

# Implementing Cisco Service Provider VPN Services (SPVI)

**Course Duration: 40 Hours**

**Course Code: SPVI**

## 1. Course Overview

The Implementing Cisco Service Provider VPN Services (SPVI) course is designed to provide knowledge and skills required to implement, configure, monitor, and troubleshoot VPN services in a service provider network. This course focuses on Layer 2 and Layer 3 MPLS VPNs, leveraging MPLS and related technologies to deliver scalable and secure VPN solutions. Participants will gain hands-on experience in designing and implementing VPN services that meet enterprise and customer needs in a real-world service provider environment.

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### What You'll Learn?

By the end of this course, you will be able to:

- Understand MPLS concepts, architecture, and operations in a service provider network.
- Configure, verify, and troubleshoot MPLS Layer 2 and Layer 3 VPNs.
- Implement and manage Virtual Private LAN Services (VPLS).
- Utilize advanced VPN features to enhance service provider offerings.
- Optimize VPN services for high availability and scalability.
- Apply best practices for securing and maintaining MPLS VPN deployments.

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### Target Audience

This course is ideal for:

- Network Engineers working in service provider environments.
- Network Specialists and Consultants responsible for designing or supporting VPN solutions.
- System Engineers and Technical Solutions Architects.
- Professionals preparing for Cisco Service Provider certifications.

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## Pre-Requisites

Participants are expected to have:

- Understanding of networking fundamentals.
- Knowledge of service provider operations and basic MPLS concepts.
- Experience with Cisco IOS/IOS-XE/IOS XR software.
- Completion of **Implementing Cisco Service Provider Advanced Routing Solutions (SPRI)** is recommended.

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## Course Content

### Module 1: MPLS VPN Concepts and Architecture

- Overview of MPLS Technology
- MPLS VPN Models and Applications
- MPLS Forwarding and Label Distribution

### Module 2: MPLS Layer 3 VPN Implementation

- Configuring and Verifying L3VPNs
- Routing Protocols with L3VPNs
- Advanced Features of MPLS L3VPNs

### Module 3: MPLS Layer 2 VPN Implementation

- Pseudowire Concepts and Configuration
- VPWS (Virtual Private Wire Service)

- Troubleshooting L2VPNs

#### **Module 4: Virtual Private LAN Services (VPLS)**

- Introduction to VPLS
- VPLS Configuration and Verification
- Advanced VPLS Features

#### **Module 5: Advanced MPLS VPN Topics**

- Inter-AS VPNs
- Carrier Supporting Carrier (CSC)
- High Availability in VPN Deployments

#### **Module 6: VPN Troubleshooting and Best Practices**

- Troubleshooting MPLS L2/L3 VPNs
- Common Issues and Resolutions
- VPN Security and Optimization