Arrow ECS Finland Oy - Education Services

TRAINING OFFERING

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Advanced Junos Service Provider Routing (AJSPR)

CODE:	LENGTH:	PRICE:
JUN_AJSPR	40 Hours (5 days)	€4,750.00

Description

his five-day course is designed to provide students with detailed coverage of OSPF, ISIS, 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 19.3.

Objectives

• 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.
• Explain OSPF link metrics
• Describe the various OSPF authentication methods.
• Explain the key differences between OSPFv2 and OSPFv3.
• Describe OSPF area types and operations.
• Configure various OSPF area types.
• Summarize and restrict routes.
• Configure OSPF multi-area adjacencies
• Configure OSPF virtual links.
• Explain OSPF external reachability.
• List useful commands that are used to troubleshoot and verify OSPF.
• Isolate different OSPF issues.
• 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 multilevel IS-IS.
• Describe address summarization methods used in IS-IS.
• Configure and monitor a multilevel IS-IS network.
• List useful commands to troubleshoot and verify IS-IS problems.
• Troubleshoot and isolate different IS-IS issues.
• 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.
• Explain how policies function in BGP.
• Describe BGP attributes and explain how these attributes can be used to manipulate traffic.
• Show how Regex can be used in policies to manipulate AS-path.
• Describe the BGP attributes Origin, MED and communities in detail and explain the operation of those attributes.
• Manipulate these BGP attributes using routing policy.

• Describe the operation of BGP route reflection.
• Configure a route reflector.
• Describe the virtual route reflector.
• Describe the operation of optimal route reflection.
• Describe the operation of a BGP confederation.
• Configure confederations.
• Describe peering relationships in a confederation.
• Describe DDoS attacks.
• Describe DDoS mitigation techniques.
• Describe FlowSpec Operations.
• Configure and Monitor FlowSpec.
• Review common BGP troubleshooting procedures.
• List common BGP troubleshooting commands.
• Identify issues with BGP peering.
• Isolate problems on routing policy structure and configuration.
• Identify common commands for troubleshooting 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.

Audience

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.

Programme

Day 1 1. COURSE INTRODUCTION 2. OSPF • OSPFv2 Review • Link-State Advertisements • Protocol Operations • OSPF Authentication • OSPFv3 LAB: Configuring OSPF 3. OSPF Areas • Review of OSPF Areas • Stub Area Operation • Stub Area Configuration • NSSA Operation • NSSA Configuration • Route Summarization LAB: Advanced OSPF 4. Advanced OSPF Options • OSPF Multi-area Adjacencies • External Reachability • Virtual Links LAB: Advanced OSPF Options **Day 2** 5. Troubleshooting OSPF • Troubleshooting OSPF Adjacency Issues • Troubleshooting LSDB Consistency Issues • Troubleshooting OSPF Routing Issues • Case Study – Adjacency Issues LAB: Troubleshooting OSPF 6. IS-IS • Overview of IS-IS • IS-IS PDUs • Neighbors and Adjacencies • Configuring and Monitoring IS-IS Lab: IS-IS Configuration and Monitoring 7. Advanced IS-IS Operations • IS-IS Operations • IS-IS Configuration Options • IS-IS Routing Policy LAB: Advanced IS-IS Configuration Options and Routing Policy **Day 3** 8. Multilevel IS-IS Networks • Level 1 and Level 2 Operations • Multilevel Configuration LAB: Configuring a Multilevel IS-IS Network 9. Troubleshooting IS-IS • IS-IS Troubleshooting Overview • Case Study LAB: Troubleshooting IS-IS 10. BGP • Review of BGP • BGP Operations • BGP Path Selection and Options • Configuration Options LAB: Configuring BGP **Day 4** 11. BGP Attributes and Policy—Part 1 • BGP Policy • Next Hop • Origin and MED • AS Path LAB: BGP Attributes – Part 1 12. BGP Attributes and Policy—Part 2 • Origin • Multi-Exit Discriminator • Communities LAB: BGP Attributes – Part 2 13. Route Reflection and Confederations • Route Reflection Operation • Configuration and Routing Knowledge • BGP Confederations LAB: Scaling BGP **Day 5** 14. BGP FlowSpec • DDoS Overview • DDoS Mitigation Techniques • FlowSpec Overview • Configuring and Monitoring FlowSpec LAB: BGP FlowSpec 15. Troubleshooting BGP • BGP Troubleshooting • Case Study: Neighborship Issues LAB: Troubleshooting BGP Appendix A: BGP Route Damping • Route Flap and Damping Overview • Route Damping Parameters • Configuring and Monitoring Route Damping LAB: BGP Route Damping

Follow on courses

RECOMMENDED NEXT COURSE
JNCIE-SP Bootcamp

Test and Certification

ASSOCIATED CERTIFICATION

- JNCIP-SP

Further Information

Advanced Junos Service Provider Routing (AJSPR) is an advanced-level course.

Session Dates

Aikataulutamme kiinnostuksen mukaan. Ota yhteyttä

Additional Information

This training is also available as onsite training. Please contact us to find out more.