Network Training

Module 1 Course Outline
Module 1: Building Core Networks
Module 2: Implementing Link-State Protocols (IS-IS & OSPF)
Module 3: Border Gateway Protocol
Module 4: Implement & Troubleshoot MPLS

Lab Outline Lab
1: Configure and Verify OSPF in the Core Network
Lab 2: Configure and Verify IS-IS in the Core Network
Lab 3: Configure and Verify Basic IBGP
Lab 4: Configure and Verify EBGP
Lab 5: Scale BGP with BGP Peer Templates and Route-Reflectors
Lab 6: Configure BGP Route Filtering
Lab 7: Configure Multihoming Policy
Lab 8: Configure and Verify MPLS
Lab 9: Configure Intranet MPLS VPNs
Lab 10: Configure Extranet MPLS VPNs

Module 2 Implementing Cisco Collaboration Core Technologies v1.0 (350-801)
Infrastructure and Design
1.1 Describe the key design elements of the following, pertaining to the Cisco Collaboration architecture as described in the SRND/PA
- 1.1.a Licensing (Smart, Flex)
- 1.1.b Sizing
- 1.1.c Bandwidth
- 1.1.d High availability
- 1.1.e Disaster recovery
- 1.1.f Dial plan
- 1.1.g Security (certificates, SRTP, TLS)
- 1.1.h QoS

1.2 Describe the purpose of Edge devices in the Cisco Collaboration architecture such as Expressway and Cisco Unified Border Element

1.3 Configure these network components to support Cisco Collaboration solutions
- 1.3.a DHCP
- 1.3.b NTP
- 1.3.c CDP
- 1.3.d LLDP
- 1.3.e LDAP
- 1.3.f TFTP
- 1.3.g Certificates

1.4 Troubleshoot these network components in a Cisco Collaboration solution
- 1.4.a DNS (A/AAA, SRV, Reverse Pointer Record (PTR))
- 1.4.b NTP
- 1.4.c LDAP integration on Cisco Unified Communications Manager

1.5 Explain these components to support Cisco Collaboration solutions
1.5.a SNMP
1.5.b DNS

2.0 Protocols, Codecs, and Endpoints
2.1 Troubleshoot these elements of a SIP conversation
2.1.a Call set up and tear down
2.1.b SDP
2.1.c DTMF
2.2 Identify the appropriate collaboration codecs for a given scenario
2.3 Configure codec negotiations
2.4 Deploy SIP endpoints
2.4.a Manual
2.4.b Self provisioning
2.4.c Bulk Administration Tool (BAT)
2.5 Troubleshoot collaboration endpoints

3.0 Cisco IOS XE Gateway and Media Resources
3.1 Configure these voice gateway elements
3.1.a DTMF
3.1.b Voice translation rules and profiles
3.1.c Codec preference list
3.1.d Dial peers
3.2 Configure ISDN PRI/BRI
3.3 Troubleshoot ISDN PRI/BRI
3.4 Configure and verify the MGCP
3.5 Identify the appropriate media resources for a given scenario (hardware and software)

4.0 Call Control
4.1 Describe the Cisco Unified Communications Manager digit analysis process
4.2 Implement toll fraud prevention on Cisco Unified CM
4.3 Configure globalized call routing in Cisco Unified CM
4.3.a Route patterns (traditional and +E.164 format)
4.3.b Translation patterns
4.3.c Standard local route group
4.3.d Transforms
4.3.e SIP route patterns
4.4 Describe Mobile and Remote Access (MRA)

5.0 QoS
5.1 Describe problems that can lead to poor voice and video quality
5.1.a Latency

5.1.b Jitter
5.1.c Packet loss
5.1.d Bandwidth
5.2 Describe the QoS requirements for these application types (voice and video)
5.3 Describe the class models for providing QoS on a network
5.3.a 4/5 Class model
5.3.b 8 Class model
5.3.c QoS Baseline model (11 Class)
5.4 Describe the purpose and function of these DiffServ values as it pertains to collaboration
5.4.a EF
5.4.b AF41
5.4.c AF42
5.4.d CS3
5.4.e CS4
5.5 Describe QoS trust boundaries and their significance in LAN-based classification and marking
5.6 Describe and determine location-based CAC bandwidth requirements
5.7 Configure and verify LLQ (class map, policy map, service policy)

6.0 Collaboration Applications
6.1 Configure Cisco Unity Connection mailbox and MWI
6.2 Configure Cisco Unity Connection SIP integration options to call control
6.3 Describe Cisco Unity Connection call handlers
6.4 Describe Cisco Unified IM&P protocols and deployment
6.4.a XMPP
6.4.b High availability
6.5 Deploy Cisco Jabber on premises

Module 3. **Cisco Prime Infrastructure 2.2 Overview**

Lesson 1: Defining Network Management

Topic 1: What is Network Management?
Topic 2: What is FCAPS?
Topic 3: Benefits of Network Management

Lesson 2: Exploring the Network Management Process

Topic 1: Network Management Process
Topic 2: Standards for Information - MIB
Topic 3: Standards for Communication - SNMP

Lesson 3: Introducing Cisco Prime Infrastructure 2.2

Topic 1: Unified Access Networks Management

Topic 2: The Cisco Prime Infrastructure Vision
Topic 3: Device Integration and Management
Topic 4: Cisco Prime Infrastructure Licensing Model
Topic 5: A Case Study as a Guideline

Lesson 4: Installing Cisco Prime Infrastructure 2.2

Topic 1: Installation Task Flow
Topic 2: Deployment Options
Topic 3: VMware Deployment and Configuration Steps
Topic 4: Troubleshoot the Installation

Lesson 5: Getting Started with Cisco Prime Infrastructure

Topic 1: Overview of the CLI Interface
Topic 2: Overview of the GUI Interface Topic 3:

The Getting Started Menu

Lesson 6: Configuring Initial Server Settings

Topic 1: Basic System Settings
Topic 2: License Management
Topic 3: Manage External Servers

Lesson 7: Managing Virtual Domains and Users

Topic 1: Virtual Domain Management
Topic 2: Users, Roles, and AAA
Topic 3: User Management

Inventory Management

Lesson 1: Discovering the Network

Topic 1: Inventory System Settings
Topic 2: Discover the Network

Lesson 2: Managing the Network Inventory

Topic 1: Credential Profiles
Topic 2: Add One Device
Topic 3: Bulk Import Devices
Topic 4: Verify Device Credentials
Topic 5: View Network Device Reports

Lesson 3: Managing Groups

Topic 1: Virtual Domain Group Assignment
Topic 2: Location and Device Groups
Topic 3: Port Groups

Lesson 4: Managing Compute Devices

Topic 1: Physical Servers
Topic 2: Cisco UCS Servers Topic 3: User

Defined UCS

Lesson 5: Managing Network Device Software Images

Topic 1: Populating the Software Image Repository
Topic 2: Use the Image Dashboard
Topic 2: Perform Upgrade Analysis
Topic 3: Distribute Software Images
Topic 4: Verify Software Image Upgrades

Map the Network

Lesson 1: Managing Wireless Maps

Topic 1: Wireless Maps Overview
Topic 2: Manage Sites Maps
Topic 3: Automatic Hierarchy Creation
Topic 4: Google Earth

Lesson 2: Managing Network Topology Maps

Topic 1: Network Topology Overview
Topic 2: Location Groups
Topic 3: User Defined Groups
Topic 4: Topology Maps Management
Topic 5: Customize Topology Maps
Topic 6: Unmanaged Device Elements

Configuration Management

Lesson 1: Modifying Configuration Archive Settings

Topic 1: Configuration System Settings
Topic 2: Configuration Archive System Settings

Lesson2: Managing the Configuration Archive

Topic 1: Schedule Configuration Archive Collections Topic 2:

Modify Configurations for a Single Device

Lesson 3: Managing Templates for Wired Devices

Topic 1: Wired Templates Overview
Topic 2: Feature and Technologies Templates
Topic 3: Shared Policy Objects
Topic 4: Composite Templates
Topic 5: Configuration Groups
Topic 6: Deploy Configuration Templates to Multiple Devices

Lesson 4: Managing Templates for Wireless Devices

Topic 1: Wireless Templates Overview
Topic 2: Lightweight Access Point Templates
Topic 2: Autonomous Access Point Templates
Topic 3: Autonomous AP Migration Templates
Topic 4: Controller Configuration Groups
Topic 5: Switch Location Templates
Topic 6: Deploy Wireless Templates

Lesson 5: Working with Wireless Technologies

Topic 1: Chokepoints
Topic 2: WiFi TDOA Receivers
Topic 3: Access Points Radios

Lesson 6: Using Plug and Play

Topic 1: Bootstrap
Topic 2: Initial Device Setup
Topic 3: Controller Auto Provisioning
Topic 4: Profiles
Topic 5: Status

Monitor and Troubleshoot

Lesson 1: Working with Dashboards

Topic 1: Introduction to Dashboards
Topic 2: Overview Dashboards
Topic 2: Wireless Dashboards
Topic 3: Performance Dashboards
Topic 4: Manage Dashboards and Dashlets

Lesson 2: Monitoring and Troubleshooting Devices and Users

Topic 1: Network Devices
Topic 2: Compute Devices
Topic 3: Manage Monitoring Policies
Topic 4: Alarms and Events
Topic 5: Clients and Users
Topic 6: Wireless Technologies

Topic 7: Tools

Lesson 3: Generating Reports

Topic 1: Reports Launch Pad Overview
Topic 2: Create and Customize Reports
Topic 3: Schedule Reports using Templates

Lesson 4: Managing Services

Topic 1: Network Services
Topic 2: Routed Virtual Containers
Topic 3: Mobility Services
Topic 4: Application Visibility & Control

System Administration

Lesson 1: Managing the Server

Topic 1: Admin Dashboard
Topic 2: Logging
Topic 3: Users, Roles & AAA
Topic 4: Virtual Domains
Topic 5: User Preferences
Topic 6: Software Update
Topic 7: Settings
Topic 8: Licenses
Topic 9: Health Rules

Labs

Lab 1-1: Instructor Demo: Virtual Appliance Setup
Lab 1-2: Access Cisco Prime Infrastructure
Lab 1-3: Instructor Demo: Initial Server Settings
Lab 1-4: Login, Create Virtual Domains, and Add Users
Lab 2-1: Instructor Demo: Discover the Network
Lab 2-2: Manage the Network Inventory
Lab 2-3: Manage Groups
Lab 2-4: Manage Network Device Software Images
Lab 3-1: Manage Wireless Maps
Lab 3-2: Manage Network Topology Maps
Lab 4-1: Instructor Demo: Configuration Archive System Settings
Lab 4-2: Manage the Configuration Archive
Lab 4-3: Manage Wired Device Templates
Lab 4-4: Manage Wireless Device Templates
Lab 5-1: Monitor and Manage Dashboards
Lab 5-2: Monitor and Troubleshoot Devices and Users
Lab 5-3: Generate Reports