

# VMware vSphere: Optimize and Scale V6.0

---

## Course Details

### Course Outline

#### 1. Course Introduction

- Introductions and course logistics
- Course objectives
- Additional resources

#### 2. Mware 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

#### 3. vSphere Security

- Describe the features and benefits of the Platform Services Controller
- Configure ESXi host access and authorization
- Secure ESXi, vCenter Server, and virtual machines

#### 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

- Create, 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 Performance Troubleshooting

- 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 Performance

- 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 Performance

- 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
- Upgrade ESXi and vCenter Server instances
- Use VMware vSphere PowerCLI
- Use Virtual Machine Converter
- Use VMware vSphere ESXi Image Builder CLI and vSphere Auto Deploy