Cisco IOS XR Layer 3 VPN Implementation and Verification (IOSXR301)

**ID** CI-IOSXR301  **Price** US$ 1,500  **Duration** 2 days

**Who should attend**

This course is designed for technical professionals who need to know how to implement Layer 3 VPN services on Cisco IOS XR platforms for a service provider or large enterprise network.

- Implementation and design engineers
- Network planning engineers

**Prerequisites**

Before attending this course, you should have the following knowledge and skills:

- Completion of the Introduction to Cisco IOS XR (IOSXR100) course, or equivalent hands-on experience configuring and supporting Cisco IOS XR–based routers
- Completion of the Cisco IOS XR System Administration (IOSXR200) course, or equivalent hands-on experience configuring and supporting Cisco IOS XR–based routers
- Efficiently configure Cisco IOS XR software-based platforms
- Configure and troubleshoot BGP routing

**Course Objectives**

- Prepare to implement Layer 3 VPN services on Cisco IOS XR platforms
- Practice what you learn through hands-on labs

After taking this course, you should be able to implement and verify:

- MPLS LDP in a service provider network
- Intra-AS Layer 3 VPNs
- Inter-AS Layer 3 VPNs

**Detailed Course Outline**

**Module 1: MPLS Label Distribution Protocol**

- Components of the Label Forwarding Information Base (LFIB)
- LDP Protocol Overview
- Cisco IOS XR LDP Implementation
- Cisco IOS XR MPLS Forwarding Infrastructure
- LDP Operation and Configuration
- Commands for Troubleshooting LDP Operation

**Module 2: Intra-AS Layer 3 VPNs**

- L3VPN Overview
- L3VPN Operation
- L3VPN Intranet Configuration and Verification
- L3VPN Extranet Configuration and
Verification

Module 3: Inter-AS Layer 3 VPNs

- Inter-AS L3VPN Overview
- Inter-AS Option A Configuration and Verification
- Inter-AS Option B Configuration and Verification
- Inter-AS Option C Configuration and Verification

Lab Outline

Lab 1: Lab Familiarization

- Task 1: Verify the SP1 Core Configuration
- Task 2: Verify the SP2 Core Configuration

Lab 2: Implementing and Verifying MPLS LDP

- Task 1: Configure and Verify LDP in the SP1 Core
- Task 2: Configure and Verify Session Protection for the SP1 Core
- Task 3: Configure and Verify MPLS LDP NSR in the SP1 Core
- Task 4: Configure and Verify LDP IGP Sync and Graceful Restart
- Task 5: Use OAM to test LDP in the SP1 Core
- Task 6: Configure and Verify the SP2 Core LDP
- Task 7: Configure and Verify LDP IGP Sync in the SP2 Core
- Task 8: Use OAM to test LDP in the SP2 Core

Lab 3: Implementing and Verifying Intra-AS Layer 3 VPNs

- Task 1: Verify the Lab for L3VPN Support
- Task 2: Implement an L3VPN Intranet in the SP1 Core
- Task 3: Verify and Examine the L3VPN Intranet in the SP1 Core

Lab 4: Implementing and Verifying Inter-AS Layer 3 VPNs

- Task 1: Prepare the Lab for Inter-AS Option B
- Task 2: Create and Verify an Inter-AS Option B L3VPN
- Task 3: Prepare the Lab for Inter-AS Option C
- Task 4: Create and Verify an Inter-AS Option C L3VPN