

Implementing Cisco Service Provider VPN Services

Duration: 4 Days **Course Code: SPVI** **Version: 1.0**

Overview:

The Implementing Cisco Service Provider VPN Services (SPVI) course provides the knowledge and skills required to manage end-customer Virtual Private Network (VPN) environments built over a common service provider Multiprotocol Label Switching (MPLS) backbone. Hands-on labs reinforce MPLS VPN fundamental concepts, benefits, and classification, MPLS components, MPLS control plane and data plane operations, MPLS VPN routing using Virtual Routing and Forwarding (VRF), Layer 2 and Layer 3 MPLS VPNs, IPv6 MPLS VPN implementations, IP Multicast VPNs, and shared services VPNs. Solutions for deploying MPLS VPN crossing multiple Service Provider domains that improve the use of network bandwidth is also covered in this course.

Target Audience:

Engineers looking to learn the techniques required to implement, configure, monitor and support Service Provider VPN solutions based on MPLS backbones.

Objectives:

- **After completing this course you should be able to:**
- Describe VPN concepts and operation in a Service Provider environment
- Implement Layer 3 MPLS VPN operations in a Service Provider environment
- Implement Layer 3 Inter-domain MPLS VPN services traversing multiple Service Providers
- Implement Layer 3 Multicast MPLS VPN operations in a Service Provider environment
- Troubleshoot typical issues in Layer 3 MPLS VPN environments
- Implement Layer 2 VPN operations in a Service Provider environment
- Troubleshoot Layer 2 VPN issues in a Service Provider network
- Implement MPLS VPN solutions for IPv6 environments
- Troubleshoot MPLS VPN solutions for IPv6 environments

Prerequisites:

Attendees should meet the following prerequisites:

- Professional Level Service Provider Knowledge
- SPCOR - Implementing and Operating Cisco Service Provider Network Core Technologies

Testing and Certification

Recommended as preparation for the following exams:

- **300-515** - Implementing Cisco® Service Provider VPN Services (SPVI) exam

By passing this exam, you earn the Cisco Certified Specialist - Service Provider VPN Services Implementation certification, and you satisfy the concentration exam requirement for the CCNP® Service Provider certification.

Content:

Introducing VPN Services

- VPN Fundamentals
- MPLS VPN Control Plane Operation

Troubleshooting MPLS VPN Underlay

- Troubleshoot Core Interior Gateway Protocol (IGP)
- Troubleshoot Border Gateway Protocol (BGP)

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

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

Implementing Layer 3 Multicast MPLS VPNs

- Multicast VPN (MVPN) Fundamentals
- Implement Intranet MVPN

Troubleshooting Intra-AS Layer 3 VPNs

- Troubleshoot PE-CE Connectivity
- Troubleshoot PE-to-Route Reflector

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

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

Implementing Layer 3 IPv6 MPLS VPNs

- Classical Solutions for Deploying IPv6 over IPv4 Environments
- Using 6VPE to Deploy IPv6 Connectivity over MPLS Environment

Troubleshooting Layer 3 IPv6 MPLS VPNs

- Troubleshooting PE-to-PE Connectivity

Labs

- Verify the Service Provider Backbone Operation for MPLS VPN
- Work with VRF Instances
- Troubleshoot the MPLS VPN Backbone
- Configure MP-BGP as the PE-CE Routing Protocol
- Configure and Verify PE-to-CE Routing Requirements
- Enable Shared Services VPN
- Deploy Internet Access as a VPN Service
- Troubleshoot Layer 3 MPLS VPN End-Customer Connectivity
- Implement Different EVPN Solutions
- Troubleshoot EVPN VPWS
- Implement IPv6 VPN Provider Edge Router (6VPE)

Further Information:

For More information, or to book your course, please call us on 00 20 (0) 2 2269 1982 or 16142

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