

# VMware vSphere: Fast Track [V6.5]

## Overview:

This extended hours, five-day course features intensive, hands-on training that focuses on installing, configuring, managing, and troubleshooting VMware vSphere® 6.5, which includes VMware ESXi™ 6.5 and VMware vCenter Server® 6.5. This course prepares you to administer a vSphere infrastructure for an organization of any size. It is the foundation for most other VMware technologies in the software-defined data center. The material is presented in the Fast Track format.

## Objectives:

By the end of the course, you should be able to meet the following objectives:

- Describe the software-defined data center
- Explain the 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
- Describe vCenter Server architecture
- Use vCenter Server to manage an ESXi host
- Configure and manage vSphere infrastructure with VMware Host Client™ and VMware vSphere® Web Client
- Troubleshoot vSphere environments with VMware vSphere® Management Assistant and command-line commands
- Describe virtual networks with vSphere standard switches
- Configure standard switch policies
- Troubleshoot virtual networks
- Use vCenter Server to manage various types of host storage: VMware vSphere® VMFS, NFS, iSCSI, and RDM
- Examine the features and functions of Fibre Channel and VMware vSAN™
- Manage virtual machines, templates, clones, and snapshots
- Create, clone, and deploy a vApp
- Describe and use the content library
- Migrate virtual machines with VMware vSphere® vMotion®
- Troubleshoot virtual machines
- Use VMware vSphere® Storage vMotion® to migrate virtual machine storage
- Troubleshoot vSphere storage
- Monitor resource usage and manage resource pools
- Use esxtop to identify and solve performance issues
- Troubleshoot ESXi hosts and vCenter Server
- Discuss the VMware vSphere® High Availability cluster architecture
- Configure vSphere HA
- Manage vSphere HA and VMware vSphere® Fault Tolerance
- Troubleshoot vSphere HA
- Use VMware vSphere® Replication™ and VMware vSphere® Data Protection™ to replicate virtual machines and perform data recovery
- Use VMware vSphere® Distributed Resource Scheduler™ clusters to improve host scalability
- Troubleshoot vSphere DRS clusters
- Use VMware vSphere® Update Manager™ to apply patches and perform basic troubleshooting of ESXi hosts, virtual machines, and vCenter Server operations

## Certifications

This course prepares you for the following certification:

**Intended Audience:**

- System administrators
- System engineers

**Prerequisites:**

This course requires the following prerequisites:

- System administration experience on Microsoft Windows or Linux operating systems

**Outline:**

**1 Course Introduction**

- Introductions and course logistics
- Course objectives
- Describe the content of this course
- Gain a complete picture of the VMware certification system
- Familiarize yourself with the benefits of the VMware Education Learning Zone
- Identify additional resources

**2 Introduction to vSphere and the Software-Defined Data Center**

- Describe the topology of a physical data center
- Explain the vSphere virtual infrastructure
- Define the files and components of virtual machines
- Describe the benefits of using virtual machines
- Explain the similarities and differences between physical architectures and virtual architectures
- Define the purpose of ESXi
- Define the purpose of vCenter Server
- Explain the software-defined data center
- Describe private, public, and hybrid clouds

**3 Creating Virtual Machines**

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

**4 vCenter Server**

- Introduce the vCenter Server architecture
- Deploy and configure vCenter Server Appliance
- Use vSphere Web Client
- Back up and restore vCenter Server
- Examine vCenter Server permissions and roles
- Explain the vSphere HA architectures and features
- Examine the new vSphere authentication proxy
- Manage vCenter Server inventory objects and licenses
- Access and navigate the new vSphere clients

**5 Troubleshooting vSphere**

- Use command-line commands with vSphere
- Use vSphere Management Assistant

- Identify the location of vSphere log files
- 6 Configuring and Managing Virtual Networks**
- Describe, create, and manage standard switches
  - Configure virtual switch security and load-balancing policies
  - Compare and contrast vSphere distributed switches and standard switches
  - Describe the virtual switch connection types
  - Describe the new TCP/IP stack architecture
  - Use VLANs with standard switches
  - Troubleshoot networks
- 7 Configuring and Managing Virtual Storage**
- Identify storage protocols and storage device types
  - Discuss ESXi hosts using iSCSI, NFS, and Fibre Channel storage
  - Create and manage VMFS and NFS datastores
  - Describe the new features of VMFS6.5
  - Describe guest file encryption
  - Describe storage connectivity and configuration
  - Describe storage multipathing
  - Discuss the use of vSAN and VMware vSphere® Virtual Volumes™
- 8 Virtual Machine Management**
- Use templates and cloning to deploy new virtual machines
  - Modify and manage virtual machines
  - Clone a virtual machine
  - Upgrade virtual machine hardware to version 13
  - Remove virtual machines from the vCenter Server inventory and datastore
  - Customize a new virtual machine using customization specification files
  - Perform vSphere vMotion and vSphere Storage vMotion migrations
  - Create and manage virtual machine snapshots
  - Create, clone, and export vApps
  - Identify the types of content libraries and how to deploy and use them
- 9 Resource Management and Monitoring**
- Explain virtual CPU and memory concepts
  - Explain virtual memory reclamation techniques
  - Describe virtual machine overcommitment and resource competition
  - Configure and manage resource pools
  - Describe methods for optimizing CPU and memory usage
  - Use various tools to monitor resource usage
  - Create and use alarms to report certain conditions or events
  - Describe and deploy resource pools
  - Set reservations, limits, and shares
  - Describe expandable reservations
  - Schedule changes to resource settings
  - Create, clone, and export vApps
  - Use vCenter Server performance charts and esxtop to analyze vSphere performance
  - Troubleshoot vCenter Server and ESXi hosts
- 10 vSphere HA, vSphere Fault Tolerance, and Protecting Data**
- Explain the vSphere HA architecture
  - Configure and manage a vSphere HA cluster

- Use vSphere HA advanced parameters
  - Define clusterwide restart ordering capabilities
  - Enforce infrastructural or intra-app dependencies during failover
  - Describe vSphere HA heartbeat networks and datastore heartbeats
  - Introduce vSphere Fault Tolerance
  - Enable vSphere Fault Tolerance on virtual machines
  - Support vSphere Fault Tolerance interoperability with vSAN
  - Examine enhanced consolidation of vSphere Fault Tolerance virtual machines
  - Introduce vSphere Replication
  - Use vSphere Data Protection to back up and restore data
  - Troubleshoot vSphere HA
- 11 vSphere DRS**
- Describe the functions and benefits of a vSphere DRS cluster
  - Configure and manage a vSphere DRS cluster
  - Work with affinity and anti-affinity rules
  - Describe the new capabilities for what-if analysis and Predictive DRS
  - Describe the evolution of vSphere DRS using predictive data from VMware vRealize® Operations Manager™
  - Perform preemptive actions to prepare for CPU or memory changes
  - Describe the vCenter Server embedded vSphere Update Manager, VMware vSphere® ESXi™ Image Builder CLI, and VMware vSphere® Auto Deploy™ capabilities
  - Use vSphere HA and vSphere DRS together for business continuity
  - Troubleshoot vSphere DRS
- 12 vSphere Update Manager**
- Describe the new vSphere Update Manager architecture, components, and capabilities
  - Use vSphere Update Manager to manage the patching of ESXi, virtual machines, and vApps
  - Install vSphere Update Manager and the vSphere Update Manager plug-in
  - Create patch baselines
  - Use host profiles to manage host configuration compliance
  - Scan and remediate hosts