

[VMICMOSFT65]: VMware vSphere: Install, Configure, Manage and Optimize and Scale Fast Track [V6.5]

Length : 5 Days
Delivery Method : Instructor-led (Classroom)

Course Overview

This intensive, extended-hours course takes participants from introductory to advanced VMware vSphere® management skills. Building on the installation and configuration content from our best-selling course, participants will also develop advanced skills needed to manage and maintain a highly available and scalable virtual infrastructure. Through a mix of lecture and hands-on labs, participants will install, configure, and optimize vSphere 6.5. Participants will explore the features that build a foundation for a truly scalable infrastructure, and discuss when and where these features have the greatest effect. This course prepares participants to administer a vSphere infrastructure for an organization of any size using vSphere 6.5, which includes VMware ESXi™ 6.5 and VMware vCenter Server® 6.5.

Product Alignment

- ESXi 6.5
- vCenter Server 6.5

Audience Profile

- System administrators
- System engineers

At Course Completion

- Describe the software-defined data center
- Deploy an ESXi host and create virtual machines
- Describe the vCenter Server architecture
- Deploy VMware vCenter® Server Appliance™
- Back up and restore vCenter Server
- Deploy vCenter Server Appliance to be highly available
- Use vCenter Server to manage an ESXi host
- Configure and manage the vSphere infrastructure with VMware vSphere® Client™ and VMware vSphere® Web Client
- Configure virtual networks with vSphere standard switches
- Use vSphere distributed switches to improve network scalability
- Use vCenter Server to manage various types of storage
- Manage virtual machines, templates, clones, and snapshots

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- Perform basic troubleshooting of ESXi hosts, virtual machines, and vCenter Server
- Create a vApp
- Describe and 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
- Manage VMware vSphere® High Availability and VMware vSphere® Fault Tolerance
- 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
- Use VMware vSphere® Update Manager™ to apply patches and perform upgrades
- Configure and manage ESXi networking and storage for a large and sophisticated enterprise
- Configure and use virtual machine storage policies
- Configure VMware vSphere® Storage I/O Control
- Configure VMware vSphere® Storage DRS™
- Encrypt virtual machines for additional security

Certifications

This course prepares participants for the following certification:

- VMware Certified Professional 6 – Data Center Virtualization (VCP6-DCV)

Pre-Requisites

- System administration experience on Microsoft Windows or Linux operating systems

Course Outline

Module 1: Course Introduction

Lessons

- 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

Module 2: Introduction to vSphere and the Software-Defined Data Center

Lessons

- Describe the topology of a physical data center
- Explain the vSphere virtual infrastructure

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- 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

Module 3: Creating Virtual Machines

Lessons

- 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

Module 4: vCenter Server

Lessons

- 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

Module 5: Configuring and Managing Virtual Networks

Lessons

- Describe, create, and manage standard switches
- Configure virtual switch security and load-balancing policies
- Contrast and compare vSphere distributed switches and standard switches
- Describe the virtual switch connection types
- Describe the new TCP/IP stack architecture
- Use VLANs with standard switches

Module 6: Configuring and Managing Virtual Storage

Lessons

- Introduce storage protocols and storage device types
- Discuss ESXi hosts using iSCSI, NFS, and Fibre Channel storage
- Create and manage VMware vSphere® VMFS and NFS datastores

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- Describe the new features of VMFS 6.5
- Introduce VMware vSAN™
- Describe guest file encryption

Module 7: Virtual Machine Management

Lessons

- Use templates and cloning to deploy new virtual machines
- Modify and manage virtual machines
- Clone a virtual machine
- Upgrade virtual machine hardware to version 12
- Remove virtual machines from the vCenter Server inventory and datastore
- Use customization specification files to customize a new virtual machine
- Perform vSphere vMotion and vSphere Storage vMotion migrations
- Create and manage virtual machine snapshots
- Create, clone, and export vApps
- Introduce the types of content libraries and how to deploy and use them

Module 8: Resource Management and Monitoring

Lessons

- Introduce 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

Module 9: vSphere HA, vSphere Fault Tolerance, and Protecting Data

Lessons

- 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

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- Use vSphere Data Protection to back up and restore data
- Describe the high availability options for vCenter Server and VMware Platform Services Controller™
- Describe and use VMware vCenter Server® High Availability

Module 10: vSphere DRS

Lessons

- 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 proactive vSphere DRS
- Highlight 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
- Explain how Proactive DRS enhances virtual machine availability

Module 11: Network Scalability

Lessons

- Configure and manage vSphere distributed switches
- Explain distributed switch features such as port mirroring, LACP, QoS tagging, and NetFlow

Module 12: vSphere Update Manager

Lessons

- Describe the new vSphere Update Manager architecture, components, and capabilities
- Use vSphere Update Manager to manage ESXi, virtual machine, and vApp patching
- 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

Module 13: Storage Scalability

Lessons

- Explain VMware vSphere® Storage APIs - Array Integration and VMware vSphere® API for Storage Awareness™
- Configure and assign virtual machine storage policies
- Configure vSphere Storage DRS and vSphere Storage I/O Control

Module 14: Network Scalability

Lessons

- Configure vSphere to encrypt virtual machines, core dumps, and vSphere vMotion migrations

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