Implementing Segment Routing on Cisco IOS XR

Cursusduur: 180 Dagen   Cursuscode: SEGRTE201   Version: 2.0   Trainingsmethode: e-Learning

Beschrijving:

This course covers the fundamental concepts of segment routing, how to configure and verify segment routing within an Interior Gateway Protocol (IGP), the interworking of Label Distribution Protocol (LDP) with segment routing, how to implement topology-independent loop-free alternate (TI-LFA) using segment routing, and how to instantiate and verify segment routing traffic engineering policies. Students will also learn how to implement segment routing within Border Gateway Protocol (BGP).

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 andverify Topology Independent LFA (TI-LFA) with SR/LDP interworking, and to explore, enable, and verify thecomponents 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.

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

Doelgroep:

Designed for engineers and service providers who are deploying segment routing within their network.

Doelstelling:

- **After completing this course you should be able to:**

- 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

- 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

Vereiste kennis en vaardigheden:

Attendees should meet the following prerequisites:

- Cisco IOS XR platform and command-line interface (CLI) familiarity
- 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

Examens en certificering

Recommended as preparation for the following exams:

- There are no exams currently aligned to this course

Cursusinhoud:

Introduction to Segment Routing (SR)

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

IGP Segment Routing Implementation and Verification

- Examining the IGP Control Plane
- Examining SRGB and IGP Interactions
- Examining Prefix and Adjacency Segment Identifiers
- Intermediate System to Intermediate System 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

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

Topology Independent -Loop Free Alternate

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

Segment Routing Policies - Traffic Engineering (SR-TE)

- Exploring SR Policies
- Introducing the Anycast and Binding SIDs
- Enabling and Verifying SR Policies
- Instantiating SR Policies
- Instantiating SR Policies Using BGP Dynamic

Multidomain SR Policies

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

Segment Routing - Based Services

- Examining the BGP Prefix - SID Operation
- Configuring and Verifying the BGP Prefix SID
- Examining Egress Peer Engineering
- Examining the BGP Prefix-SID Operation
- SR Flexible Algorithm and Performance Measurement (PM) Delay
- SR-Enabled VPNs

Labs:

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

Nadere informatie:

Neem voor nadere informatie of boekingen contact op met onze Customer Service Desk 030 - 60 89 444

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