

## VMware vSphere: Optimize and Scale [V7]

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<b>Code:</b>	EDU-VSOS7
<b>Length:</b>	5 days
<b>URL:</b>	<a href="#">View Online</a>

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This five-day course teaches you advanced skills for configuring and maintaining a highly available and scalable virtual infrastructure. Through a mix of lecture and hands-on labs, you configure and optimize the VMware vSphere® 7 features that build a foundation for a truly scalable infrastructure, and you discuss when and where these features have the greatest effect.

- Attend this course to deepen your understanding of vSphere and learn how its advanced features and controls can benefit your organization.

### Skills Gained

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
- Use VMware vSphere® Client™ to manage certificates
- Use Identity Federation to configure VMware vCenter Server® to use Microsoft ADFS
- Use VMware vSphere® Trust Authority™ to secure the infrastructure for encrypted VMs
- Use host profiles to manage VMware ESXi™ host compliance
- Create and manage a content library for deploying virtual machines
- Manage VM resource usage with resource pools
- Monitor and analyze key performance indicators for compute, storage, and networking resources for ESXi hosts
- Optimize the performance of ESXi and VMware vCenter Server®
- Discuss the purpose and capabilities of VMware vSphere® with Kubernetes and how it fits into the VMware Tanzu™ portfolio

### Who Can Benefit

Experienced system administrators, system engineers, and system integrators

### Prerequisites

You must complete one of the following prerequisites:

- Understanding of concepts presented in the VMware vSphere: Install, Configure, Manage [V7] course
- Equivalent knowledge and administration experience with ESXi and vCenter Server
- Experience with working at the command line is highly recommended.

## Course Details

### Product Alignment

- ESXi 7
- vCenter Server 7

### Outline

#### Course Introduction

- Introductions and course logistics
- Course objectives

#### Network Scalability

- Configure and manage vSphere distributed switches
- Describe how VMware vSphere® Network I/O Control enhances performance
- Explain distributed switch features such as port mirroring and NetFlow

#### Storage Scalability

- Explain why VMware vSphere® VMFS is a high-performance, scalable file system
- Explain VMware vSphere® Storage APIs - Array Integration, VMware vSphere® API for Storage Awareness™, and vSphere APIs for I/O Filtering
- Configure and assign virtual machine storage policies
- Create VMware vSAN™ storage policies
- Configure VMware vSphere® Storage DRS™ and VMware vSphere® Storage I/O Control
- Discuss vSphere support for NVMe and iSER

#### Host and Management Scalability

- Use the vSphere Client to manage vSphere certificates
- Describe identity federation and recognize its use cases
- Configure identity federation
- Describe the benefits and use cases of vSphere Trust Authority
- Configure vSphere Trust Authority
- Use host profiles to manage ESXi configuration compliance
- Manage and update VM templates in content libraries
- Create and manage resource pools in a cluster

#### 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

#### 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

#### Storage Optimization

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

#### Network Optimization

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

#### vCenter Server Performance Optimization

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

#### Introduction to vSphere with Kubernetes

- Differentiate between containers and virtual machines
- Identify the parts of a container system
- Recognize the basic architecture of Kubernetes
- Describe a basic Kubernetes workflow
- Describe the purpose of vSphere with Kubernetes and how it fits into the VMware Tanzu portfolio
- Explain the vSphere with Kubernetes supervisor cluster
- Describe the Tanzu Kubernetes Grid service