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Learning Style: On Demand

Technology: Cisco

Difficulty: Intermediate

Course Duration: 40 Hours

Implementing Segment Routing on Cisco IOS XR (SEGRTE201) v2.0 - On Demand

Course Information

About this course:

This course will cover segment routing (SR) fundamental concepts. You will know the interworking of Label Distribution Protocol (LDP) with segment routing and how to configure and verify segment routing within an interior gateway protocol (IGP).

You will also learn how to instantiate and verify segment routing traffic engineering policies, how to implement segment routing within Border Gateway Protocol (BGP), and how to implement Topology-Independent Loop-Free Alternate (TI-LFA) using segment routing.

Course Objective:

You will have the following skills upon completing this course:

- Implement and verify TI-LFA segment routing
- Instantiate segment routing policies
- Instantiate multidomain segment routing policies
- Configure and verify BGP prefix segments and SR-based services
- Describe the key concepts of segment routing
- Implement and verify IGP segment routing
- Migrate an existing Multiprotocol Label Switching (MPLS) LDP-based network to segment routing

Audience:

This course is designed for engineers who plan, implement, and service MPLS networks:

- Field engineers
- Technical support personnel
- Channel partners and resellers
- Systems engineers
- Network engineers

Prerequisite:

You should have the following knowledge and skills to fully benefit from this course:

- Knowledge of general networking concepts
- Familiarity with Cisco IOS XR software

Course Outline:

Introduction to Segment Routing

- Introduction
- Examining Unified Fabric Routing
- Exploring Segment Routing Concepts
- Examining Segment Types
- Examining the Segment Routing Global Block (SRGB)

IGP Segment Routing Implementation and Verification

- Introduction

- Examining the IGP Control Plane
- Examining SRGB and IGP Interactions
- Examining Prefix and Adjacency SIDs
- Intermediate System to Intermediate System (IS-IS) Multilevel and Open Shortest Path First (OSPF) Multi-Area
- Configuring and Verifying IS-IS SR Operation
- Configuring and Verifying OSPF SR Operation

Segment Routing and LDP Interworking

- Introduction
- SR and LDP Interworking Data Plane
- Mapping Server Function and Configuration
- Interworking Deployment Models

Topology Independent – Loop Free Alternate

- Introduction
- Examining Classic LFA
- Examining TI-LFA Fundamentals
- Implementing and Verifying TI-LFA for SR Traffic
- Implementing and Verifying SR TI-LFA for LDP Traffic
- TI-LFA and SR LDP Interworking

Segment Routing Policies – Traffic Engineering (SR-TE)

- Introduction
- Exploring SR Policies
- Anycast and Binding SIDs
- Enabling and Verifying SR-TE
- Explicit path SR-TE policies
- Constrained dynamic path SR-TE policies
- Instantiating SR Policies
- Instantiating SR Policies using BGP Dynamic

Multidomain SR Policies

- Introduction
- Configuring and Verifying a Path Computation Element (PCE)
- Configuring and Verifying BGP Link-State (LS)
- Configuring Multidomain SR Policies with a PCE
- Configuring Multidomain SR Policies with On Demand Next-Hop (ODN)

BGP Prefix Segment and Egress Peer Engineering

- Introduction
- Examining the BGP-based data center
- Examining the BGP Prefix-SID Operation
- Configuring and Verifying the BGP Prefix SID
- Examining Egress Peer Engineering

- Examining BGP peering segments
- Configuring and verifying egress peer engineering

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