

## VMware vSphere® - Optimize and Scale plus Troubleshooting Fast Track v6.7

### Overview

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This five-day accelerated, hands-on training course is a blend of the VMware vSphere®: Optimize and Scale and VMware vSphere: Troubleshooting Workshop courses. This Fast Track course includes the best of each of these advanced courses to equip experienced VMware administrators with the knowledge to effectively optimize and troubleshoot vSphere at an expert level.

### Prerequisite Comments

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This course requires the completion of one of the following prerequisites:  
Understanding of concepts presented in the VMware vSphere: Install, Configure, Manage [V6.7] course  
Equivalent knowledge and administration experience with ESXi and vCenter Server  
Experience with working at the command prompt is highly recommended.

### Target Audience

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Experienced system administrators, system engineers, and system integrators

### Course Objectives

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By the end of the course, you should be able to meet the following objectives:  
Configure and manage vSphere networking and storage for a large and sophisticated enterprise  
Manage changes to the vSphere environment  
Optimize the performance of all vSphere components  
Use VMware vSphere® ESXi™ Shell and VMware vSphere® Command-Line Interface to manage vSphere  
Harden the vSphere environment against security threats  
Use VMware vSphere® Client™, the command-line interface, and log files to diagnose and correct problems in vSphere  
Troubleshoot networking, storage, VMware vCenter Server®, VMware ESXi™ host, vSphere cluster, VMware vSphere® vMotion®, and virtual machine problems

### Course Outline

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#### 1 - Course Introduction

Introductions and course logistics  
Course objectives

## 2 - Introduction to Troubleshooting

Identify the effects of a system problem  
Define the scope of troubleshooting  
Use a structured approach  
Understand the principles of troubleshooting  
Follow a logical troubleshooting procedure  
Examine examples of troubleshooting

## 3 - Troubleshooting Tools

Use command-line tools to identify and troubleshoot problems  
Use vSphere CLI  
Find and interpret important log files  
Use VMware vRealize<sup>®</sup> Log Insight<sup>™</sup> for log aggregation, efficient log search, and problem analysis

## 4 - Network Optimization

Explain the performance features of network adapters  
Explain the performance features of vSphere networking  
Use esxtop to monitor key network performance metrics

## 5 - Networking Troubleshooting

Identify the symptoms of network-related problems  
Analyze and resolve standard switch and distributed switch problems  
Analyze virtual machine connectivity problems and fix them  
Examine common management network connectivity problems and restore configurations  
Identify and prevent potential problems

## 6 - Storage Optimization

Describe storage queue types and other factors that affect storage performance  
Use esxtop to monitor key storage performance metrics

## 7 - Storage Troubleshooting

Troubleshoot storage (iSCSI, NFS, VMware vSphere<sup>®</sup> VMFS, VMware vSAN<sup>™</sup>, and VMware vSphere<sup>®</sup> Virtual Volumes<sup>™</sup>) connectivity problems  
Analyze storage-related logs  
Analyze hardware malfunction and software misconfiguration scenarios  
Identify multipathing-related problems, including permanent device loss (PDL) and all paths down (APD)  
Analyze possible causes, recover from the faulty conditions, and restore storage visibility

## 8 - CPU Optimization

Explain the CPU scheduler operation and other features that affect CPU performance  
Explain NUMA and vNUMA support  
Use esxtop to monitor key CPU performance metrics

## 9 - Memory Optimization

Explain ballooning, memory compression, and host-swapping techniques for memory reclamation when memory is overcommitted  
Use esxtop to monitor key memory performance metrics

## 10 - vCenter Server Performance Optimization

Describe the factors that influence vCenter Server performance  
Use VMware vCenter® Server Appliance™ tools to monitor resource usage

## 11 - vSphere Cluster Troubleshooting

Identify and recover from problems related to VMware vSphere® High Availability  
Analyze and troubleshoot various types of vSphere vMotion problems related to virtual machine migrations  
Discuss and recover from VMware vSphere® Distributed Resource Scheduler™ problems to achieve proper function and balanced resource use  
Examine vSphere cluster failure scenarios and possible solutions

## 12 - Virtual Machine Troubleshooting

Analyze and resolve common virtual machine snapshot problems  
Identify possible causes and resolve virtual machine power-on problems  
Troubleshoot virtual machine connection state problems  
Resolve problems seen during VMware Tools™ installations  
Examine failure scenarios and provide solutions

## 13 - vSphere Security

Configure ESXi host access and authorization  
Secure ESXi, vCenter Server, and virtual machines  
Use VMware Certificate Authority to configure vSphere certificate management  
Configure vSphere to encrypt virtual machines, core dumps and VMware vSphere® vMotion® migrations

## 14 - vCenter Server and ESXi Troubleshooting

Understand the vCenter Server and VMware Platform Services Controller™ architecture in vSphere 6.x  
Identify and resolve authentication problems  
Troubleshoot VMware Certificate Authority and certificate problems  
Analyze and fix problems with vCenter Server services  
Analyze and fix vCenter Server database problems  
Identify VMware vCenter Server® High Availability problems  
Examine ESXi host and vCenter Server failure scenarios and resolve the problems

## Related Courses, Certifications, Exams

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- VMware vSphere® - Install, Configure, Manage v6.7