Implementing Cisco Application Centric Infrastructure with Virtual Reality

DCACIVR (DCACI v1.1 + VR)

COURSE OVERVIEW

This hands-on lab, virtual reality-enabled course immerses learners to ACI (Application Centric Infrastructure) in its latest 5.x release and discusses architecture, functionality, and new features for EN, Service Provider, Multi-cloud, 5G, and IoT. Learners will examine how ACI is implemented greenfield and in parallel with traditional networks. You will also learn to analyze and leverage metrics to demonstrate and recognize the value of operational efficiency at scale.

Also included with this course:

• FREE Oculus Quest VR Headset

PREREQUISITES

The knowledge and skills that the learner should have before attending this course is as follows:

• Familiarity with Data Center Networks

WHO SHOULD ATTEND

The primary audience for this course is as follows:

• System Architects
• System Engineers
• Technical Decision Makers

COURSE OBJECTIVES

Upon completing this course, the learner will be able to meet these overall objectives:

• Explain and configure the ACI Fabric
• Describe and configure the APIC (ACI Controller) and Cloud (cAPIC)
• Configure tenants and contracts underlying policy-driven ACI spine and leaf architecture
• Explain and configure APIC hypervisor integration
• Explain and configure L2 and L3 border leaf connectivity to external networks
• Discuss configuration of Layer 4 through 7 service integration with ACI
• Understand new features of ACI 5.x
    • Service provider enhancements (automate, security, visibility)
    • Multi-Cloud deployments ACI-Anywhere (AWS, Azure)
    • Built in Network Management Applications such as Nexus Dashboard & Insights
    • Updated Wizards for Initial Fabric configuration

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COURSE OUTLINE

The Business Case for ACI
- What is ACI and What does it solve?
- ACI Concepts, Fundamentals, and Principles
- Policy vs. The Network and how they work together
- Application Logic Defined Through Policy
- Advantages and Benefits of Policy-Driven Data Center Design
- What's New in ACI 5.x

The ACI Fabric Architecture

- Leaf and Spine Single-Site Topology
- Multi-Site ACI Architecture
- ACI Anywhere
- Introducing Nexus Dashboard and Insights
- Fabric Initialization and Discovery Using LLDP
- The Use of Overlays in ACI
- Unicast Forwarding
- Multicast Forwarding
- Flowlet Dynamic Load-Balancing
- Health Scores
- Faults and Events

Operating ACI with the APIC Controller

- What is the APIC
- Configuration of Endpoint Groups and Endpoints
- Application Profiles
- Configuration of Contracts, Subjects, and Filters
- Tenants
- Contexts
- Bridge Domains

Operationalizing ACI Policy

- Contracts
- Subjects
- Filters
- Preferred Groups
- Micro-segmentation

Hypervisor Integration with ACI

- Policy Coordination
- VMM integration
- Management Networks (Mgmt. Tenant)
- Configuring ACI Integration with VMware

ACI Connectivity to External Networks

- Inside and Outside Network Policies
- Configuring a Layer 3 Connection Outside the Network
- Configuring a Layer 2 Connection Outside the Network
- Migration from External Networks to ACI

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COURSE OUTLINE

Layer 4 Through Layer 7 Services

- Service Insertion and Redirection
- Implementation of Service Graphs
- Configuring Application Profiles Specific to Layer 4 to Layer 7 Services
- ACI Programmability Options of Layer 4 to Layer 7 Services

Introduction to ACI Programmability

- API Exploration
- Use Cases
- Automating Data Center Operations with ACI
- Intersight Services for Terraform

LAB OUTLINE

Labs are designed to assure learners a whole practical experience, through the following practical activities:

- VR Lab: Exploring the virtual reality environment
- VR Lab: designing Single Fabric ACI
- GUI Lab: Accessing the Remote Lab Environment and navigating the APIC
- VR Lab: Server Room ACI Fabric racking
- GUI Lab: Configure Basic Network Constructs with the APIC
- VR Lab: design session: Data Center ACI Multiple Fabric (Multi-Site/Multi-Pod)
- GUI Lab: Create a Two-Tier Application Profile
- VR Lab: Server Room Fabric Compute and Network cabling
- GUI Lab: Create the Virtual Machine Manager Domain and Configure the Application Profile
- VR Lab: Server Room TOR L3 Devices racking and cabling (IPN/ISN connectivity)
- GUI Lab: Configure External Layer 3 to Internal ACI Communication
- GUI Lab: Attach Internal Compute Resources and Create Access to the External Network
- VR Lab: Server Room Service Appliances racking (ASA, FTD, Load Balancer) and cabling
- GUI Lab: Deploy a Tenant/App Profile with REST/POSTMAN