Implementing and Operating Cisco Service Provider Network Core Technologies Training

Duration: **5 Day**

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The **Implementing and Operating Cisco Service Provider Network Core Technologies** (SPCOR) training expands your knowledge and skills of service provider core networks. You will gain the theoretical and practical knowledge needed to implement and operate service provider networks using technologies such as core architecture, services, networking, automation, quality of service (QoS), security, and network assurance.

This training prepares you for the 350-501 SPCOR v1.0 exam. If passed, you earn the Cisco Certified Specialist – Service Provider Core certification and satisfy the core exam requirement for the Cisco Certified Network Professional (CCNP) Service Provider and Cisco Certified Internetwork Expert (CCIE) Service Provider certifications. 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 internet protocol (IP) network infrastructures
- Deepen your understanding of service provider technologies, including core architecture, services, networking, automation, quality of services, security, and network assurance
- Prepare for the 350-501 SPCOR v1.0 exam
- Earn 64 CE credits towards recertification

What to Expect in the Exam

Implementing and Operating Cisco Service Provider Network Core Technologies (350-501 SPCOR) v1.0 is a 120-minute exam associated with the Cisco Certified Specialist – Service Provider Core certification and satisfies the core exam requirement for the CCNP Service Provider and CCIE Service Provider certifications.

This exam tests your knowledge of core service provider network technologies, including:

- Core architecture
- Services
- Networking
- Automation
- Quality of services
- Security
- Network assurance

Prerequisites

There are no prerequisites for this training. However, the knowledge and skills you are recommended to have before attending this training are:

- 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 transmission control protocol (TCP)/IP networking
- Intermediate knowledge of IP routing protocols
- Understanding of MPLS technologies

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- Familiarity with VPN technologies

These skills can be found in the following Cisco Learning Offerings:

- Implementing and Administering Cisco Solutions (CCNA)
- Understanding Cisco Service Provider Network Foundations (SPFNDU)

What You Will Learn

- Describe the service provider network architectures, concepts, and transport technologies
- Describe the Cisco IOS software architectures, main internetwork operating system (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 virtual private network (VPN) technologies used in the service provider environment
- Configure and verify multi-protocol label switching (MPLS) L2VPN in service provider environments
- Configure and verify MPLS L3VPN in service provider environments
- Implement IP multicast services
- Describe the QoS architecture and QoS benefits for service provider networks
- Implement QoS in service provider environment
- Implement control plane security in Cisco devices
- Implement management plane security in Cisco devices
- Implement data plane security in Cisco devices
- Describe the 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 environment

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Training Outline

- Describing Service Provider Network Architectures
- Describing Cisco IOS Software Architectures
- Implementing OSPF for Cisco IOS XR
- Implementing IS-IS for Cisco IOS XR
- Implementing BGP in Service Provider Network
- Implementing Route Maps and RPL
- Transitioning to IPv6 for Cisco IOS XR and IOS XE
- Implementing High Availability in Networking
- Implementing MPLS for Cisco IOS XR
- Implementing Cisco MPLS Traffic Engineering
- Describing Segment Routing
- Describing VPN Services
- Configuring L2VPN Services
- Configuring L3VPN Services
- Implementing Multicast for Cisco IOS XR
- Describing QoS Architecture
- Implementing QoS for Cisco IOS XR
- 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 Environment