



Cisco Unified Computing System Core

DURATION: 3 DAYS

COURSE CODE: UCS-CORE

FORMAT: LECTURE/LAB

COURSE DESCRIPTION

Cisco Unified Computing System Core (UCS-CORE) is a three-day workshop featuring the fundamentals of the Unified Computing System (UCS) B, C, S and HX Servers. It also introduces UCS Mini, and focuses on B-Series operations.

UCS-Core teaches UCS LAN and SAN fundamentals, the physical and logical architecture of the Cisco UCS, and the basics of UCS server operations via a series of hands-on labs. You will learn how to install Cisco UCS fabric interconnects and blade chassis, upgrade firmware, create identity and physical resource pools, create Service Profile templates and policies and deploy servers in a stateless computing environment.

The course also examines the challenges in today's data centers and explores how Cisco UCS can be used to reduce complexity, increase scale and increase IT agility while reducing expense. The information provided, along with the practical labs, will enable you to understand the architecture, value, and system administration techniques of Cisco UCS products. The course features content on the latest, third generation Fabric Interconnects, IO Modules, and features a discussion on UCS Manager version 3.2(2d). It describes UCS enterprise management tools such as UCS Central 2.0 and UCS Director 6.0. In addition, it discusses the new M5 Cisco UCS B and C-Series servers as well as Intel Skylake processors. This workshop includes hands-on labs that demonstrate the deployment and management of compute resources in a Cisco UCS environment, either through the GUI, CLI, and/or API at any scale. Finally, the course teaches tip and tricks for administering UCS learned by seasoned UCS system administrators.

WHO SHOULD ATTEND

This workshop is for the information technology professional wanting to learn the essential elements of the Cisco Unified Computing System and is perfectly suited to enable a student to deploy and operate a Cisco UCS blade server infrastructure in three days.

PREREQUISITES

Familiarity with Ethernet and TCP/IP networking

Familiarity with LAN/SAN technology

Familiarity with Fibre Channel Protocol

Understanding of Cisco Enterprise Data Center architecture

Familiarity with server virtualization technologies (VMware vSphere, Microsoft Hyper-V, Red Hat KVM, Citrix Xen) administrators.

LEARNING OBJECTIVES

Describe the logical and physical architecture of the Cisco UCS.

Implement system management, maintenance, and high-availability services for Cisco UCS B-Series Servers.

Configure Cisco UCS stateless computing using resource pools, templates, and policies.

Describe how to manage firmware upgrades.

Discuss Cisco UCS Manager backup and restore operations.

Configure Advanced Networking on Cisco UCS Service Profiles.

Discuss the monitoring of performance statistics using the built-in tools.

Configure Local Area and Storage Area Networking.

Discuss the installation of UCS B-Series servers

Describe UCS Central and PowerTools for Cisco UCS.

COURSE OUTLINE

1. Cisco Unified Computing System

- Data Center Bridging
- Cisco UCS 5100 Series Blade Server Chassis
- Cisco UCS B-Series Fabric Components
- Cisco UCS B-Series Models and Options
- Cisco UCS C-Series Models and Options
- Cisco UCS S-Series Servers
- Cisco UCS HX-Series Servers
- Cisco UCS Mini
- Cisco UCS Manager
- Cisco UCS Virtual Interface Cards
- Cisco UCS Server Options
- Cisco UCS Manager Command Line
- Power Requirements of Cisco UCS B-Series
- Supported Configurations

2. HA Clusters

- High-Availability Cluster Connection Requirements for Cisco UCS B-Series
- Cluster Initial Setup from the Fabric Interconnect Console
- Server Management IP Address in Cisco UCS
- Intercluster Communications and Synchronization of the Cisco UCS Manager Database
- Discovery Process and Monitoring Using FSM Output
- How Cisco UCS 5108 SEEPROM Resolves Split-Brain Issues in the High-Availability Cluster

3. Managing and Upgrading Cisco UCS B-Series Firmware

- Cisco UCS Software Packages
- Upgrading Cisco UCS B-Series Firmware
- Direct Firmware Upgrades of Cisco IMC, IOM, and Mezzanine Adapters
- Firmware Updates Using a Service Profile
- Hardware Capability Catalogs

4. Cisco UCS Manager Backup and Restore Operations

- Supported Backup Types and Functions and Import and Disaster Recovery Restore Operations
- Backup Creation, Execution, and Scheduling
- Configuring an Import Job to Restore the AAA User Database
- Configuring Cisco UCS Fabric Interconnects for a Disaster Recovery Restore Operation

5. Logging and Monitoring

- Cisco UCS Manager Interfaces
- Fault Management System and Fault Severity Levels
- Track Administrative Changes in the Cisco UCS Manager Audit Log
- Cisco UCS Manager Operations Subject to FSM Validation
- Logging Options
- System Event Log and Log Policies
- Smart Call Home Feature
- Logs, Events, and Faults
- SPAN for Protocol Analysis

6. Cisco UCS B-Series Physical Connectivity

- Relationship Between I/O Uplinks and Bandwidth
- Oversubscription with Generation 2 Hardware
- Cisco UCS 2204/2208XP/2304 IOM Architecture Including CMC, I/O MUX, and Chassis Management Switch
- Cisco UCS 2nd and 3rd Generation VICs
- Alternate Mezzanine Cards Including Storage Accelerators and GPUs
- Cisco Integrated Management Controller
- Port Channels from the Cisco UCS 6200 Series Fabric Interconnect to the 2204/2208XP IOM
- Server and Uplink Port Personalities in the Fabric Interconnect
- Chassis Discovery Process and Monitoring using the FSM Chassis Discovery Policy

7. Cisco UCS B-Series LAN Connectivity

- UCS Manager Networking Features
- Ethernet Ports on the Cisco UCS Fabric Interconnect
- Ethernet Port Channels on the UCS Fabric Interconnect
- VLAN and Private VLAN Configuration
- End-Host and Switching Mode
- Automatic Pinning and Recovery from Failure
- Manual Pinning and Recovery from Failure
- Disjointed Layer 2 Domains
- Cisco UCS and Application Centric Infrastructure Integration

8. Compute Node SAN Connectivity

- UCS Manager Storage Features
- FC Ports on Cisco UCS Fabric Interconnects
- VSANs in the Cisco UCS Manager
- N Port Identifier Virtualization (NPIV) and UCS FC End-Host Mode
- Fibre Channel Switching Mode
- Multipath IO

COURSE OUTLINE (CONTINUED)

9. Resource Pools in Cisco UCS Manager

- Rationale for Creating Identity and Resource Pools
- UUID Resource Pools
- MAC Resource Pools
- WWN Resource Pools
- IQN Resource Pools
- Server Resource Pools
- Provision WWxN Pools
- iSCSI Initiator Pools

10. Service Profiles, Policies, and Templates in Cisco UCS Manager

- Service Profiles and Policies in UCS Manager
- Service Profile Templates in UCS Manager
- Service Profile Templates and Expert Service Profile Wizards
- Service Profile Associations
- Changes to a Service Profile that Trigger a Cisco UCS Utility Operating System Update
- Service Profile to a New Server Blade in the Event of Hardware Failure
- KVM and Virtual Media
- Supported Operating Systems and Boot Options

11. Cisco R-Series Rack Enclosures

- The Cisco R42610 Rack Enclosure
- The Cisco RP208-30-U-1 PDU
- Cisco R-Series Rack Side Panels
- Cisco R-Series Rack Doors
- Cabling Portholes

12. Cisco UCS B-Series Hardware

- ESD Precautions for Installing Cisco UCS B-Series Components
- Opening Half- and Full-Slot Blade Server Cases
- Rack-Mount Slides
- CPU, RAM, and Mezzanine Cards Maintenance
- Local Hard Drive Maintenance
- Half- and Full-Slot Blade Servers
- IOMs and Power Supplies
- Chassis Fan Units
- SFP+ Copper Twinax and Optical Modules

13. UCS Management Tools

- UCS Central
- Cisco UCS PowerTools for UCS Manager

DISCOVERY LABS

- 1: Exploring a UCS Manager Domain
- 2: Creating UCS Manager Global Pools and Policies
- 3: Configuring Network Objects
- 4: Configuring Logical Storage Objects
- 5: UCS Manager Service Profile Operations
- 6: Configuring iSCSI and Stateless Computing
- 7: Cisco UCS Programmability with Cisco UCS PowerTools
- 8: Role-Based Access Control, Security, and Active Directory-Based Authentication on Cisco UCS
- 9: Exploring and Configuring UCS Central 2.0
- 10: Appendix - Introduction to the UCS Platform Emulator & Cisco UCS PowerTools