Deploying Cloud Connect Solutions with Cisco Cloud Services Router 1000V (CLDCSR) v1.0 - On Demand

Modality: On Demand

Duration: 40 Hours

CLC: 15 Units

Course Information

About this course:

This course provides you skills to deploy and operate Cisco Cloud Services Router 1000V (CSR 1000V). It will provide comprehensive WAN gateway and network services functions including routing, security and connectivity into virtual and cloud environments.

A comprehensive learning experience with hands-on practicing lab will help you learn: Cisco Cloud Services Route 1000V deployment options and requirements; how to implement, integrate, install, manage, and troubleshoot the deployment process and common operation issues; hypervisor support, licensing models, features and programmability support.

Course Objective:

You will be equipped with the following skills after taking this course:

- Describe the Call Home feature and its benefits, configure the feature on the Cisco CSR 1000V, including the anonymous reporting option, and display the Call Home configuration. List the different Call Home events that trigger alerts and commands that are executed as a result of the alert.
- Troubleshoot Cisco CSR 1000V virtual machine (VM) issues.
- Rehost a Cisco CSR 1000V license to a new VM, whether the current Cisco CSR 1000V router is accessible or not.
- Describe the Virtual Extensible LAN (VXLAN) Layer 2 gateway feature and configure this feature on the Cisco CSR 1000V router.
- Deploy the Cisco CSR 1000V in a virtual private cloud using Microsoft Azure or Amazon Web Services (AWS).
- Describe common network operations that the Cisco CSR 1000V supports.
- Explore programmability support on Cisco CSR 1000V, including APIs, shells, and data models.
- Describe items to be aware of before installing a Cisco CSR 1000V, including virtual machine requirements for installing Cisco CSR 1000V, licensing options that are available with Cisco CSR 1000V, supported Cisco IOS® XE technologies, and management options for Cisco CSR 1000V.
- Prepare for installation of Cisco CSR 1000V Series routers.
- Explain common Cisco IOS XE CLI commands and conventions that can make it easier to work in the CLI, and describe how you can get help with command syntax and command

options.

- Describe the options you can use to activate the license for Cisco CSR 1000V and activate the license for each option. Troubleshoot issues with Cisco CSR 1000V licenses.
- Upgrade the Cisco IOS XE software for an existing Cisco CSR 1000V installation.

Audience:

- Implementation/operation/support/installation and upgrade specialists
- IT administrators
- Network engineers
- Cloud computing experts
- Security specialists
- Cisco integrators and partners
- Data center engineers
- Cloud engineers
- System engineers
- Field engineers

Prerequisite:

To fully benefit from this course, you should have the following knowledge:

- Cloud Virtualization/VMware competency
- IP Network Security and VPN (IPSec)
- Cisco CCNA® Routing and Switching (or equivalent knowledge)

Here are some recommended Cisco learning offerings that can help you meet these prerequisites:

- Interconnecting Cisco Networking Devices Part 2 (ICND2)
- Implementing Cisco Network Security (IINS)
- Interconnecting Cisco Networking Devices Part 1 (ICND1)

Course Outline:

Introducing Cisco CSR Product Overview

- Cloud Adoption and Cisco CSR 1000V Overview
- Virtual Machine Requirements
- Cisco Software Licensing
- Cisco Smart Software Licensing
- Differences Between Cisco CSR 1000V Series and Cisco ASR 1000 Series
- Supported Cisco IOS XE Technologies
- Management Support
- Compatibility with Cisco Unified Computing System™ (Cisco UCS®)

Preparing for Installation

- Obtaining the Cisco CSR 1000V Virtual Machine Image

- Cisco CSR 1000V Installation Files
- Cisco CSR 1000V Installation Options
- Guidelines and Limitations
- ROM Monitor (ROMMON) and Cisco CSR 1000V

Installing Cisco CSR 1000V in VMware Elastic Sky X (ESXi) Environments

- Supported VMware Features and Operations
- VMware Requirements—Cisco IOS XE Fuji 16.9
- Virtual Machine Requirements for Different Cisco IOS XE Versions
- Deploying the Cisco CSR 1000V Open Virtualization Archive (OVA) to the Virtual Machine
- Manually Create the Virtual Machine and Install Cisco CSR 1000V Software with the .iso File (VMware ESXi)
- Increasing Performance on VMware ESXi Configurations

Booting Cisco CSR 1000V and Accessing the Console

- Booting the Cisco CSR 1000V Virtual Machine
- Configuring Access to the Cisco CSR 1000V Console

Using Cisco IOS XE Software

- Use Cisco IOS XE Software
- Find Command Options
- Non-Volatile Random Access Memory (NVRAM) File Security

Managing Cisco CSR 1000V Licenses

- Methods to Activate Cisco CSR 1000V Licenses
- Cisco Software Licensing
- Cisco Smart Software Licensing
- Smart Licenses Regular Operations
- Smart Licenses Advanced Operations
- Troubleshooting Cisco Smart License Issues

Upgrading the Cisco IOS XE Software

- Prerequisites for the Software Upgrade Process
- Save Backup Copies of Your Old System Image and Configuration
- Use Trivial File Transfer Protocol (TFTP) or Remote Copy Protocol (RCP) to Copy the System Image into Bootflash Memory
- Load the New System Image from Cisco IOS XE Software
- Load the New System Image from GRand Unified Bootloader (GRUB) Mode
- Save Backup Copies of Your New System Image and Configuration and Reboot Cisco CSR 1000V

Mapping Cisco CSR 1000V Network Interfaces to Virtual Machine Network Interfaces

- Mapping Cisco CSR 1000V Network Interfaces to Virtual Machine Network Interfaces
- Mapping Cisco CSR 1000V Network Interfaces with vSwitch Interfaces

Using GRUB Mode (Bootstrap Program)

- GRUB Mode and the Configuration Register Overview
- Access GRUB Mode and Use the Menu
- Modify the Configuration Register (confreg)
- Change the Configuration Register Settings

Configuring Call Home for Cisco CSR 1000V

- Call Home Overview
- Obtain Smart Call Home Services
- Anonymous Reporting
- How to Configure Call Home
- Configuring Diagnostic Signatures
- Display Call Home Configuration Information
- Alert Group Trigger Events and Commands
- Message Contents

Configuring Virtual CPU (vCPU) Distribution Across Data, Control, and Service Planes

- Information About vCPU Allocation and Distribution
- How to Boot Cisco CSR 1000V with an OVA Image
- How to Configure vCPU Distribution Across Data, Control, and Service Planes

Troubleshooting Cisco CSR 1000V Virtual Machine Issues

- Verify the Cisco CSR 1000V Hardware and Virtual Machine Requirements
- Troubleshoot Network Connectivity Issues
- Troubleshoot Virtual Machine Performance Issues

Rehosting the Cisco CSR 1000V License

- Rehosting a Classical License
- Rehosting a Smart License

Supporting the Cisco CSR 1000V Virtual Extensible LAN (VXLAN) Feature

- Prerequisites for Cisco CSR 1000V VXLAN Support
- Configure Cisco CSR 1000V as a VXLAN Layer 2 Gateway
- Examples to Configure Cisco CSR 1000V as a VXLAN Layer 2 Gateway

Deploying Cisco CSR 1000V in a Virtual Private Cloud

- Introduction to Virtual Port Channel (VPC)
- Cisco CSR 1000V in Microsoft Azure

- Cisco CSR 1000V in AWS
- Cisco CSR 1000V on Google Cloud Platform

Exploring Cisco CSR 1000V Operations

- Cisco CSR 1000V as Highly Secure VPN Gateway
- Cisco CSR 1000V as an Multiprotocol Label Switching (MPLS) WAN Endpoint
- Cisco CSR 1000V as a Layer 2 or Layer 3 Extension
- Cisco CSR 1000V as a Traffic Control Point
- Cisco CSR 1000V as a VXLAN Gateway
- Cisco CSR 1000V as a Virtual Route Reflector
- Cisco CSR 1000V as a Wireline or Fixed Wireless Gateway
- Cisco CSR 1000V in Software-Defined Wide Area Network (SD-WAN) Deployments

Exploring Programmability on Cisco CSR 1000V

- Introduction to Programmability
- Provisioning on Cisco CSR 1000V
- Shells and Scripting on Cisco CSR 1000V
- Model-Driven Programmability on Cisco CSR 1000V

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