)

OVERVIEW

The Implementing and Operating Cisco Service Provider Network Core Technologies (SPCOR) v1.0 course 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 course also helps you prepare to take the 350-501 Implementing and Operating Cisco® Service Provider Network Core Technologies (SPCOR) exam, which is part of the new CCNP® Service Provider certification and the Cisco Certified Specialist – Service Provider Core certification. This course also earns you 64 Continuing Education (CE) credits towards recertification.

SKILLS COVERED

- Describe the Service Provider network architectures, concepts, and transport technologies.
- Describe the Cisco Internetwork Operating System (Cisco IOS®) 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.

WHO SHOULD ATTEND?

- Network administrators
- Network engineers
- Network managers
- System engineers
- Project managers
- Network designers

PRE-REQUISITES

- 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.

MODULES

Course Outline

- Describing Service Provider Network Architectures.
- Describing Cisco IOS Software Architectures.
- Implementing OSPF. Implementing IS-IS.
- Implementing BGP.
- Implementing Route Maps and Routing Protocol for LLN [Low-Power and Lossy Networks] (RPL).
- Transitioning to IPv6.
- Implementing High Availability in Networking.
- Implementing MPLS. Implementing Cisco MPLS Traffic Engineering.
- Describing Segment Routing.

- Describing VPN Services.
- Configuring L2VPN Services.
- Configuring L3VPN Services.
- Implementing Multicast.
- Describing QoS Architecture.
- Implementing QoS.
- Implementing Control Plane Security.
- Implementing Management Plane Security.
- Implementing Data Plane Security.
- Introducing Network Programmability.
- Implementing Automation and Assurance.
- Introducing Cisco NSO.
- Implementing Virtualization in Service Provider Environments.

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

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