Enterprise Computing Solutions - Education Services

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Junos Layer 3 VPNs (JL3V)

CODE:	LENGTH:	PRICE:
JUN_JL3V	24 Hours (3 dage)	kr 21,200.00

Description

This three-day course is designed to provide students with MPLS-based Layer 3 virtual private network (VPN) knowledge and configuration examples.
The course includes an overview of MPLS Layer 3 VPN concepts, scaling Layer 3 VPNs, Internet access, Interprovider L3VPNs, and Multicast for Layer 3 VPNs.
This course also covers Junos operating system-specific implementations of Layer 3 VPNs. This course is based on the Junos OS Release 15.1R2.9.
Through demonstrations and hands-on labs, students will gain experience in configuring and monitoring the Junos OS and in device operations.
JL3V is an advanced-level course.

Objectives

After successfully completing this course, you should be able to:
- Describe the value of MPLS VPNs.
- Describe the differences between provider-provisioned VPNs and customer-provisioned VPNs.
- Describe the differences between Layer 2 VPNs and Layer 3 VPNs.
- List the provider-provisioned MPLS VPN features supported by the Junos OS software.
- Describe the roles of a CE device, PE router, and P router in a BGP Layer 3 VPN.
- Describe the format of the BGP routing information, including VPN-IPv4 addresses and route distinguishers.
- Describe the propagation of VPN routing information within an AS.
- List the BGP design constraints to enable Layer 3 VPNs within a provider network.
- Explain the operation of the Layer 3 VPN data plane within a provider network.
- Create a routing instance, assign interfaces to a routing instance, create routes in a routing instance, and import/export routes from a routing instance using route distinguishers/route targets.
- Describe the purpose of BGP extended communities, configure extended BGP extended communities, and use BGP extended communities.
- List the steps necessary for proper operation of a PE-CE dynamic routing protocol.
- List the troubleshooting and monitoring techniques for routing instances.
- Explain the difference between the bgp.l3vpn table and the inet.0 table of a routing instance.
- Monitor the operation of a CE-PE dynamic routing protocol.
- Explain the operation of a PE multi-access interface in a Layer 3 VPN and list commands to modify that behavior.
- Describe ways to support communication between sites attached to a common PE router.
- Provision and troubleshoot hub-and-spoke Layer 3 VPNs,
- Describe the flow of control traffic and data traffic in a hub-and-spoke Layer 3 VPN.
- Describe QoS mechanisms available in L3VPNs.
- Configure L3VPN over GRE tunnels.
- Describe the RFC 4364 VPN options.
- Describe the carrier-of-carriers model.
- Configure the carrier-of-carriers and "Option C" configuration.
- Describe the flow of control and data traffic in a draft-rosen multicast VPN.
- Describe the configuration steps for establishing a draft-rosen multicast VPN.
- Monitor and verify the operation of draft-rosen multicast VPNs.
- Describe the flow of control traffic and data traffic in a next-generation multicast VPN.
- Describe the configuration steps for establishing a next-generation multicast VPN.
- Describe the configuration steps for establishing a next-generation multicast VPN.
- Monitor and verify the operation of next-generation multicast VPNs.
- Describe the flow of control traffic and data traffic when using MPVNs for Internet multicast.
- Describe the configuration steps for enabling internet multicast using MVPNs.
- Monitor and verify the operation of MVPN internet multicast.

Audience

This course benefits individuals responsible for configuring and monitoring devices running the Junos OS.

Prerequisites

Students should have intermediate-level networking knowledge and an understanding of OSPF, ISIS, BGP, and Junos policy.
Students should have experience configuring MPLS label-switched paths using Junos.

Students should also attend the following courses prior to attending this class: Introduction to the Junos Operating System (IJOS), Junos Routing Essentials (JRE), Junos Intermediate Routing (JIR), Junos MPLS Fundamentals (JMF)

Programme

- MPLS VPNs

Day 1 Chapter 1: Course Introduction Chapter 2: MPLS VPNs
- Provider-Provisioned VPNs Chapter 3: Layer 3 VPNs
- Layer 3 VPN Terminology
- Preliminary Steps
- VPN-IPv4 Address Structure
- PE Router Configuration
- Operational Characteristics Chapter 4: Basic Layer 3 VPN Configuration
- Lab: Layer 3 VPN with Static and BGP Routing
- Scaling Layer 3 VPNs
- Public Internet Access Options

Chapter 5: Layer 3 VPN Scaling and Internet Access
- Lab: LDP over RSVP Tunnels and Public Internet Access Day 2
- Exchanging Routes between Routing Instances
- Hub-and-Spoke Topologies
- Layer 3 VPN CoS Options
- Layer 3 VPN and GRE Tunneling Integration
- Layer 3 VPN and IPsec Integration
- Layer 3 VPN Egress Protection
- BGP prefix-independent convergence (PIC) edge for MPLS VPNs
- VRF Localization
- Provider Edge Link Protection
- Support for configuring more than 3 million L3VPN Labels

Chapter 6: Layer 3 VPNs – Advanced Topics
- Lab: GRE Tunneling
- Hierarchical VPN Models
- Carrier-of-Carriers Model
- Option C Configuration

Chapter 7: Interprovider Backbones for Layer 3 VPNs
- Lab: Carrier of Carrier Layer 3 VPNs
- Working with Multiple Layers
- Troubleshooting Commands on a PE Device
- Multi-Access Interfaces in Layer 3 VPNs
- PE and CE-based Traceroutes
- Layer 3 VPN Monitoring Commands

Chapter 8: Troubleshooting Layer 3 VPNs
- Lab: Troubleshooting Layer 3 VPNs Day 3
- Multicast Overview
- Draft Rosen MVPN Overview
- Draft Rosen MVPN Operation
- Configuration

Chapter 9: Draft Rosen Multicast VPNs
- Monitoring

Chapter 10: Next Generation Multicast VPNs
- Multicast VPN Overview
- Next-Generation MVPN Operation
- Configuration
- Monitoring
- Internet Multicast
- Ingress Replication
- Internet Multicast Signaling and Data Plane
- Configuring MVPN Internet Multicast
- Monitoring MVPN Internet Multicast
- Lab: MVPN Internet Multicast

Session Dates

På anmodning. Kontakt os venligst

Yderligere Information

Denne træning er også tilgængelig som træning på stedet. Kontakt os for at finde ud af mere.