

Course Details : Objectives

After taking this course, you should be able to:

- Implement routing and switching protocols in Data Centre environment.
- Implement overlay networks in data Centre.
- Introduce high-level Cisco Application Centric Infrastructure (Cisco ACI) concepts and Cisco Virtual Machine manager (VMM) domain integration.
- Describe Cisco Cloud Service and deployment models.
- Implement Fibre Channel fabric.
- Implement Fibre Channel over Ethernet (FCoE) unified fabric.
- Implement security features in data Centre.
- Implement software management and infrastructure monitoring.
- Implement Cisco UCS Fabric Interconnect and Server abstraction.
- Implement SAN connectivity for Cisco Unified Computing System (Cisco UCS).
- Describe Cisco HyperFlex infrastructure concepts and benefits.
- Implement Cisco automation and scripting tools in data Centre.
- Evaluate automation and orchestration technologies.

Course Outline : **Theory**

Implementing Data Centre Switching Protocols:

Spanning Tree Protocol

Port Channels Overview

Virtual Port Channels Overview

Implementing First-Hop Redundancy Protocols:

Hot Standby Router Protocol (HSRP) Overview

Virtual Router Redundancy Protocol (VRRP) Overview

First Hop Redundancy Protocol (FHRP) for IPv6

Implementing Routing in Data Centre:

Open Shortest Path First (OSPF) v2 and Open Shortest Path Protocol (OSPF) v3

Border Gateway Protocol

Implementing Multicast in Data Centre:

IP Multicast in Data Centre Networks

Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD)

Multicast Distribution Trees and Routing Protocols

IP Multicast on Cisco Nexus Switches

Implementing Data Centre Overlay Protocols:

Cisco Overlay Transport Virtualization

Virtual Extensible LAN

Implementing Network Infrastructure Security:

User Accounts and Role Based Access Control (RBAC)

Authentication, Authorization, and Accounting (AAA) and SSH on Cisco NX-OS

Keychain Authentication

First Hop Security

Media Access Control Security

Control Plane Policing

Describing Cisco Application-Centric Infrastructure:

Cisco ACI Overview, Initialization, and Discovery

Cisco ACI Management

Cisco ACI Fabric Access Policies

Describing Cisco ACI Building Blocks and VMM Domain Integration:

Tenant-Based Components

Cisco ACI Endpoints and Endpoint Groups (EPG)

Controlling Traffic Flow with Contracts

Virtual Switches and Cisco ACI VMM Domains

VMM Domain EPG Association

Cisco ACI Integration with Hypervisor Solutions

Describing Packet Flow in Data Centre Network:

Data Centre Traffic Flows

Packet Flow in Cisco Nexus Switches

Packet Flow in Cisco ACI Fabric

Describing Cisco Cloud Service and Deployment Models:

Cloud Architectures

Cloud Deployment Models

Describing Data Centre Network Infrastructure Management, Maintenance, and Operations:

Time Synchronization

Network Configuration Management

Software Updates

Network Infrastructure Monitoring

Explaining Cisco Network Assurance Concepts:

Need for Network Assurance

Cisco Streaming Telemetry Overview



Implementing Fibre Channel Fabric:

Fibre Channel Basics

Virtual Storage Area Network (VSAN) Overview

SAN Port Channels Overview

Fibre Channel Domain Configuration Process

Implementing Storage Infrastructure Services:

Distributed Device Aliases

Zoning

N-Port Identifier Virtualization (NPIV) and N-Port Virtualization (NPV)

Fibre Channel over IP

Network Access Server (NAS) Concepts

Storage Area Network (SAN) Design Options

Implementing FCoE Unified Fabric:

Fibre Channel over Ethernet

Describing FCoE

FCoE Topology Options

FCoE Implementation

Implementing Storage Infrastructure Security:

User Accounts and RBAC

Authentication, Authorization, and Accounting

Fibre Channel Port Security and Fabric Binding

Describing Data Centre Storage Infrastructure Maintenance and Operations:

Time Synchronization

Software Installation and Upgrade

Storage Infrastructure Monitoring

Describing Cisco UCS Server Form Factors:

Cisco UCS B-Series Blade Servers

Cisco UCS C-Series Rack Servers

Implementing Cisco Unified Computing Network Connectivity:

Cisco UCS Fabric Interconnect

Cisco UCS B-Series Connectivity

Cisco UCS C-Series Integration

Implementing Cisco Unified Computing Server Abstraction:

Identity Abstraction

Service Profile Templates

Implementing Cisco Unified Computing SAN Connectivity:

iSCSI Overview

Fibre Channel Overview

Implement FCoE

Implementing Unified Computing Security:

User Accounts and RBAC

Options for Authentication

Key Management

Introducing Cisco HyperFlex Systems:

Hyper converged and Integrated Systems Overview

Cisco HyperFlex Solution

Cisco HyperFlex Scalability and Robustness

Describing Data Centre Unified Computing Management, Maintenance, and Operations:

Compute Configuration Management

Software Updates

Infrastructure Monitoring

Cisco Intersight

Implementing Cisco Data Centre Automation and Scripting Tools:

Cisco NX-OS Programmability

Scheduler Overview

Cisco Embedded Event Manager Overview

Bash Shell and Guest Shell for Cisco NX-OS

Cisco Nexus API

Describing Cisco Integration with Automation and Orchestration Software Platforms:

Cisco and Ansible Integration Overview

Cisco and Puppet Integration Overview

Python in Cisco NX-OS and Cisco UCS

Describing Cisco Data Centre Automation and Orchestration Technologies:

Power On Auto Provisioning

Cisco Data Centre Network Manager Overview

Cisco UCS Director Fundamentals

Cisco UCS PowerTool

Lab Outline :

- **Configure Overlay Transport Visualization (OTV)**
- **Configure Fibre Channel**
- **Configure Device Aliases**
- **Configure Zoning**
- **Configure NPV**
- **Configure FCoE**
- **Provision Cisco UCS Fabric Interconnect Cluster**
- **Configure Server and Uplink Ports**
- **Configure VLANs**
- **Configure a Cisco UCS Server Profile Using Hardware Identities**
- **Configure Basic Identity Pools**
- **Configure a Cisco UCS Service Profile Using Pools**
- **Configure an Internet Small Computer Systems Interface (iSCSI) Service Profile**
- **Configure Cisco UCS Manager to Authenticate Users with Microsoft Active Directory**
- **Program a Cisco Nexus Switch with Python**

