

## VMware vSphere: Optimize and Scale [V6]

Formats: Classroom, Length: 5 Days

### Overview:

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.

### Objectives:

- 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

### Intended Audience:

- Experienced system administrators
- Systems engineers
- System integrators

### Prerequisites: Completion of one of the following courses:

- VMware vSphere: Install, Configure, Manage [5.5 or 6]
- VMware vSphere: Fast Track

(Or)

Equivalent knowledge and administration experience with ESXi and vCenter Server  
Experience working at the command prompt is highly recommended.

### Course Outline:

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

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