

## VMware vSphere: Optimize and Scale (Version 5.1) (VOS)

### Who should attend

Experienced system administrators and system integrators

### Certifications

This course is part of the following Certifications:

- VMware Certified Advanced Professional 5 - Data Center Administration (VCAP5-DCA)

### Prerequisites

Required prerequisites include completion of one of the following courses:

- VMware vSphere: Install, Configure, Manage (Version 5.1) (VICM)
- VMware vSphere: Install, Configure, Manage (Version 5.1) (VICM)
- VMware vSphere 5.1 Fast Track Boot Camp (VVFT) (Note that Fast Track scalability topics are repeated in this course.)
- Equivalent knowledge and administration experience with ESXi and vCenter Server

Experience working at the command prompt is highly recommended.

### Course Objectives

At the end of the course, you should be able to do the following:

- Configure and manage ESXi networking and storage for the large and sophisticated enterprise.
- Manage changes to the vSphere environment.
- Optimize the performance of vSphere components.
- Troubleshoot faults and identify their root causes.
- Use a command-line interface and the vSphere Management Assistant to manage vSphere.
- Use vSphere Auto Deploy to provision ESXi hosts.

**Note:** About one-third of the VMware vSphere: What's New [V5.1] course content is repeated in this course. The scalability topics in VMware vSphere: Fast Track [V5.1] are repeated in this course.

## Course Outline

### Course Introduction

- Introductions and course logistics
- Course objectives

### VMware Management Resources

- Configure VMware vSphere® Management Assistant (vMA)
- Understand the esxcli and vicfg commands
- Configure ESXi Tech Support Mode and ssh access
- Understand important ESXi and vCenter Server log files
- Configure a centralized ESXi log host

### Performance in a Virtualized Environment

- Understand the vSphere performance troubleshooting methodology
- Understand software and hardware virtualization techniques and their impact on performance
- Use vSphere performance monitoring tools

### Network Scalability

- Create, configure, and manage vSphere distributed switches
- Migrate virtual machines from standard switches to distributed switches
- Understand distributed switch features such as PVLANS, VMware vSphere® Network I/O Control, port mirroring, and NetFlow

### Network Optimization

- Understand performance features of network adapters
- Understand performance features of vSphere networking
- Monitor key network performance metrics
- Use vMA to manage virtual network configuration
- Troubleshoot common network performance problems

### Storage Scalability

- Configure storage multipathing
- Understand vSphere storage APIs for array integration and storage awareness
- Explain profile-driven storage
- Add a storage policy to a virtual machine storage profile
- Describe VMware vSphere® Storage DRS™ operation

- Configure Storage DRS and VMware vSphere® Storage I/O Control

### **Storage Optimization**

- Diagnose storage access problems
- Understand how storage protocols, VMware vSphere® VMFS configuration, load balancing, and queuing affect performance
- Monitor key storage performance metrics
- Use vMA to manage virtual storage
- Troubleshoot common storage performance problems

### **CPU Optimization**

- Understand CPU scheduler and other features that impact CPU performance
- Monitor key CPU performance metrics
- Troubleshoot common CPU performance problems

### **Memory Optimization**

- Understand memory reclamation techniques and overcommitment
- Monitor key memory performance metrics
- Troubleshoot common CPU performance problems

### **Virtual Machine and Cluster Optimization**

- Understand performance guidelines for virtual machines, resource allocation settings, VMware vSphere® Distributed Resource Scheduler™ clusters, resource pools, and VMware vSphere® High Availability admission control policies
- Troubleshoot virtual machine power-on failures
- Troubleshoot vSphere cluster problems

### **Host and Management Scalability**

- Understand how vCenter Linked Mode manages multiple vCenter Server inventories
- Explain VMware vSphere® Distributed Power Management™
- Use Host Profiles to manage ESXi configuration compliance
- Use VMware vSphere® PowerCLI™ to perform vSphere administrative tasks
- Use Image Builder to create an ESXi installation image
- Use vSphere Auto Deploy to provision ESXi hosts