Enterprise Computing Solutions - Education Services

TRAINING OFFERING

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Junos MPLS Fundamentals

CODE:	LENGTH:	PRICE:
JUN_JMF	16 Hours (2 days)	kr35,000.00

Description

This two-day course is designed to provide students with a solid foundation on Multiprotocol Label Switching (MPLS). After introducing concepts such as MPLS forwarding and the structure of the MPLS header, the course will delve into the configuration and operation of the two main label distribution protocols, RSVP and LDP. Special emphasis is given to the central topics of traffic engineering and MPLS traffic protection, including fast reroute, link/node protection, and LDP loop-free alternate. The 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 MPLS on Junos OS devices. These hands-on labs utilize Juniper Networks vMX Series devices using the Junos OS Release 16.1R3.10, but are also applicable to other MX Series devices.

Objectives

- Describe the history and rationale for MPLS, as well as its basic terminology.
- Explain the MPLS label operations (push, pop, swap) and the concept of labelswitched path (LSP).
- Describe the configuration and verification of MPLS forwarding.
- Describe the functionalities and operation of RSVP and LDP.
- Configure and verify RSVP-signaled and LDP-signaled LSPs.
- Select and configure the appropriate label distribution protocol for a given set of requirements.
- Describe the default Junos OS MPLS traffic engineering behavior.
- Explain the Interior Gateway Protocol (IGP) extensions used to build the Traffic Engineering Database (TED).
- Describe the Constrained Shortest Path First (CSPF) algorithm, its uses, and its path selection process.
- Describe administrative groups and how they can be used to influence path selection.
- Describe the default traffic protection behavior of RSVP-signaled LSPs.
- Explain the use of primary and secondary LSPs.
- Describe the operation and configuration of fast reroute.
- Describe the operation and configuration of link and node protection.
- Describe the operation and configuration of LDP loop-free alternate.
- Describe the LSP optimization options.
- Explain LSP priority and preemption.
- Describe the behavior of fate sharing.
- Describe how SRLG changes the CSPF algorithm when computing the path of a secondary LSP.
- Explain how extended admin groups can be used to influence path selection.
- Explain the purpose of several miscellaneous MPLS features.

Audience

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

Prerequisites

Students should have intermediate-level networking knowledge and should be familiar with the Junos OS command-line interface (CLI). Students should also attend the Introduction to the Junos Operating System (IJOS), Junos Routing Essentials (JRE), and Junos Intermediate Routing (JIR) courses prior to attending this class.

Programme

Day 1
1 COURSE INTRODUCTION

2 MPLS Fundamentals

- MPLS Foundation
- Terminology
- MPLS Configuration
- MPLS Packet Forwarding

LAB: MPLS Fundamentals

3 Label Distribution Protocols

- Label Distribution Protocols
- RSVP
- LDP

LAB: Label Distribution Protocols
4 Routing Table Integration

- Mapping Next Hops to LSPs
- Route Resolution Example
- Route Resolution Summary
- IGP Passive Versus Next-Hop Self for
- BGP Destinations

LAB: Routing Table Integration
Day 2
5 Constrained Shortest Path First

- RSVP Behavior Without CSPF
- CSPF Algorithm
- CSPF Tie Breaking
- Administrative Groups
- Interarea Traffic Engineered LSPs

LAB: CSPF
6 Traffic Protection and LSP Optimization

- Default Traffic Protection Behavior
- Primary and Secondary LSPs
- Fast Reroute
- RSVP Link Protection
- LDP LFA and Link Protection
- LSP Optimization

LAB: Traffic Protection
7 Fate Sharing

- Junos OS Fate Sharing
- SRLG
- Extended Admin Groups

LAB: Fate Sharing
8 Miscellaneous MPLS Features

- Forwarding Adjacencies
- Policy Control over LSP Selection
- LSP Metrics
- Automatic Bandwidth
- Container LSPs
- TTL Handling
- Explicit Null Configuration
- MPLS Pings

LAB: Miscellaneous MPLS Features

Follow on courses

Junos Layer 2 VPNs (JL2V)
Junos Layer 3 VPNs (JL3V)

Test and Certification

JNCIS-SP

Session Dates

På begäran, kontakta oss

Ytterligare information

Denna utbildning finns också som utbildning på plats. Kontakta oss för mer information.