



Length: 35 Hours (5 days)
Price: Call for pricing

Introduction: This hands-on training course explores installation, configuration, and management of VMware vSphere® 6.5, which includes VMware ESXi 6 and VMware® vCenter Server 6.5. This course will give you a solid understanding of how to administer a vSphere infrastructure for an organization of any size. You will learn how to administer a vSphere infrastructure for all sizes of organizations. It is the foundation for most other VMware technologies in the software-defined data center.

Prerequisites: In addition to their professional experience, students who attend should have the following technical knowledge:

- System administration experience on Microsoft Windows or Linux operating systems
- Understanding of virtual data concepts compared to those needed for VCA-DCV certification

Objectives: Students will learn:

- Software-defined data center
- vSphere components and their function in the infrastructure
- Deploy an ESXi host
- Deploy VMware vCenter Server Appliance
- Use a local content library as an ISO store and deploy a virtual machine
- vCenter Server architecture
- Use vCenter Server to manage an ESXi host
- Configure and manage vSphere infrastructure with VMware vSphere Client and VMware vSphere Web Client
- Virtual networks with vSphere standard switches
- Configure standard switch policies
- Use vCenter Server to manage various types of host storage: VMware vSphere VMFS, NFS, virtual SAN, Fibre Channel, and VMware Virtual SAN
- Manage virtual machines, templates, clones, and snapshots
- Create, clone, and export a vApp
- Use the content library
- Migrate virtual machines with VMware vSphere vMotion
- Use VMware vSphere Storage vMotion to migrate virtual machine storage
- Monitor resource usage and manage resource pools
- Use esxtop to identify and solve performance issues
- VMware vSphere High Availability cluster architecture
- Configure vSphere HA
- Manage vSphere HA and VMware vSphere Fault Tolerance
- Use VMware vSphere Replication and VMware vSphere Data Protection to replicate



Course Outline

I. Course Introduction

II. Software-Defined Data Center

- A. Describe the topology of a physical data center
- B. Explain the vSphere virtual infrastructure
- C. Define the files and components of virtual machines
- D. Describe the benefits of using virtual machines
- E. Explain the similarities and differences between physical architectures and virtual architectures
- F. Define the purpose of ESXi
- G. Define the purpose of vCenter Server
- H. Explain the software-defined data center
- I. Describe private, public, and hybrid clouds

III. Creating Virtual Machines

- A. Introduce virtual machines, virtual machine hardware, and virtual machine files
- B. Identify files that make up a virtual machine
- C. Discuss the latest virtual machine hardware and its features
- D. Explain the virtual machine CPU, memory, disk, and network resource usage
- E. Explain the importance of VMware Tools™
- F. Discuss PCI pass-through, Direct I/O, remote direct memory access, and NVMe
- G. Deploy and configure virtual machines and templates.
- H. Identify the virtual machine disk format

IV. vCenter Server

- A. Introduce the vCenter Server architecture
- B. Deploy and configure vCenter Server Appliance
- C. Use vSphere Web Client
- D. Backup and restore vCenter Server
- E. Examine vCenter Server permissions and roles
- F. Explain the vSphere HA architectures and features
- G. Examine the new vSphere authentication proxy
- H. Manage vCenter Server inventory objects and licenses
- I. Access and navigate the new vSphere clients

V. Configuring and Managing Virtual Networks

- A. Describe, create and manage standard switches
- B. Configure virtual switch load-balancing algorithms
- C. Configure virtual switch security and load-balancing policies
- D. Contrast and compare vSphere distributed switches and standard switches
- E. Describe the virtual switch connection types
- F. Describe the new TCP/IP stack architecture
- G. Use VLANs with standard switches.

VI. Configuring and Managing Virtual Storage

- A. Introduce storage protocols and storage device types
- B. Discuss ESXi hosts using iSCSI, NFS, and Fibre Channel storage
- C. Create and manage VMFS and NFS datastores
- D. Describe the new features of VMFS 6.5
- E. Introduce Virtual SAN
- F. Describe guest file encryption

VII. Virtual Machine Management

- A. Use templates and cloning to deploy new virtual machines
- B. Modify and manage virtual machines
- C. Clone a virtual machine
- D. Upgrade virtual machine hardware to version 12
- E. Remove virtual machines from the vCenter Server inventory and datastore
- F. Customize a new virtual machine using customization specification files
- G. Perform vSphere vMotion and vSphere Storage vMotion migrations
- H. Create and manage virtual machine snapshots
- I. Create, clone, and export vApps
- J. Introduce the types of content libraries and how to deploy and use them



VIII. Resource Management and Monitoring

- A. Introduce virtual CPU and memory concepts
- B. Explain virtual memory reclamation techniques
- C. Describe virtual machine over commitment and resource competition
- D. Configure and manage resource pools
- E. Describe methods for optimizing CPU and memory usage
- F. Use various tools to monitor resource usage
- G. Create and use alarms to report certain conditions or events
- H. Describe and deploy resource pools
- I. Set reservations, limits, and shares
- J. Describe expandable reservations
- K. Schedule changes to resource settings
- L. Create, clone, and export vApps
- M. Use vCenter Server performance charts and esxtop to analyze vSphere performance

IX. vSphere HA and vSphere Fault Tolerance

- A. Explain the vSphere HA architecture
- B. Configure and manage a vSphere HA cluster
- C. Use vSphere HA advanced parameters
- D. Define clusterwide restart ordering capabilities
- E. Enforce infrastructural or intra-app dependencies during failover
- F. Describe vSphere HA heartbeat networks and datastore heartbeats
- G. Introduce vSphere Fault Tolerance
- H. Enable vSphere Fault Tolerance on virtual machines
- I. Support vSphere Fault Tolerance interoperability with Virtual SAN. Examine enhanced consolidation of vSphere Fault Tolerance virtual machines
- J. Introduce vSphere Replication
- K. Use vSphere Data Protection to back up and restore data

X. vSphere DRS

- A. Describe the functions and benefits of a vSphere DRS cluster
- B. Configure and manage a vSphere DRS cluster
- C. Work with affinity and anti-affinity rules
- D. Describe the new capabilities for what-if analysis and proactive vSphere DRS
- E. Highlight the evolution of vSphere DRS using predictive data from VMware vRealize Operations Manager
- F. Perform preemptive actions to prepare for CPU or memory changes
- G. Describe the vCenter Server embedded vSphere Update Manager, VMware vSphere® ESXi™ Image Builder CLI, and VMware vSphere® Auto Deploy capabilities
- H. Use vSphere HA and vSphere DRS together for business continuity

XI. vSphere Update Manager

- A. New vSphere Update Manager architecture, components, and capabilities
- B. Use vSphere Update Manager to manage ESXi, virtual machine, and vApp patching
- C. Install vSphere Update Manager and the vSphere Update Manager plug-in
- D. Create patch baselines
- E. Use host profiles to manage host configuration compliance
- F. Scan and remediate hosts