

Understanding Cisco Service Provider Network Foundations (SPFNDU)

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In this Understanding Cisco Service Provider Network Foundations course provides a comprehensive introduction to service provider networking architectures, technologies, and operational practices using Cisco routing platforms. It is designed for network engineers who need to understand how large-scale provider networks are built, operated, and automated, with emphasis on core, access, and service layers. The curriculum blends architectural concepts with hands-on configuration and verification across Cisco IOS XE and Cisco IOS XR environments.

Students begin by examining service provider architectures and the role of internet governance organizations, establishing foundational knowledge of how global networks interconnect and operate. The course then explores access and core technologies, routing protocols, MPLS, Layer 3 services, switching, and overlay technologies commonly used in service provider networks. Emphasis is placed on understanding protocol behavior, service delivery models, and resiliency mechanisms required to support large-scale customer and backbone services.

Hands-on labs reinforce these concepts through real-world configuration tasks, including IS-IS, RIP, BGP, MPLS, VRFs, IP SLA, HSRP, and NTP across Cisco IOS XE and IOS XR routers. The course also introduces programmability on IOS XR, using Linux-based tools and Bash scripting to automate configuration and operations. By the end of the course, students are prepared to deploy, operate, and automate service provider networks using Cisco technologies.

How you'll benefit

This class will help you:

- Acquire the foundational knowledge to understand the Cisco Service Provider Network methodologies, tools, and functions
- Learn the skills to manage the software and hardware platforms, structures, and protocols within the service provider realm
- Qualify for professional-level job service provider roles
- Earn 30 CE credits towards recertification

Why Attend with Current Technologies CLC

- Our Instructors are in the top 10% rated by Cisco
- Our Lab has a dedicated 1 Gig Fiber Connection for our Labs
- Our Labs run up to Date Code for all our courses

Who Should Attend

The primary audience for this course is as follows:

- Network Administrators
- Network Engineers
- Network Managers

Course Duration

5 days

Course Price

\$4,495.00 or 45 CLCs

Methods of Delivery

- Instructor Led
- Virtual ILT
- On-Site

- System Engineers
- Project Managers
- Network Designers

Prerequisites

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

- Knowledge of IPv4 and IPv6 Transmission Control Protocol/Internet Protocol (TCP/IP) networking
- Familiarity with a typical service provider environment
- Basic knowledge about networking devices and their roles

OUTLINE

Module 1: Introducing Service Provider Architectures

Module 2: Describing Internet Governance Organizations

Module 3: Configuring the Cisco IOS and Cisco IOS XE Router

Module 4: Configuring Cisco IOS XR Router

Module 5: Introducing Access and Core Technologies in Service Provider Environment

Module 6: Introducing Routing Technologies in Service Provider Environment

Module 7: Describing MPLS

Module 8: Implementing Layer 3 Services

Module 9: Introducing Switching Technologies in the Service Provider Environment

Module 10: Introducing Overlay Technologies

Module 11: Implementing Service Provider Services

Module 12: Introducing Programmability on Cisco IOS XR Routers

LAB OUTLINE

Lab 1: Review Lab Environment

Lab 2: Examine Governance Data

Lab 3: Perform an Initial Cisco IOS XE Configuration

Lab 4: Configure Connectivity and Connectivity Verification on Cisco IOS XE Devices

Lab 5: Perform Initial Cisco IOS XR Configuration

Lab 6: Configure and Verify Connectivity on Cisco IOS XR Devices

Lab 7: Configure IS-IS

Lab 8: Configure RIPv2 and RIPv6

Lab 9: Configure Basic BGP

Lab 10: Configure MPLS

Lab 11: Configure IP SLA

Lab 12: Configure HSRP with Object Tracking

Lab 13: Configure VRFs

Lab 14: Configure NTP

Lab 15: Use Linux CLI

Lab 16: Configure IOS XR Using a Bash Script