

# VMware vSphere: Install, Configure, Manage Plus vSAN Fast Track [V6.5]

Duration 5 Days

## COURSE DESCRIPTION

This five-day intensive, extended-hours course focuses on installing, configuring, managing, and mastering VMware vSphere® 6.5, including VMware ESXi™ 6.5 and VMware vCenter Server® 6.5. This course combines the content of the VMware vSphere: Install, Configure, Manage course with deploying and managing a software-defined storage solution with VMware vSAN™ 6.6. You will learn how vSAN functions as an important component in the VMware software-defined data center. Students gain practical experience with these concepts through the completion of hands-on labs.

### Product Alignment

- vSphere 6.5
- ESXi 6.5
- vCenter Server 6.5
- vSAN 6.6

## COURSE OBJECTIVES

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

- Describe the vCenter Server architecture
- Deploy a vCenter Server instance or VMware vCenter® Server Appliance™
- 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 vCenter Server to manage various types of host storage: VMware vSphere® VMFS, NFS, and VMware vSphere® Virtual Volumes™
- Manage virtual machines, templates, clones, and snapshots
- 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
- Use VMware vRealize® Operations Manager™ to identify and solve issues through analytics and alerts
- 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 basic troubleshooting of ESXi hosts, virtual machines, and vCenter Server operations
- Describe the vSAN architecture
- Identify vSAN features and use cases
- Configure vSAN networking components
- Configure a vSAN cluster
- Deploy virtual machines on a vSAN datastore
- Configure virtual machine storage policies
- Perform ongoing vSAN management tasks

- Outline the tasks for upgrading to vSAN 6.6
- Configure vSAN encryption
- Control vSAN resynchronization tasks
- Create and manage nested fault domains
- Use the vSAN health service to monitor health and performance
- Configure a stretched cluster and observe failover scenarios
- Describe vSAN interoperability with vSphere and other products
- Plan and design a vSAN cluster

### **Certifications**

This course prepares you for the following certification:

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

## **COURSE OUTLINE**

### **Course Introduction**

- Introductions and course logistics
- Course objectives
- Identify additional resources

### **Software-Defined Data Center**

- Introduce components of the software-defined data center
- Describe where vSphere fits into the cloud architecture
- Install and use vSphere Client
- Overview of ESXi and vCenter Server

### **Creating Virtual Machines**

- Introduce virtual machines, virtual machine hardware, and virtual machine files
- Deploy a single virtual machine

### **vCenter Server**

- Introduce the vCenter Server architecture
- Deploy and configure vCenter Server Appliance
- Use vSphere Web Client
- Manage vCenter Server inventory objects and licenses

### **Configuring and Managing Virtual Networks**

- Describe, create, and manage standard switches
- Describe and modify standard switches properties
- Describe the NIC teaming of a standard switch port group

### **Configuring and Managing Virtual Storage**

- Introduce storage protocols and device names
- Configure ESXi with iSCSI and NFS storage
- Create and manage VMFS datastores
- Introduce virtual volumes

### **Virtual Machine Management**

- Use templates and cloning to deploy virtual machines
- Modify and manage virtual machines
- Create and manage virtual machine snapshots
- Perform vSphere vMotion and vSphere Storage vMotion migrations
- Create vSphere vApps
- Introduce content libraries

**Resource Management and Monitoring**

- Introduce virtual CPU and memory concepts
- Describe methods for optimizing CPU and memory usage
- Configure and manage resource pools
- Use vCenter Server performance graphs and alarms to monitor resource usage

**vSphere HA and vSphere Fault Tolerance. and Protecting Data**

- Explain the vSphere HA architecture
- Configure and manage a vSphere HA cluster
- Use vSphere HA advanced parameters
- Introduce vSphere Fault Tolerance
- Enable vSphere Fault Tolerance on virtual machines
- Introduce vSphere Replication
- Use vSphere Data Protection to back up and restore data

**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 proactive vSphere DRS
- Highlight the evolution of vSphere DRS using predictive data from 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

**vSphere Update Manager**

- Use vSphere Update Manager to manage ESXi patching
- Install vSphere Update Manager and the vSphere Update Manager plug-in
- Create patch baselines
- Scan and remediate hosts

**Storage Fundamentals**

- Define common storage technologies
- Identify characteristics of storage devices: magnetic and flash-based devices
- Identify and explain various types of storage architectures
- Identify SAN performance factors

**Introduction to vSAN**

- Describe the vSAN architecture and components
- Describe the differences between the vSAN hybrid and all-flash architectures
- Describe the space-efficiency features of vSAN

**vSAN Configuration**

- Identify physical network configuration requirements
- Configure vSAN networking
- Configure a vSAN cluster
- Test and validate the vSAN configuration and functionality

### **vSAN Policies and Virtual Machines**

- Explain how storage policies work with vSAN
- Define and create a virtual machine storage policy
- Apply and modify virtual machine storage policies
- Discuss the vsanSparse snapshot format
- Explain the considerations for vsanSparse snapshots

### **Managing and Operating vSAN**

- Manage hardware storage devices
- Manage hardware device failures
- Identify vCenter Server alarms for vSAN events
- Configure fault domains
- Upgrade to vSAN 6.6

### **Stretched Clusters and Two-Node Clusters**

- Describe the architecture for stretched clusters and two-node clusters
- Create a stretched cluster using a two-node configuration
- Configure vSphere HA and vSphere DRS for a stretched cluster
- Demonstrate stretched cluster failover scenarios

### **Monitoring and Troubleshooting vSAN**

- Use vSphere Web Client to detect problems
- Use the vSAN health service to monitor health and performance
- Monitor vSAN with vRealize Operations Manager
- Use ESXi commands to monitor the vSAN environment
- Monitor vSAN with Ruby vSphere Console and vSAN Observer

### **Interoperability with vSphere Features**

- Identify vSphere features and VMware products that interoperate with vSAN
- Describe how vSAN interoperates with third-party products and solutions

### **Designing a vSAN Deployment**

- Discuss vSAN design considerations
- Plan and design vSAN clusters
- Identify the design and sizing tools for vSAN
- Describe vSAN use cases

## **PREREQUISITES**

This course has the following prerequisites:

- System administration experience on Microsoft Windows or Linux operating systems
- Understanding of concepts presented in the VMware Data Center Virtualization Fundamentals course or VCA-DCV certification

## **WHO SHOULD ATTEND**

Administrators with foundational knowledge of virtualization, and experienced system administrators, systems engineers, and system integrators willing to work hard to achieve superior vSphere and vSAN skills with minimal time away from the office.