ADVANCED JUNOS SERVICE PROVIDER ROUTING (AJSPR)

Course Code: 100560

Gain experience in configuring, monitoring, and troubleshooting the Junos operating system and in monitoring device and protocol operations.

This five-day course is designed to provide students with detailed coverage of OSPF, IS-IS, BGP, and routing policy. Through demonstrations and hands-on labs, students will gain experience in configuring, monitoring, and troubleshooting the Junos operating system and in monitoring device and protocol operations.

This course uses Juniper Networks vMX Series Routers for the hands-on component, but the lab environment does not preclude the course from being applicable to other Juniper hardware platforms running the Junos OS. This course is based on the Junos OS Release 17.1.

What You'll Learn

After successfully completing this course, you should be able to:

- Describe the various OSPF link-state advertisement (LSA) types.
- Explain the flooding of LSAs in an OSPF network.
- Describe the shortest-path-first (SPF) algorithm.
- List key differences between OSPFv2 and OSPFv3.
- Describe OSPF area types and operations.
- Configure various OSPF area types.
- Summarize and restrict routes.
- Identify some scenarios in a service provider network that can be solved using routing policy or specific configuration options.
- Use routing policy and specific configuration options to implement solutions for various scenarios.
- Describe how to troubleshoot OSPF.
- Explain the concepts and operation of IS-IS.
- Describe various IS-IS link-state protocol data unit (LSP) types.
- List IS-IS adjacency rules and troubleshoot common adjacency issues.
- Configure and monitor IS-IS.
- Display and interpret the link-state database (LSDB).
- Perform advanced IS-IS configuration options.
- Implement IS-IS routing policy.

- Explain the default operation in multiarea IS-IS.
- Describe IS-IS address summarization methods.
- Configure and monitor a multiarea IS-IS network.
- Describe how to troubleshoot IS-IS.
- Describe basic BGP operation.
- List common BGP attributes.
- Explain the route selection process for BGP.
- Describe how to alter the route selection process.
- Configure some advanced options for BGP peers.
- Describe various BGP attributes in detail and explain the operation of those attributes.
- Manipulate BGP attributes using routing policy.
- Explain the causes for route instability.
- Describe the effect of damping on BGP routing.
- Explain the default behavior of damping on links.
- Control damping using routing policy.
- View damped routes using command-line interface (CLI) commands.
- Describe the operation of BGP route reflection.
- Configure a route reflector.
- Describe the operation of a BGP confederation.
- Configure confederations.
- Describe peering relationships in a confederation.
- Describe how to troubleshoot BGP.
- Describe how to troubleshoot routing policy.

Who Needs to Attend

This course benefits individuals responsible for implementing, monitoring, and troubleshooting Layer 3 components of a service provider's network.

Prerequisites

Students should have intermediate-level networking knowledge and an understanding of the Open Systems Interconnection (OSI) model and the TCP/IP protocol suite. Students should also attend the Introduction to the Junos Operating System (IJOS) and Junos Intermediate Routing (JIR) courses prior to attending this class.

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CLASSROOM LIVE	$4,750 USD	5 Day

Classroom Live Outline

Day 1

Chapter 1: Course Introduction

Chapter 2: OSPF

- OSPFv2 Review
- Link-State Advertisements
- Protocol Operations
- OSPF Authentication

Chapter 3: OSPF Areas

- Review of OSPF Areas
- Stub Area Operation
- Stub Area Configuration
- NSSA Operation
- NSSA Configuration
- Route Summarization

Chapter 4: OSPF Case Studies and Solutions

- Virtual Links
- OSPF Multiarea Adjacencies
- External Reachability

Day 2

Chapter 5: Troubleshooting OSPF

- Troubleshooting OSPF

Chapter 6: IS-IS

- Overview of IS-IS
- IS-IS PDUs
- Neighbors and Adjacencies
- Configuring and Monitoring IS-IS

Chapter 7: Advanced IS-IS Operations and Configuration Options

- IS-IS Operations
- IS-IS Configuration Options
- IS-IS Routing Policy

Day 3

Chapter 8: Multilevel IS-IS Networks

- Level 1 and Level 2 Operations
- Multilevel Configuration

Chapter 9: Troubleshooting IS-IS

- Troubleshooting IS-IS

Chapter 10: BGP

- Review of BGP
- BGP Operations
- BGP Path Selection Options
- Configuration Options

Day 4

Chapter 11: BGP Attributes and Policy—Part 1

- BGP Policy
- Next Hop
- Origin and MED
- AS Path

Chapter 12: BGP Attributes and Policy—Part 2

- Local Preference
- Communities

Chapter 13: Route Reflection and Confederations

- Route Reflection Operation
- Configuration and Routing Knowledge
- BGP Confederations

Day 5

Chapter 14: BGP Route Damping

- Route Flap and Damping Overview

- Route Damping Parameters
- Configuring and Monitoring Route Damping

Chapter 15: Troubleshooting BGP

- Troubleshooting BGP

Chapter 16: Troubleshooting Policy

- Troubleshooting Policy

Classroom Live Labs

- Lab 1: OSPF Multi-Area Networks
- Lab 2: OSPF Route Summarization
- Lab 3: Advanced OSPF Options and Routing Policy
- Lab 4: OSPF Troubleshooting
- Lab 5: IS-IS Configuration and Monitoring
- Lab 6: Advanced IS-IS Configuration Options and Routing Policy
- Lab 7: Configuring a Multilevel IS-IS Network
- Lab 8: IS-IS Troubleshooting
- Lab 9: BGP and BGP Attributes
- Lab 10: BGP Attributes – Next Hop, Origin, MED, and AS Path
- Lab 11: BGP Attributes – Local Preference and Communities
- Lab 12: Scaling BGP
- Lab 13: BGP Route Damping
- Lab 14: BGP Troubleshooting
- Lab 15: Policy Troubleshooting

ADVANCED JUNOS SERVICE PROVIDER ROUTING (AJSPR)

Course Code: 100560

VIRTUAL CLASSROOM LIVE	$4,750 USD	5 Day

Virtual Classroom Live Outline

Day 1

Chapter 1: Course Introduction

Chapter 2: OSPF

- OSPFv2 Review
- Link-State Advertisements
- Protocol Operations
- OSPF Authentication

Chapter 3: OSPF Areas

- Review of OSPF Areas
- Stub Area Operation
- Stub Area Configuration
- NSSA Operation
- NSSA Configuration
- Route Summarization

Chapter 4: OSPF Case Studies and Solutions

- Virtual Links
- OSPF Multiarea Adjacencies
- External Reachability

Day 2

Chapter 5: Troubleshooting OSPF

- Troubleshooting OSPF

Chapter 6: IS-IS

- Overview of IS-IS
- IS-IS PDUs
- Neighbors and Adjacencies
- Configuring and Monitoring IS-IS

Chapter 7: Advanced IS-IS Operations and Configuration Options

- IS-IS Operations
- IS-IS Configuration Options
- IS-IS Routing Policy

Day 3

Chapter 8: Multilevel IS-IS Networks

- Level 1 and Level 2 Operations
- Multilevel Configuration

Chapter 9: Troubleshooting IS-IS

- Troubleshooting IS-IS

Chapter 10: BGP

- Review of BGP
- BGP Operations
- BGP Path Selection Options
- Configuration Options

Day 4

Chapter 11: BGP Attributes and Policy—Part 1

- BGP Policy
- Next Hop
- Origin and MED
- AS Path

Chapter 12: BGP Attributes and Policy—Part 2

- Local Preference
- Communities

Chapter 13: Route Reflection and Confederations

- Route Reflection Operation
- Configuration and Routing Knowledge
- BGP Confederations

Day 5

Chapter 14: BGP Route Damping

- Route Flap and Damping Overview

- Route Damping Parameters
- Configuring and Monitoring Route Damping

Chapter 15: Troubleshooting BGP

- Troubleshooting BGP

Chapter 16: Troubleshooting Policy

- Troubleshooting Policy

Virtual Classroom Live Labs

- Lab 1: OSPF Multi-Area Networks
- Lab 2: OSPF Route Summarization
- Lab 3: Advanced OSPF Options and Routing Policy
- Lab 4: OSPF Troubleshooting
- Lab 5: IS-IS Configuration and Monitoring
- Lab 6: Advanced IS-IS Configuration Options and Routing Policy
- Lab 7: Configuring a Multilevel IS-IS Network
- Lab 8: IS-IS Troubleshooting
- Lab 9: BGP and BGP Attributes
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- Lab 12: Scaling BGP
- Lab 13: BGP Route Damping
- Lab 14: BGP Troubleshooting
- Lab 15: Policy Troubleshooting

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PRIVATE GROUP TRAINING	5 Day

Visit us at www.globalknowledge.com or call us at 1-866-716-6688.