Current Technologies
Computer Learning Centers

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Cisco Partner
Platinum Learning

WHERE GREAT TRAINING HAPPENS EVERYDAY!

Implementing Cisco Service Provider VPN Services (SPVI)

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In this Implementing Cisco Service Provider VPN Services course provides an in-depth exploration of MPLS-based VPN services, focusing on how service providers design, deploy, and troubleshoot Layer 2 and Layer 3 VPN solutions at scale. It is designed for experienced network engineers who support MPLS backbones and customer VPN services and need a strong understanding of control-plane behavior, service architectures, and operational troubleshooting.

Students begin with VPN fundamentals and MPLS VPN control-plane operation, establishing a foundation for understanding how MP-BGP, VRFs, and label distribution enable scalable VPN services. The curriculum then covers Layer 3 MPLS VPN implementation, including PE-to-CE routing requirements, interdomain VPN designs, multicast VPNs, and IPv6 VPN deployment using 6VPE. Troubleshooting modules guide students through systematic isolation of underlay and overlay issues, including IGP, BGP, PE-to-CE connectivity, and route reflector interactions.

Layer 2 VPN services are also explored, covering traditional carrier Ethernet solutions and modern EVPN-based architectures such as VPWS and IRB. Extensive hands-on labs reinforce each topic through real-world service provider scenarios, including shared services VPNs, internet access VPNs, multicast VPNs, EVPN deployment, and IPv6 MPLS VPN troubleshooting, preparing learners to operate and troubleshoot complex MPLS VPN environments.

This training prepares you for the 300-515 SPVI v1.1 exam. If passed, you earn the Cisco Certified Specialist - Service Provider VPN Services Implementation certification and satisfy the concentration exam requirement for the Cisco Certified Network Professional (CCNP) Service Provider certification. This training also earns you 40 Continuing Education (CE) credits toward recertification.

How you'll benefit

This class will help you:

- Gain valuable skills in reinforcing MPLS VPN fundamental concepts, benefits, and classifications
- Learn to configure optional paths for traffic to avoid network congestion
- Prepare for the 300-515 SPVI v1.1 exam
- Earn 40 CE credits toward recertification

Course Duration
5 days

Course Price
$4,295.00 or 43 CLCs

Methods of Delivery
- Instructor Led
- Virtual ILT
- On-Site

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 Supervisors
- Network Managers
- Network Operations Center (NOC) Personnel
- Network Designers
- Network Architects
- Channel Partners

Prerequisites

There are no prerequisites for this training. However, the knowledge and skills you are recommended to have before attending this training are found in the following Cisco Learning Offerings:

- Implementing and Administering Cisco Solutions (CCNA)
- Understanding Cisco Service Provider Network Foundations (SPFNDU)
- Implementing and Operating Cisco Service Provider Network Core Technologies (SPCOR)

OUTLINE

Module 1: Introducing VPN Services
- VPN Fundamentals
- MPLS VPN Control Plane Operation

Module 2: Troubleshooting MPLS VPN Underlay
- Troubleshoot Core Interior Gateway Protocol (IGP)
- Troubleshoot Border Gateway Protocol (BGP)

Module 3: Implementing Layer 3 MPLS VPNs
- Multiprotocol BGP (MP-BGP) Routing Requirements in MPLS VPNs
- Provider Edge to Customer Edge (PE-to-CE) Routing Requirements in Layer 3 MPLS VPNs

Module 4: Implementing Layer 3 Interdomain MPLS VPNs
- Inter-Autonomous System (AS) for Layer 3 MPLS VPNs
- Content Security and Control (CSC) for Layer 3 MPLS VPNs

Module 5: Implementing Layer 3 Multicast MPLS VPNs
- Multicast VPN (MVPN) Fundamentals
- Implement Intranet MVPN

Module 6: Troubleshooting Intra-AS Layer 3 VPNs
- Troubleshoot PE-CE Connectivity
- Troubleshoot PE-to-Route Reflector

Module 7: Implementing Layer 2 VPNs
- Layer 2 Service Architecture and Carrier Ethernet Services
- Refresh on Traditional Ethernet LAN (E-LAN), E-Line, and E-Tree Solutions

Module 8: Troubleshooting Layer 2 VPNs
- Troubleshoot Common Issues for Traditional E-Line, E-LAN, and E-Tree Ethernet Solutions
- Troubleshoot Common Issues for Ethernet VPN (EVPN) Native, EVPN Virtual Private Wire Service (VPWS), and EVPN Integrated Routing and Bridging (IRB) Solutions

Module 9: Implementing Layer 3 IPv6 MPLS VPNs
- Classical Solutions for Deploying IPv6 over IPv4 Environments
- Using 6VPE to Deploy IPv6 Connectivity over MPLS Environment

Module 10: Troubleshooting Layer 3 IPv6 MPLS VPNs

- Troubleshooting PE-to-PE Connectivity

LAB OUTLINE

Lab 1: Verify the Service Provider Backbone Operation for MPLS VPN

Lab 2: Work with VRF Instances

Lab 3: Troubleshoot the MPLS VPN Backbone

Lab 4: Configure MP-BGP as the PE-CE Routing Protocol

Lab 5: Configure and Verify PE-to-CE Routing Requirements

Lab 6: Enable Shared Services VPN

Lab 7: Deploy Internet Access as a VPN Service

Lab 8: Implement Multicast VPN with mLDP

Lab 9: Troubleshoot Layer 3 MPLS VPN End-Customer Connectivity

Lab 10: Implement Different EVPN Solutions

Lab 11: Troubleshoot EVPN VPWS

Lab 12: Implement 6VPE