

# HyperFlex Implementation and Administration with VR

## Outline

### Lesson 1: Introduction to Hyper-converged Infrastructure (HCI)

- Identify the components of a Hyper-converged Infrastructure (HCI)
- Understand the challenges that are being addressed by Hyper-converged Infrastructure
- Explain the benefits of an HCI solution
- Present the components and physical topology of the Cisco HyperFlex with Application Centric Infrastructure (ACI) solution

### Lesson 2: Cisco HyperFlex Systems Hardware and Software Architecture

- What's New in HX v4.x
- Describe the Virtualization Platforms options for HyperFlex: VMWare, Hyper-V, Containers with Kubernetes
- Understand the capabilities and functionality of the HyperFlex Hybrid, All-Flash and NVMe server platform
- Describe the HyperFlex HX Compute Only solution
- Describe the HyperFlex HX Edge solution
- Present the Cisco HyperFlex HX Data Platform hardware components
- Describe the Cisco HyperFlex system architecture
- Understand the advanced storage features and performance enhancements of the HyperFlex cluster
- Identify the hardware functionality of the Hyperflex HX server nodes
- Describe the management and connectivity details for various HyperFlex HX cluster deployments

### Lesson 3: Cisco HyperFlex Systems Use Cases, Solutions and Performance

- Introduce the Cisco Validated Design (CVD) guides that are available for the HyperFlex HX Data Platform solution
- Describe the Cisco HyperFlex All-Flash Systems for Deploying Microsoft SQL Server Database validated design details
- Present the Cisco HyperFlex M5 All-Flash Hyperconverged System with up to 600 Citrix XenDesktop Users validated design details
- Identify and compare the performance advantages of the Cisco HyperFlex HCI solution with other vendors for Oracle OLTP, SQL Server and mixed workload operating environments

### Lesson 4: HyperFlex Pre-installation Requirements in VMware

- Review the software requirements for VMware ESXi

- Describe the physical requirements for successful HX cluster deployment
- Present the network requirements for HX Data Platform installation
- Define the port requirements for VMware ESXi and vCenter
- Identify the HyperFlex external connections
- Provide the deployment information and variables required when using the HX Data Platform installer

#### Lesson 5: HyperFlex HX Data Platform Installation Best Practices

- Confirm the configuration requirements of the northbound switches that are connected to the HyperFlex cluster
- Present the Cisco UCS configuration parameters required for the HyperFlex Data Installer utility
- Describe the VMware vCenter host, licensing and networking parameters that support successful of the HX Data Platform

#### Lesson 6: Installing Cisco HyperFlex Systems Using the HX Installer

- Present the benefits of the HX Data Platform automation function to streamline Cisco UCS and VMware vCenter configuration
- Describe the HyperFlex factory pre-installed hardware and software options
- Identify the steps required to install, deploy and launch the HX Data Platform Installer
- Describe HyperFlex cluster creation validation using UCS Manager and VMware vSphere Client/Web Client
- Review installation procedures using Intersight

#### Lesson 7: Post-Installation Requirements for HX Data Platform

- Describe the post installation capabilities of the HX Installer command line interface
- Present the post install script as a streamlined to perform cluster administrative functions such as Auto Support, email alerts and password changes
- Identify the HX vSphere Plug-in and the HX Connect utility as two methods to create and manage HyperFlex cluster datastores
- Explain the use of the HX vSphere Plug-in to create snapshots and ReadyClone VM clones
- Using Cisco Workload Optimization Manager to improve operation.

#### Lesson 8: Troubleshooting HX Data Platform Installation and Upgrades

- Present issues that are commonly encountered during HX cluster creation and upgrade activities
- Describe troubleshooting steps to validate and correct network connectivity problems due to misconfiguration of VLAN, frame size and quality of service parameters across vCenter, UCS and northbound switch platforms

- Identify issues that cause virtual machine migration (vMotion) failure
- Present the issues that prevent successful completion of HX cluster and node upgrades and provide corrective measures to complete the operations

#### Lesson 9: Upgrading the HX Data Platform

- Present the upgrade features for HX Data Platform
- Describe the HX Data Platform upgrade guidelines and recommendations
- Identify the Cisco HX Data Platform upgrade matrix including Cisco UCS manager and VMware ESXi
- Present the upgrade validations, pre-installation checks and pre-upgrade procedures
- Describe the process to upgrade the Cisco UCS Infrastructure using UCS Manager
- Describe the process to upgrade the HX Data Platform, Cisco UCS Server and VMware ESXi using the HX Connect utility

#### Lesson 10: HyperFlex Stretched Cluster Overview and Configuration

- Introduce the HyperFlex Stretched Cluster architecture and pre-installation checklist requirements
- Describe the process to download the witness VM installation image file and complete the configuration and deployment within vCenter
- Present the process to create the Stretched Cluster Sites and run the Configure Site workflow for Sites A and B
- Explain the required steps to create the HyperFlex Stretched Cluster and run the Create Stretch Cluster workflow

#### Lesson 11: HX Data Platform for the Hyper-V Environment

- Describe the hardware, software network services and port requirements that support the installation of the HX Data Platform for the Hyper-V environment
- Present the guidelines and limitations for creating the HyperFlex cluster using the HX Data Installer as well as DNS and Active Directory
- Present the process to download the HX Data Installer VM and install the image onto a Hyper-V server
- Define the steps required to deploy the HyperFlex cluster for Hyper-V using the HX Data Installer