

Advanced Services' Cisco ASR 9000 Aggregation Services Router Series Essentials (ASR9kE) Version 3 (Cisco IOS XR Software Version 4.0.1)



This instructor-led course introduces you to the features and functions of the Cisco® 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; software; Layer 2 and Layer 3 services; Layer 2 and Layer 3 multicast; operations, administration, and management (OAM); and quality of service (QoS) features. This training is based on Cisco IOS® XR Software Release 4.0.1.

Duration

Five days.

Target Audience

This course is designed for technical professionals who need to know how to deploy Cisco ASR 9000 Series Aggregation Services Routers in their network environment. The primary audience for this course includes:

- System engineers
- Technical support personnel
- Channel partners, resellers

Course Objectives

Upon completion of this course, you should 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 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 operating system, package information envelopes (PIEs), and software maintenance updates (SMUs)

- Configure the Cisco IOS XR security features in an owner secure domain router (SDR)
- Configure routing protocols and Route Policy Language in a complex multi-AS environment
- Enable multicast routing on a Cisco ASR9000 Series router
- Configure Multiprotocol Label Switch–Traffic Engineering (MPLS–TE) on a Cisco ASR9000 Series router
- Configure Layer 3 VPN services
- Configure Ethernet link bundles
- Configure local E-Line L2VPN
- Configure Ethernet over MPLS E-Line L2VPN
- Configure EoMPLS with pseudowirebackup
- Configure local E-LAN L2VPN
- Configure link-based Ethernet operations, administration, and maintenance (E-OAM)
- Configure virtual private LAN service (VPLS) L2VPN
- Configure VPLS with Border Gateway Protocol (BGP) autodiscovery
- Configure service-based connectivity fault management (CFM)
- Describe Multiple Spanning Tree-Access Gateway (MST-AG)
- Configure Layer 2 multicast features
- Describe basic QoS implementation

Course Prerequisites

Following are the prerequisites for this course:

- 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
- Knowledge of Cisco router security implementation, including authentication, authorization, and accounting (AAA) and TACACS
- Experience troubleshooting Cisco routers in a large network environment

To locate Cisco courses that cover the listed prerequisites, go to the Cisco Training and Events webpage at www.cisco.com/web/learning/index.html.

Course Outline

The course outline is as follows:

- Module 1: Introduction to the Cisco ASR 9000 Aggregation Series
- Module 2: Cisco ASR 9000 Hardware
- Module 3: Cisco IOS XR Software Overview
- Module 4: Cisco IOS XR Software Basics
- Module 5: Cisco IOS XR Software Software Installation
- Module 6: Cisco IOS XR Software Security
- Module 7: Cisco IOS XR Software Operations
- Module 8: Cisco IOS XR Routing Protocols
- Module 9 Route Policy Language
- Module 10: Layer 3 Multicast
- Module 11: Cisco IOS XR MPLS
- Module 12: Cisco IOS XR Layer 3 VPN
- Module 13: Cisco ASR 9000 Layer 2 Architecture
- Module 14: Cisco ASR 9000 Point-to-Point Layer 2 Services
- Module 15: Cisco ASR 9000 Multipoint Layer 2 Services
- Module 16: Cisco ASR 9000 Operations, Administration, and Maintenance
- Module 17: Cisco ASR 9000 Layer 2 Multicast
- Module 18: Cisco ASR 9000 QoS

Lab Outline

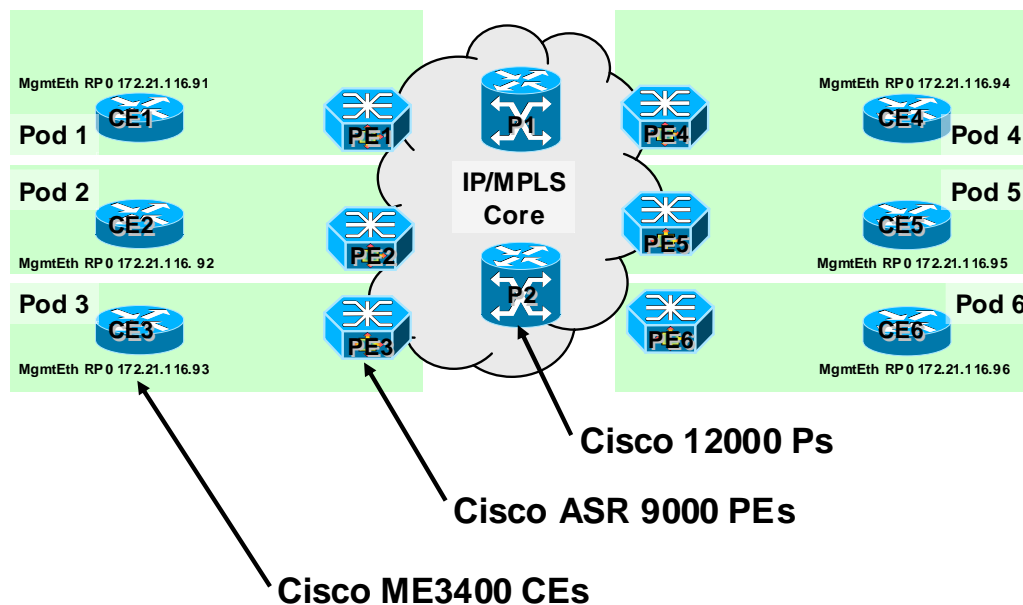
The lab outline is as follows:

- Lab 1: Hardware Discovery and Initial Configuration
- Lab 2: Cisco IOS XR Software Installation
- Lab 3: Cisco IOS XR Security
- Lab 4: Cisco IOS XR Operations
- Lab 5: OSPF Routing Configuration
- Lab 6: IS-IS Routing Configuration
- Lab 7: BGP Routing Configuration
- Lab 8 Route Policy Language
- Lab 9: Layer 3 Multicast
- Lab 10: MPLS
- Lab 11: Layer 3 VPN
- Lab 12: Local E-Line
- Lab 13: EoMPLS E-Line
- Lab 14: Local E-LAN
- Lab 15: VPLS
- Lab 16 OAM
- Lab 17: Layer 2 Multicast

Lab Topology

Asix-node Cisco ASR 9000 Gigabit Ethernet network with a Cisco 12000 core is used in the hands-on lab portions of the course. It can support 12 students in six pods. Figure 1 shows the lab topology.

Figure 1. Lab Topology of the Cisco ASR 9000 Series Essentials Course



Registration Information

For more information about schedules and registration for this course, contact aeskt_registration@cisco.com.

For More Information

For more information about Advanced Services Education course offerings, including custom training options, as well as Advanced Services Curriculum Planning Services and the Advanced Services Technical Knowledge Library (TKL), refer to the Advanced Services Education website at www.cisco.com/go/ase.



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