Cisco Aggregation Services Router 9000 Series Essentials

Duration: 4 Days   Course Code: ASR9KE   Version: 6.1   Delivery Method: Virtual Learning

Overview:

The Cisco Aggregation Services Router 9000 Series Essentials course introduces you to the features and functions of the Cisco Aggregation Services Router (ASR) 9000 Series platforms. Through a combination of lecture and hands-on labs, you will gain an understanding of all major aspects of the platform, including hardware, Layer 2 and Layer 3 services, routing protocols including Segment Routing, Layer 2 and Layer 3 multicast, Quality of Service (QoS) features, and network virtualization. The course investigates Cisco Internetworking Operating System (IOS) XR 64-Bit Linux-based feature parity in the environment, as well as how to install Cisco IOS® XR 64-Bit software packages.

Virtual Learning

This interactive training can be taken from any location, your office or home and is delivered by a trainer. This training does not have any delegates in the class with the instructor, since all delegates are virtually connected. Virtual delegates do not travel to this course, Global Knowledge will send you all the information needed before the start of the course and you can test the logins.

Target Audience:

Technical professionals who need to know how to deploy Cisco ASR 9000 Series routers in their network environment.

Objectives:

- **After you complete this course you will be able to:**

- List and describe the major features and benefits of a Cisco ASR 9000 Series router

- List and describe the major features and benefits of the Cisco 64-Bit IOS XR operating system

- Understand data flow through the Cisco ASR 9000 Series router

- Configure Cisco ASR 9000, back out of configuration changes, and restore older versions of the configuration

- Install the Cisco IOS XR 64-Bit Software operating system, package information envelopes and software maintenance updates

- Enable multicast routing on a Cisco ASR 9900 Series router

- Configure Layer 3 VPN services

- Configure Ethernet link bundles

- Configure local Ethernet Line (E-Line) Layer 2 VPN (L2VPN)

- Configure Ethernet over Multiprotocol Label Switching (EoMPLS) E-Line L2VPN

- Configure EoMPLS with pseudowire backup

- Configure local Ethernet LAN(E-LAN) L2VPN

- Describe Virtual Private LAN Service (VPLS) L2VPN

- Describe VPLS with Border Gateway Protocol (BGP) autodiscovery

- Configure service-based Connectivity Fault Management (CFM)

- Configure Layer 2 multicast features

- Describe basic QoS implementation

- Describe how to configure and verify network Virtualization (nV) on the ASR 9000 series

Prerequisites:

Attendees should meet the following prerequisites:

- Basic IOS XR 64-Bit Software configuration commands
- Basic knowledge of router installation and some experience with installation tools
- Routing protocol configuration experience with BGP, Intermediate

Testing and Certification

Recommended preparation for exam(s):

- There is no exam aligned to this course

System-to-Intermediate System (IS-IS), and Open Shortest Path First (OSPF)
- Knowledge of Layer 2 IEEE switching and related protocols
- Strong knowledge of MPLS configuration or multicast configuration experience
- Experience troubleshooting Cisco routers in a large network environment
- MPLS - Implementing Cisco MPLS

Content:

Cisco ASR 9000 Series Hardware

- Examining the Cisco ASR 9000 Series Chassis
- Examining the Cisco ASR 9000 Series Architecture
- Examining the Route Switch Processor/ Route Processor (RSP/RP) Functions and Fabric Architecture
- Examining the Cisco ASR 9000 Series Line Card
- Examining the Cisco ASR 9000 Power Subsystems

Cisco IOS XR 64-Bit Software Architecture and Linux Fundamentals

- Cisco IOS XR 64-Bit Software Fundamentals
- Cisco ASR 9000 IOS XR 64-Bit vs. 32-Bit
- Exploring Linux Fundamentals

Cisco IOS XR 64-Bit Software Installation

- Examining Resource Allocations and Media Mappings
- Migrating to Cisco IOS XR 64-Bit Software
- Performing Disaster Recovery
- Installing Software Packages

Cisco IOS XR 64-Bit Software Configuration Basics

- Configuring Cisco IOS XR 64-Bit Basic Operations
- Cisco IOS XR 64-Bit Initial Configuration
- Reviewing the Configuration

Cisco IOS XR 64-Bit Software Routing Protocols

- Exploring Intermediate System to Intermediate System (IS-IS)
- Exploring OSPF
- Exploring BGP
- Exploring Routing Protocol for LLN

Multicast Routing

- Exploring Multicast Routing
- Exploring Protocol Independent Multicast (PIM)

Cisco Multiprotocol Label Switching

- Examining the MPLS Forwarding Infrastructure
- Implementing the MPLS Label Distribution Protocol (LDP)

Cisco IOS XR 64-Bit Segment Routing

- Segment Routing Concepts
- Interior Gateway Protocol Segment Routing (IGP SR) Control Plane Overview
- Prefix and Adjacency Segment IDs (SIDs)
- SR IS-IS Multi-Level and OSPF Multi-Area
- IS-IS SR Configuration and Verification
- OSPF SR Configuration and Verification

Layer 3 VPNs

- Examining L3VPNs
- Exploring L3VPN Control and Data Flow
- Configuring L3VPNs
- Verifying the L3VPN Operation

Cisco ASR 9000 Layer 2 Architecture

- Examining Carrier Ethernet and Flexible Ethernet Edge
- Comparing Layer 2 and Layer 3 VPNs
- Examining the ASR 9000 Layer 2 Infrastructure and Ethernet Flow Points (EFPs)
- Layers 2 and 3 Coexistence and VLAN Tag Manipulation
- Exploring the Layer 2 Network Infrastructure

Point-to-Point Layer 2 Services

- Point-to-Point Alternating Current-Alternating Current (AC-AC) and Attachment Circuit Redundancy
- Point-to-Point AC-Pseudowire (PW) Cross-Connect
- Examining Pseudowire Redundancy and Resiliency

Layer 2 Multicast

- Examining the Cisco ASR 9000 Series Multicast
- Implementing Multicast

Quality of Service

- QoS Basics and the Modular QoS CLI (MQC) Mode
- Layer 2 QoS Example

Labs:

- Lab 1: ASR 9904 Hardware Discovery Lab
- Lab 2: Device Discovery and Initial Configuration
- Lab 3: Installing Cisco IOS XR 64-Bit Software
- Lab 4: Cisco IOS XR 64-Bit Software Operations
- Lab 5: Configuring IS-IS Routing
- Lab 6: Configuring OSPF Routing
- Lab 7: Configuring Internal BGP (iBGP) Routing
- Lab 8: IPv4 Multicast Configuration
- Lab 9: Configuring Multiprotocol Label Switching
- Lab 10: Configuring and Verifying IGP Segment Routing
- Lab 11: Configuring Layer 3 Virtual Private Network
- Lab 12: Local E-Line Service
- Lab 13: EoMPLS Service

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

info@globalknowledge.co.uk

www.globalknowledge.com/en-gb/

Global Knowledge, Mulberry Business Park, Fishponds Road, Wokingham Berkshire RG41 2GY UK