Learning Services

Implementing Segment Routing on Cisco IOS XR (SEGRTE201)

Overview
The Implementing Segment Routing on Cisco IOS XR (SEGRTE201) Cisco Training on Demand course provides you with technical training to learn the concepts of segment routing, application engineered routing, segment routing traffic engineering, and its associated protocols. You explore and examine network migration options, Border Gateway Protocol (BGP) egress engineering, and Cisco Agile Carrier Ethernet architecture.

In addition, you'll explore the interaction of the Segment Routing Global Block (SRGB) and Interior Gateway Protocol (IGP), the operation of prefix and adjacency segment identifiers, the coexistence of the Label Distribution Protocol (LDP) and Segment Routing (SR) internetworking data plane, and the function and configuration of a mapping server. You gain the knowledge necessary to define classic Loop-Free Alternate (LFA), to implement and verify Topology Independent LFA (TI-LFA) with SR/LDP interworking, and to explore, enable, and verify the components of SR Traffic Engineering (SR-TE). Finally, you learn how to configure and verify Path Computation Element (PCE) for use in SR-TE policy instantiation, learn how to configure and verify BGP Link State (BGP-LS), and explore how BGP is implemented in a data center.

Instructor
Ben Parrish

Duration
The SEGRTE201 Training on Demand course consists of 7 modules, totaling more than 10 hours of video instruction along with 6 hands-on lab exercises.

Target Audience
This course is designed for engineers and networking specialists who plan, design, implement, and service Multiprotocol Label Switching (MPLS) networks.
Objective
After completing this course, you should be able to:

- Explain segment routing concepts
- Describe the operation of prefix and adjacency segment identifiers
- Configure and verify Intermediate System – Intermediate System (IS-IS) and Open Shortest Path First (OSPF) segment routing operation
- Characterize the types of SR and LDP internetworking deployment models
- Implement and verify TI-LFA and SR TI-LFA
- Enable and verify SR-TE
- Instantiate SR-TE policies
- Configure and verify BGP-LS and PCE

Course Prerequisites
The knowledge and skills necessary before attending this course is:

- Experience and familiarity with the Cisco IOS® XR platform and command-line interface (CLI)
- Detailed knowledge of TCP/IP routing and switching design and configuration in a multilayer service provider network
- Understanding of MPLS, Layer 3 VPN, and BGP technology and implementation

Course Outline

- Module 1: Introduction to Segment Routing
- Module 2: IGP Segment Routing Implementation and Verification
- Module 3: Segment Routing and LDP Internetworking
- Module 4: Topology Independent Loop-Free Alternate
- Module 5: Segment Routing – Traffic Engineering
- Module 6: Multidomain SR-TE
- Module 7: BGP Prefix Segment and Egress Peer Engineering

Labs Outline
This course contains 6 hands-on lab exercises.

Representative topology for all labs in the course:
The labs included in this course are:

- SEGRTE Lab 1: Configuring and Verifying IGP Segment Routing
- SEGRTE Lab 2: Migrating from LDP to Segment Routing
- SEGRTE Lab 3: Configuring and Verifying TI LFA Fast Reroute
- SEGRTE Lab 4: Configuring and Verifying SR-TE
- SEGRTE Lab 5: Configuring and Verifying Multidomain SR-TE
- SEGRTE Lab 6: Configuring and Verifying BGP Segment Routing

**Instructor Bio**

Ben Parrish has more than 20 years of experience in the networking field, with over twelve of those at Cisco Systems in multiple roles, including supporting the TAC for escalations and supporting both enterprise and service provider customers within the Advanced Services organization. Since 2015, Ben has been traveling the world teaching full time, focusing on service provider routing technologies and hardware. In addition to holding a Cisco CCDE® certification, Ben has been a Cisco CCIE® in Routing and Switching for over 10 years.

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