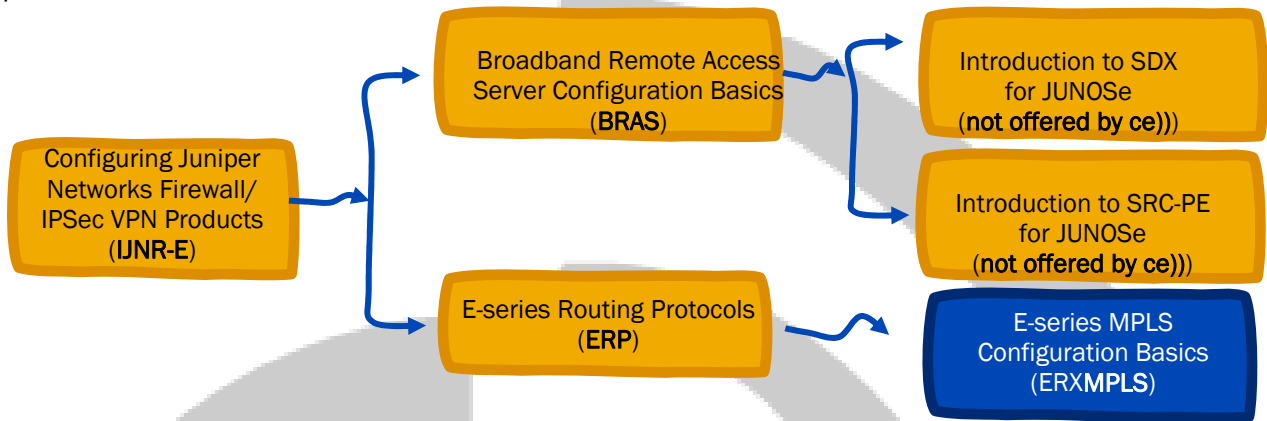




JUNIPER E-SERIES ROUTER - TRAINING CURRICULUM

Juniper Networks Educational Services helps ensure that you have the knowledge and skills to deploy and maintain cost-effective, high-performance networks, as well as demonstrate your technical expertise and keep you ahead of the technology curve. Our technical education courses are designed to give you the technical detail and capabilities you require to ensure that your network operates securely and at peak performance.



JNCIA-E = IJNR + BRAS

JNCIS-E = ERP + MPLS

JNCIP-E = All of the above plus extensive configuration experience

E-series MPLS Configuration Basics (MPLS)

Course Overview

This 3-day course is designed to provide technical network professionals with the skills they need to successfully install, configure, and troubleshoot the router in a basic MPLS network. The course covers the fundamentals of MPLS, MPLS traffic engineering, and MPLS virtual private networks (VPNs). You will learn about the Label Distribution Protocol (LDP), the Constraint-based Routing Label Distribution Protocol (CR-LDP), and the Resource Reservation Protocol with traffic engineering extensions (RSVP-TE) as well as MPLS internetworking with IS-IS, OSPF, and BGP. The course consists of over 50% hands-on exercises.

After attending this class, you will be able to:

- Describe the basic MPLS label switching model;
- Configure MPLS tunnels;
- Configure MPLS tunnel advertisement to an IGP;
- Describe the establishment of MPLS label-switched paths (LSPs) for traffic engineering;
- Configure E-series platforms for MPLS explicitly routed tunnels;
- Configure MPLS traffic engineered tunnels;
- Define the terms P router, PE router, and CE router;

- Configure E-series platform to support VPNs over MPLS LSPs;
- Configure VRFs; and
- Configure address family-based BGP advertisements..

Prerequisites

- Knowledge of IP in an ISP environment
- Introduction to Juniper Networks Routers - E-series
- E-series Routing Protocols (formerly E-series Circuit Aggregation Basics)

Course Contents

- Module 1: Multiprotocol Label Switching Overview:
 - MPLS Origin and Terminology
 - Overlay Model versus MPLS
 - MPLS Encapsulation Strategies and MPLS Switching
 - MPLS Performance and Services
 - MPLS LSPs
- Module 2: Best-Effort, Hop-by-Hop Label-Switched Paths:
 - Building Label-Switched Paths Using RSVP-TE
 - Basic MPLS Configuration
 - MPLS Interaction with IGPs



Lab 1: Basic MPLS Path Configuration

- Configure MPLS LSPs in a Network Based on Static Routes
- Configure the MPLS Global Parameters
- Configure MPLS Interface Parameters
- Configure MPLS Tunnels

Lab 2: MPLS Hop-by-Hop LSPs Using Either OSPF or IS-IS as the IGP

- Configure an E-series Router to Establish Best-Effort, Hop-by-Hop LSPs Using an IGP instead of Static Routes
- Configure MPLS Global and Interface Parameters
- Configure MPLS Tunnels
- Configure MPLS Tunnel Advertisement to an IGP
- Module 3: Topology-Driven Label-Switched Paths:
 - Building Label-Switched Paths Using LDP
 - Downstream Unsolicited Configuration
 - MPLS LDP over RSVP-TE

Lab 3: MPLS Downstream Unsolicited LSPs Using Either OSPF or IS-IS as the IGP

- Configure an E-series Router to Establish LSPs Using LDP as the Label Distribution Protocol in Downstream Unsolicited Mode of Operation
- Configure MPLS Global and Interface Parameters
- Configure Topology-Driven LSPs
- Configure Profiles
- Module 4: Border Gateway Protocol / Multiprotocol Label Switching Virtual Private Networks:
 - Overview of BGP/MPLS VPNs
 - MPLS/VPN Stacked Tunnel Setup and Forwarding Example
 - BGP4 Multiprotocol Extensions
 - Configuring BGP/MPLS VPNs
 - VPN Configuration Options

Lab 4: BGP/MPLS Virtual Private Networks Using Either OSPF or IS-IS as the IGP

- Configure an E-series Router to Support Layer 3 VPNs Using BGP over MPLS Label-Switched Paths
- Configure MPLS Topology-Driven LSPs to Provide a Base Tunnel between BGP Peers
- Configure VRFs
- Configure VPN IPv4 Address Family-Based BGP Advertisements
- Module 5: Multiprotocol Label Switching Layer 2 Virtual Private Networks
- MPLS Layer 2 VPN Theory and Operation
- Configuring MPLS Layer 2 VPNs

Lab 5: Layer 2 Virtual Private Networks Using Either OSPF or IS-IS as the IGP

- Configure an E-series Router to Provide Layer 2 VPNs across an MPLS Core Network
- Configure an MPLS Core Network Using LDP as the Label Distribution Protocol
- Configure Topology-Driven LSPs to Establish a Base Tunnel between Provider Routers
- Configure a Layer 2 VPN Using Frame Relay
- Configure a Layer 2 VPN Using VLANs
- Module 6: Multiprotocol Label Switching Traffic Engineering
 - Overview of Traffic Engineering
 - Traffic Engineering Signaling
 - Reoptimization and Route Pinning
 - Configuration Options
 - Fast Reroute Protection
 - MPLS in a DiffServ Domain

Lab 6: MPLS Traffic Engineering Explicit Path Configuration Using Either OSPF or IS-IS as the IGP

- Configure an E-series Router to Provide Traffic Engineering Services across an MPLS Core Network
- Configure MPLS Explicitly Routed Tunnels Using RSVP-TE as the Label Distribution Protocol
- Configure MPLS Traffic Engineered Tunnels Using RSVP-TE as the Label Distribution Protocol

Cost AUD \$2,099 inc. GST



Certification: (JNCIS-E)

Juniper Networks Certified Internet Specialist

Exam code: JNO-

Exam: Prometric testing www.2test.com

Exam length: 90 minutes

Exam type: 60 multiple-choice questions

Passing grade: 70%

Recommended Training: AJRE

Available Dates: www.crystalecho.com

Terms and Conditions

- Students will be required to supply their own notebook PC with network card and serial port
- 50% refunded if cancelled in less than 10 working days before course
- 25% refunded if cancelled in less than 5 working days before course

