

## VMware vSphere: What's New [V5.5 to V6.5]

Duration: 3 Days

### Overview:

VMware vSphere: What's New is a hands-on training course that explores the newest features and enhancements in VMware vCenter Server™ 6 and VMware ESXi 6. Real-world use case deployment scenarios, hands on lab exercises, and lecture material teach the skills you need to effectively implement and configure VMware vSphere® 6. This class is recommended for customers who want to deploy vSphere 6 into their existing vSphere environment.

Students who complete this course will be prepared for more advanced vSphere 6 courses, available at [www.vmware.com/education](http://www.vmware.com/education)

### Target Audience:

System architects, system administrators, IT managers, VMware partners, and individuals responsible for implementing and managing vSphere architectures

### Pre-requisites:

Before attending this course, students must have completed the following or equivalent knowledge.

- VMware ESX®/ESXi and vCenter Server
- VMware vSphere: Install, Configure, Manage [V5.5 or V6]
- VMware vSphere: Fast Track [V5.5 or V6]
- VMware vSphere: What's New [V5.5 or V6]
- VMware vSphere Troubleshooting [V5.5 or V6]
- The course material presumes that you can perform the following task with no assistance or guidance before enrolling in this course:
- Install and configure ESX or ESXi
- Install vCenter Server
- Create vCenter Server

### Module 1: Course Introduction

- Introductions and course logistics
- Course Objectives

### Module 2: New Features in vSphere 6.5

- Use vSphere Client, VMware Host Client, and the vCenter Server Appliance shell
- Discuss the new features and enhancements in vSphere 6.5

### Module 3: Installation and Upgrade

- Describe new vCenter Server architecture features
- Choose between a distributed configuration and an embedded configuration, based on your requirements
- Describe the enhancements to vCenter Server Appliance
- Describe how to upgrade vCenter Server 5.x and 6.0 to vCenter Server 6.5
- Describe how to upgrade an ESXi 5.x host to an ESXi 6.5 host
- Summarise the purpose of content libraries in a vSphere environment
- Discuss the vSphere requirements for content libraries
- Create a local content library
- Subscribe to a published content library
- Deploy virtual machines from a content library

### Module 4: Compute Enhancements

- Discuss the enhancements to vSphere 6.5 scalability and performance
- Discuss the additional features to support hot-plug and SMART solid-state drives
- Discuss the improvements to lockdown settings
- Describe the addition of smart-card authentication
- Explain the changes that enhance user accountability
- Discuss how virtual hardware 11 and 13 extend virtual machine resource configurations
- Describe how using large receive offload reduces CPU-associated costs for network packet processing
- Discuss how hot-add memory is distributed across NUMA nodes in vSphere 6.x

### Module 7: Network Enhancements

- Use Network I/O Control
- Upgrade Network I/O Control to version 3
- Enable network resource management on VMware vSphere® Distributed Switch™
- Configure bandwidth allocation for system and virtual machine traffic based on shares and reservation
- Discuss IPv6 support in vSphere 6.0
- Explain how the gateway per vmknic feature works and how it is configured
- Explain the new ERSPAN headers supported in vSphere 6.5 and how they are configured
- Describe the areas where performance improvements were made in vSphere 6/5

### Module 8: Management Enhancements

- List the core security modules that are part of VMware Platform Services Controller™
- List the VMware certificate management components
- Describe certificate use changes in vSphere 6.0
- List the certificate management components that are part of Platform Services Controller
- Describe the primary services provided by VMware Certificate Authority component
- Describe the primary services provided by the VMware Endpoint Certificate Store component
- Define VMware CA certificate replacement options
- Describe ESXi certificate replacement options
- Discuss certificate-based guest authentication

### Module 9: Availability Enhancements

- Describe how vCenter Serve High Availability works
- Describe how Platform Services Controller high availability works
- Configure vCenter Server High Availability and Platform Services Controller high availability
- Describe the TCP/IP stack for vSphere vMotion that was introduced in vSphere 6.0
- Explain the changes that make vSphere vMotion migrations across high-latency networks possible
- Discuss the requirements for migrating a virtual machine across vCenter Server instances

- Create and manage vCenter Server roles and permissions
- Create and modify a standard switch
- Create and modify a distributed switch
- Connect an ESX/ESXi host to NAS, iSCSI, or Fibre Channel Storage
- Create a VMware vSphere® VMFS datastore
- Enable vSphere vMotion on an ESX/ESXi host
- Use a wizard or a template to create a virtual machine
- Modify a virtual machine's hardware
- Migrate a virtual machine with vSphere vMotion
- Migrate a virtual machine with VMware vSphere® Storage vMotion®
- Configure and manage a VMware vSphere® Distributed Resource Scheduler™ cluster with resource pools
- Configure and manage a VMware vSphere® High Availability cluster

If you cannot complete all these tasks, then VMware recommends that you instead take the VMware vSphere: Install, Configure, Manage [V6.5] course.

## Course Completion:

After completing this course, students will be able to:

- List and describe key enhancements in vSphere 6.5
- Use VMware vSphere® Client™, VMware Host Client™, and the VMware vCenter® Server Appliance™ shell
- Add users to the lockdown exception users list and test the lockdown mode
- Configure virtual machines to check for and install newer versions of VMware Tools™
- Upgrade virtual machines the current hardware
- Create a multisite content library for synchronising virtual machine templates, vApps, ISO images, and scripts across vCenter Server instances
- Enable the VMware vSphere® Authentication Proxy service to automatically add new hosts to the Active Directory domain
- Configure NFS-and iSCSI backed virtual volumes to provide a common storage platform, independent of the underlying storage hardware
- Create storage policies and use these policies with virtual machines and virtual volume datastores
- Work with VMware vSphere® Network I/O

## Module 5: Storage Enhancements

- Describe the new features of VMFS6
- Describe the migration procedure from VMFS5 to VMFS6
- Discuss the benefits of using NFS v4.1 with vSphere
- Identify the differences between NFS v3 and NFS v4.1
- Describe the implications of using NFS v4.1
- Describe the VMware vSAN™ enhancements in the following areas: Scalability, Performance, Availability, Space efficiency, Operational, Usability
- Describe the benefits of using virtual volumes
- Describe per-virtual machine, policy-based policy management
- Describe how VMDK data operations are offloaded to storage arrays through the use of VMware vSphere® API for Storage Awareness™
- Describe the interoperability enhancements to VMware vSphere® Storage DRS™ and VMware vSphere® Storage I/O Control
- Describe the enhancements to vSphere Storage DRS and Storage I/O Control that improve adherence to configured maximums and reservations

## Module 6: Security Enhancements

- Plan for secure boot support for ESXi hosts
- Use encryption in your vSphere environment
- Encrypt virtual machines
- Explain how to back up encrypted virtual machines
- Encrypt core dumps
- Enable encrypted vSphere vMotion
- Deploy enhanced vCenter Server events and alarms and vSphere logging

- Explain how VMware vSphere® Fault Tolerance in vSphere 6.0 supports virtual machines with multiple virtual CPUs
- Describe how vSphere Fault Tolerance maintains the secondary virtual machine in a ready state
- Explain the mechanism by which the primary virtual machine is determined
- Discuss the improvements made in handling all paths down (APD) and permanent device lost (PDL) conditions
- Describe the increased scalability of vSphere HA
- Explain the additional compatibility supported by vSphere HA
- Explain the enhancement of vSphere HA admission control in vSphere 6.5
- Describe the improvement of vSphere HA orchestrated restarts
- Discuss how Proactive HA helps reduce VM downtime
- Describe when to use these advanced vSphere DRS options in vSphere 6.5
- Describe VM distribution
- Discuss memory metrics for load balancing
- Describe CPU over commitment
- Reduce the need for vSphere HA with Proactive HA
- Increase VM and workload uptime with predictive DRS

Control to create and configure a distributed switch

- Use VMware vSphere® vMotion® to migrate virtual machines across vCenter Server instances
- Activate the high availability feature of vCenter Server Appliance
- Back up a vCenter Server Appliance instance by using a file-based backup solution from the vCenter server appliance Management interface
- Use virtual machine encryption to encrypt and decrypt virtual disks
- Use encrypted vSphere vMotion to securely migrate virtual machines
- Migrate from Windows vCenter Server to vCenter Server Appliance