

Course name: VMware vSphere: Optimize and Scale [V6]

Course code: VT-SP-OS6-EN

Introduction

VMware vSphere: Optimize and Scale is designed for experienced VMware vSphere® users. It teaches advanced skills for configuring and maintaining a highly available and scalable virtual infrastructure. Through a mix of lecture and hands-on labs, you will configure and optimize the vSphere features that build a foundation for a truly scalable infrastructure and discuss when and where these features have the greatest effect. Anyone who is ready to take their understanding of vSphere to a deeper level and learn how to use advanced features and controls will greatly benefit from this course.

The course is based on VMware ESXi™ 6 and VMware vCenter Server™ 6.

Participant profile

- Experienced system administrators
- Systems engineers
- System integrators

Goal description

- Configure and manage ESXi networking and storage for a large and sophisticated enterprise
- Manage changes to the vSphere environment
- Optimize the performance of all vSphere components
- Harden the vSphere environment against security threats
- Troubleshoot operational faults and identify their root causes
- Use VMware vSphere® ESXi™ Shell and VMware vSphere® Management Assistant to manage vSphere
- Use VMware vSphere® Auto Deploy™ to provision ESXi hosts

Course duration and form

- 35 hours (5 days x 7 hours), including lectures and exercises.

Course plan

1. Course Introduction
 - a. Introductions and course logistics
 - b. Course objectives
 - c. Additional resources
2. vSphere Security
 - a. Describe the features and benefits of VMware Platform Services Controller™
 - b. Configure ESXi host access and authorization
 - c. Secure ESXi, vCenter Server, and virtual machines
 - d. Upgrade ESXi and vCenter Server instances
3. VMware Management Resources
 - a. Understand the purpose of VMware vSphere® Command-Line Interface commands
 - b. Discuss options for running vSphere CLI commands
 - c. Deploy and configure vSphere Management Assistant
 - d. Use vmware-cmd for virtual machine operations
4. Performance in a Virtualized Environment
 - a. Review the vSphere performance troubleshooting methodology
 - b. Explain software and hardware virtualization techniques and their effects on performance

- c. Use vSphere performance monitoring tools
- 5. Network Scalability
 - a. Configure and manage vSphere distributed switches
 - b. Migrate virtual machines from standard switches to distributed switches
 - c. Explain distributed switch features such as port mirroring, LACP, QoS tagging, and NetFlow
- 6. Network Optimization
 - a. Explain the performance features of network adapters
 - b. Explain the performance features of vSphere networking
 - c. Monitor key network performance metrics
 - d. Use vSphere Management Assistant to manage virtual network configurations
 - e. Troubleshoot common network performance problems
- 7. Storage Scalability
 - a. Explain vSphere storage APIs for array integration and storage awareness
 - b. Configure and assign virtual machine storage policies
 - c. Configure VMware vSphere® Storage DRS™ and VMware vSphere® Storage I/O Control
 - d. Create and use virtual volumes in vSphere
- 8. Storage Optimization
 - a. Diagnose storage access problems
 - b. Configure VMware vSphere® Flash Read Cache™
 - c. Monitor key storage performance metrics
 - d. Troubleshoot common storage performance problems
- 9. CPU Optimization
 - a. Explain the CPU scheduler operation, NUMA support, and other features that affect CPU performance
 - b. Monitor key CPU performance metrics
 - c. Troubleshoot common CPU performance problems
- 10. Memory Optimization
 - a. Explain ballooning, memory compression, and host swapping techniques for memory reclamation when memory is overcommitted
 - b. Monitor key memory performance metrics
 - c. Troubleshoot common memory performance problems
- 11. Virtual Machine and Cluster Optimization
 - a. Describe guidelines for optimizing virtual machine configuration
 - b. Discuss how vGPU usage affects virtual machine performance
 - c. Discuss guidelines for using resource allocation settings
 - d. Discuss guidelines for using resource pools
 - e. Discuss guidelines for using vSphere DRS clusters
 - f. Troubleshoot common vSphere cluster problems
- 12. Host and Management Scalability
 - a. Describe and use host profiles
 - b. Define and use content libraries
 - c. Use VMware vSphere® PowerCLI™
 - d. Use Virtual Machine Converter
 - e. Use VMware vSphere® ESXi™ Image Builder CLI and vSphere Auto Deploy