

CISCO CERTIFIED NETWORK PROFESSIONAL SERVICE PROVIDER

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

Implementing Cisco Service Provider Advanced Routing Solutions (SPRI)

Our Learning Exclusive

- Custom exam prep software and materials
- Exam delivery in classroom with 98% success
- Course specific thinQtank® Learning publications to promote fun exciting learning
- Extended hours of training including immersive hands-on exercises
- WE DO NOT "TEACH THE TEST" We always deliver valuable hands-on experience
- Receive all reading material and study guides when you register
- All courses taught by CCIE expert instructors

Course Duration

- Nine days of instructor-led learning
- Five days SPCOR and four days SPRI
- 60% lecture, 40% hands-on labs

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

Target Audience

- Those looking to earn their CCNP Certification
- Those looking to earn their CCNP Specialist
- Engineers involved in the installation and support of service provider network architectures
- Those who configure, verify, and troubleshoot service provider network architectures
- Network engineers, administrators, technicians

Exam Information

- 350-501 – Implementing and Operating Cisco Service Provider Network Core Technologies
- 300-510 – Implementing Cisco Service Provider Advanced Routing Solutions

Delivery Methods

- Instructor-Led Training
- Immersive Live-Online Training
- On-Site and Custom Delivery

Exclusive Tools and Learning Package

- Comprehensive video training package
- Virtual builds of all labs and hand-on learning objectives so learners can continue their hands on experience after the completion of the course
- Industry unique training course to achieve multiple certifications in one training camp

Course Overview

thinQtank® Learning is offering a unique nine-day training camp comprised of five days of instructor-led learning for Implementing and Operating Cisco Service Provider Network Core Technologies (SPCOR) and four days of instructor-led learning for Implementing Cisco Service Provider Advanced Routing Solutions (SPRI). As with all of our Cisco Training Experiences – exams are delivered in the classroom.

SPCOR

The goal of this portion of the 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.

SPRI

This portion of the course learners 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.

Course Objectives SPCOR

Upon completing this portion of the course, learners will be able to meet these objectives:

- 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
- Validate your knowledge and prepare to take the Implementing and Operating Cisco Service Provider Network Core Technologies (350-501 SPCOR) exam

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Course Objectives SPCOR Continued

- 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

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Course Objectives SPRI

Upon completing this portion of the course, learners will be able to meet these objectives:

- 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 through hands-on application and practical instruction
- Prepare to take the 300-510 SPRI exam
- 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

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SPCOR Course Topics

- 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

SPRI Course Topics

- Implementing and Verifying Open Shortest Path First Multiarea 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

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