
Advanced Junos Service Provider Routing

Duration: 4 Days **Course Code: AJSPR**

Overview:

This four-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 and monitoring the Junos operating system and in monitoring device and protocol operations.

Target Audience:

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

Objectives:

- **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.
 - 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 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.
 - 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.
 - Control damping using routing policy.
 - View damped routes using command-line interface (CLI) commands.
-

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), Junos Routing Essentials (JRE), and Junos Intermediate Routing (JIR) courses prior to attending this class.

Content:

OSPF

- OSPFv2 Review
- Link-State Advertisements
- Protocol Operations
- OSPF Authentication
- Lab 1: OSPF Multarea Networks

OSPF Areas

- Review of OSPF Areas
- Stub Area Operation
- Stub Area Configuration
- NSSA Operation
- NSSA Configuration
- Route Summarization
- Lab 2: Configuring and Monitoring OSPF Areas and Route Summarization

OSPF Case Studies and Solutions

- Virtual Links
- OSPF Multiarea Adjacency
- External Reachability
- Lab 3: Advanced OSPF Options and Routing Policy

IS-IS

- Overview of IS-IS
- IS-IS PDUs
- Neighbors and Adjacencies
- Configuring and Monitoring IS-IS
- Lab 4: IS-IS Configuration and Monitoring

Advanced IS-IS Operations and Configuration Options

- IS-IS Operations
- IS-IS Configuration Options
- IS-IS Routing Policy
- Lab 5: Advanced IS-IS Configuration Options and Routing Policy

Multilevel IS-IS Networks

- Level 1 and Level 2 Operations
- Multilevel Configuration
- Lab 6: Configuring a Multilevel IS-IS Network

BGP

- Review of BGP
- BGP Operations
- BGP Path Selection and Options
- Configuration Options
- Lab 7: BGP

BGP Attributes and Policy—Part 1

- BGP Policy
- Next Hop
- Origin and MED
- AS Path
- Lab 8: BGP Attributes: Next Hop, Origin, MED, and AS Path

BGP Attributes and Policy—Part 2

- Local Preference
- Communities
- Lab 9: BGP Attributes: Local Preference and Communities

Route Reflection and Confederations

- Route Reflection Operation
- Configuration and Routing Knowledge
- BGP Confederations
- Lab 10: Scaling BGP

BGP Route Damping

- Route Flap and Damping Overview
- Route Damping Parameters
- Configuring and Monitoring Route Damping
- Lab 11: Route Damping

Further Information:

For More information, or to book your course, please call us on +254 713 027 191

training@clclearningafrica.com

www.clclearningafrica.com

Computer Learning Centre 2nd Floor Museum Hill Centre, Muthithi Road, Westlands, Nairobi, Kenya