Learning Services

Cisco Training on Demand

Cisco IOS XR Advanced IPv4 Routing for Service Providers (XIPv4R)

Overview

The Cisco IOS® XR Advanced IPv4 Routing for Service Providers (XIPv4R) Version 3.0 Cisco Training on Demand provides you an advanced look at the popular IPv4 routing protocols supported in Cisco IOS XR Release 5.1.1 Software and the intricacies of interior gateway protocol (IGP) operation through Open Shortest Path First (OSPF) and Intermediate System-to-Intermediate System (IS-IS) Protocol labs that engage you in a detailed examination of the link-state database and the effects of many protocol options. You learn about the unicast routing architecture implemented in Cisco IOS XR Software, bidirectional forwarding detection, and how to use address family and subaddress family identifier commands. You then learn to use the fundamental and optional protocol behavior of OSPFv2 and describe the features of the OSPFv2 that enables it to scale and support large networks.

You also learn about the Routing Policy Language (RPL), its background, how it is implemented, and the types of options that are available with RPL. In addition, you gain knowledge of the complexities of large-scale routing using the Border Gateway Protocol (BGP) and how they are explored with the focus placed on scaling networks using route reflection and confederations. Additionally, numerous BGP options, such as multihop, multipath, and authentication, are discussed and configured in a lab setting.

Interested in purchasing this course in volume at discounts for your company? Contact ctod-sales@cisco.com.

Duration

The XIPv4R Training on Demand course consists of 5 modules totaling more than 12 hours of video instruction along with 5 hands-on lab exercises.
Target Audience

The primary audience for this course includes network operation center (NOC) engineers, network and senior engineers, and support engineers.

Objectives

After completing this course, you should be able to:

- Describe the unicast forwarding architecture and infrastructure
- Describe routing and forwarding security mechanisms
- Describe and examine Bidirectional Forwarding Detection (BFD)
- Explain nonstop forwarding operation
- Configure RPL sets and policies
- Design hierarchical and parameterized RPL policies
- Configure IS-IS Level 1 and Level 2 areas and verify operation
- Implement route redistribution and summarization in IS-IS
- Implement RPL policies in IS-IS
- Configure a multiarea OSPF domain and verify operation
- Configure route redistribution to OSPF
- Configure full-mesh, route reflector, and confederation Internal BGP (iBGP) autonomous systems
- Configure Exterior BGP (eBGP) between adjacent autonomous systems
- Examine iBGP and eBGP operations

Course Prerequisites

The knowledge and skills necessary before attending this course are:

- Knowledge of the Cisco IOS XR Software configuration syntax to the extent covered in the Cisco CRS-1 Essentials or Cisco XR12000 Series Essentials courses
- Ability to establish, without assistance, a basic configuration for OSPF, IS-IS, and BGP as accomplished in the Cisco CRS-1 Essentials or Cisco XR12000 Series Essentials courses' labs
- Routing protocols configuration experience using BGP, IS-IS, OSPF, or Building Scalable Cisco Internetworks course
- Advanced knowledge of BGP multihomed, multiple autonomous systems configurations, or Configuring BGP on Cisco Routers course

Course Outline

- Module 1: IPv4 Routing Architecture and Infrastructure
- Module 2: Routing Policy Language
- Module 3: IS-IS Routing in the Core
- Module 4: OSPF Routing in the Core
- Module 5: BGP Routing Through the Core
- Module 6: Troubleshooting: RADULKO Transport Ltd.
Labs Outline

This course contains five hands-on virtual lab exercises powered by Cisco Learning Labs and Cisco IOL (Cisco IOS Software on Linux).

Figure 1. Topology for All Labs in Cisco IOS XR Advanced IPv4 Routing for Service Providers

The labs included in this course are:

- Lab 1: Cisco IOS XR Routing Architecture
- Lab 2: Configuring Route Policies
- Lab 3: Configuring IS-IS Routing
- Lab 4: Configuring OSPF Routing
- Lab 5: Configuring BGP Routing

Instructor: John Mansholt

John Mansholt has been teaching Cisco technologies since the late 1990s and specializes in service provider, and CCNA® and CCNP® products. His approach to presenting subjects ranging from xconnect to access-list commands is to keep concepts simple and straightforward with an emphasis on labs and practical implementation. Mansholt has traveled extensively, teaching classes in various locations in North and South America as well as in numerous places in Europe and Asia.
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