

ASR9KE

Cisco Aggregation Services Router 9000 Series Essentials (ASR9KE) v6.0

32 horas

Service Provider

Cisco

Cisco Continuing Education Credits

32 CE Credits

INTRODUÇÃO

The Cisco Aggregation Services Router 9000 Series Essentials (ASR9KE) v6.0 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.

OBJETIVO DO CURSO

- 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

PÚBLICO-ALVO

System engineers

Technical support personnel

Channel partners, resellers

PRÉ-REQUISITOS

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 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

CONTEÚDO PROGRAMÁTICO

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

Lab outline

ASR 9904 Hardware Discovery Lab

Device Discovery and Initial Configuration

Installing Cisco IOS XR 64-Bit Software

Cisco IOS XR 64-Bit Software Operations

Configuring IS-IS Routing

Configuring OSPF Routing

Configuring Internal BGP (iBGP) Routing

IPv4 Multicast Configuration

Configuring Multiprotocol Label Switching

Configuring and Verifying IGP Segment Routing

Configuring Layer 3 Virtual Private Network

Local E-Line Service

EoMPLS Service