
Junos Layer 3 VPNs

Duración: 3 Días **Código del Curso: JL3V** **Método de Impartición: Curso Remoto (Virtual)**

Temario:

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 Layer 3 VPNs, and Multicast for Layer 3 VPNs. This course also covers Junos operating system-specific implementations of Layer 3 VPNs.

These concepts are put into practice with a series of in-depth hands-on labs, which will allow participants to gain experience in configuring and monitoring Layer 3 VPNs on Junos OS devices. These hands-on labs utilize Juniper Networks vMX Series devices using the Junos OS Release 19.4R1.10, and are also applicable to other MX Series devices.

Dirigido a:

Individuals responsible for configuring and monitoring devices running the Junos OS

Objetivos:

- **After you complete this course you will 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
- 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
- Monitor and verify the operation of next-generation multicast VPNs
- Describe the flow of control traffic and data traffic when using MPVPNs for Internet multicast
- Describe the configuration steps for enabling internet multicast using MVPNs

instances

■ Monitor and verify the operation of MVPN internet multicast

- 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

Prerequisites:

Attendees should meet the following prerequisites:

- Intermediate-level networking knowledge and an understanding of OSPF, ISIS, BGP, and Junos policy
- Experience configuring MPLS label-switched paths using Junos
- Introduction to the Junos Operating System (IJOS)
- Junos Routing Essentials (JRE)
- Junos Intermediate Routing (JIR)
- Junos MPLS Fundamentals (JMF)
- JL2V - Junos Layer 2 VPNs
- JMF - Junos MPLS Fundamentals

Siguientes cursos recomendados:

- AJSPR - Advanced Junos Service Provider Routing
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Contenido:

Course Introduction

MPLS VPNs

- MPLS VPNs
- Provider-Provisioned VPNs

Layer 3 VPNs

- Layer 3 VPN Terminology
- VPN-IPv4 Address Structure
- Operational Characteristics

Basic Layer 3 VPN Configuration

- Preliminary Steps
- PE Router Configuration
- Lab: Layer 3 VPN with Static and BGP Routing

Layer 3 VPN Scaling and Internet Access

- Scaling Layer 3 VPNs
- Public Internet Access Options
- Lab: LDP over RSVP Tunnels and Public Internet Access

Layer 3 VPNs – Advanced Topics

- 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
- Lab: GRE Tunneling and Route Redistribution

Interprovider Backbones for Layer 3 VPNs

- Hierarchical VPN Models
- Carrier-of-Carriers Model
- Option C Configuration
- Lab: Carrier of Carrier VPNs

Troubleshooting 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
- Lab: Troubleshooting Layer 3 VPNs

Draft Rosen Multicast VPNs

- Multicast Overview
- Draft Rosen MVPN Overview
- Draft Rosen MVPN Operation Configuration
- Monitoring

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: MVPNs

Más información:

Para más información o para reservar tu plaza llámanos al (34) 91 425 06 60

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