

## دوره جامع VMware vSphere V ۷.۰

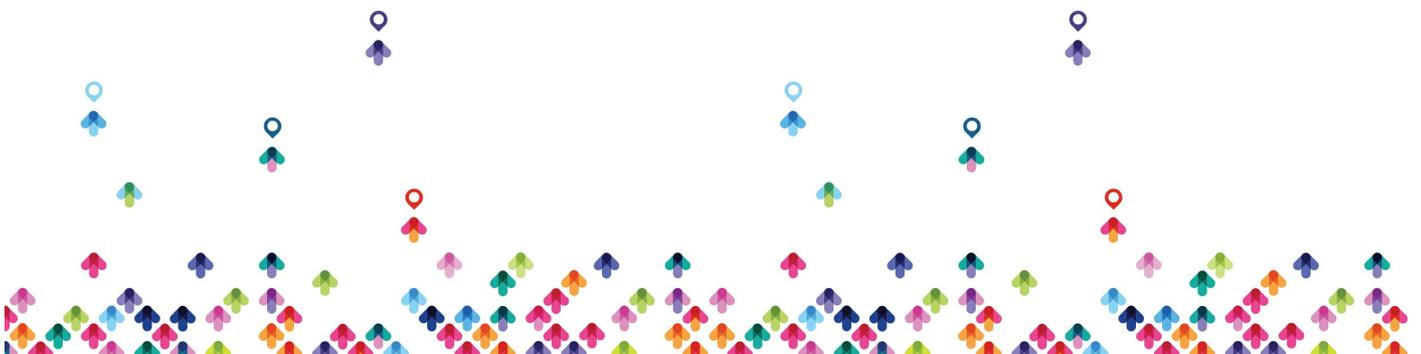
دوره VMware vSphere:  
Install, Configure, Manage plus Optimize and Scale- V ۷.۰

### مروری بر دوره

این دوره روی نصب، پیکربندی، مدیریت و تسلط بر VMware vSphere® ۷.۰، که شامل VMware ESXi™ ۷.۰ و VMware vCenter™ ۷.۰ می شود. این دوره محتوای پر فروش ترین VMware vSphere : نصب، پیکربندی، مدیریت دوره با قابل قیاس بودن پیشرفته و وظایف و مهارت های نظارت بر اجرای مورد نیاز برای پیکربندی محیط های در دسترس و قابل قیاس vSphere را ترکیب می کند. دانشجویان با این مفاهیم و از طریق پایان دوره و لابراتوار های آن، تجربه عملی لازم را کسب خواهند کرد.

### آنچه در این دوره خواهید آموخت

- گسترش، پیکربندی، و مدیریت یک محیط زیرساخت مجازی ESXi و vCenter
- پیکربندی و مدیریت استاندارد و پیشرفته شبکه سازی ESXi و معماری فضای ذخیره سازی
- ایجاد، پیکربندی، انتقال مجازی، مدیریت و نظارت بر ماشین ها و وسایل مجازی
- مدیریت دسترسی نقش محور به زیرساخت مجازی VMware
- استفاده از سرور vCenter برای نظارت بر استفاده از منابع یک محیط و برنامه ریزی برای مقیاس بندی محیط
- پیاده سازی VMware vSphere® High Availability و VMware vSphere® Fault Tolerance برای محافظت از ماشین مجازی
- استفاده از پروفایل های هاست برای مدیریت پیکربندی ESXi و گسترش تجهیزات با مقیاس بزرگ
- استفاده از سویچ های vSphere توزیع شده برای مقیاس بندی شبکه
- استفاده از VMware vSphere® Storage



- DRS™ برای مقیاس بندی فضای ذخیره سازی
- استفاده از VMware vSphere® Update Manager™ برای به کار بردن در patch ها
- استفاده از VMware vSphere® Management Assistant برای مدیریت و نظارت بر محیط vSphere
- گسترش VMware® ESXi، vCenter Server™ و VMware vCenter Server™ Appliance
- استفاده از VMware vSphere® ESXi™ Image Builder CLI برای ایجاد تصویر ESXi و استفاده از آن در تصویر با VMware vSphere® Auto Deploy™ برای تقسیم بندی هاست های ESXi.

سرفصل ها

## Course Introduction

- Introductions and course logistics
- Course objectives
- Describe the content of this course
- Gain a complete picture of the VMware certification system
- Familiarize yourself with the benefits of the VMware Education Learning Zone
- Identify additional resources

## • Introduction to vSphere and the Software-Defined Data Center



- Describe the topology of a physical data center
- Explain the vSphere virtual infrastructure
- Define the files and components of virtual machines
- Describe the benefits of using virtual machines
- Explain the similarities and differences between physical architectures and virtual architectures
- Define the purpose of ESXi
- Define the purpose of vCenter Server
- Explain the software-defined data center
- Describe private, public, and hybrid clouds

## • **Creating Virtual Machines**

- Introduce virtual machines, virtual machine hardware, and virtual machine files
- Identify the files that make up a virtual machine
- Discuss the latest virtual machine hardware and its features
- Describe virtual machine CPU, memory, disk, and network resource usage
- Explain the importance of VMware Tools™
- Discuss PCI pass-through, Direct I/O, remote direct memory access, and NVMe
- Deploy and configure virtual machines and templates
- Identify the virtual machine disk format



## · vCenter Server

- Introduce the vCenter Server architecture
- Deploy and configure vCenter Server Appliance
- Use vSphere Web Client
- Back up and restore vCenter Server
- Examine vCenter Server permissions and roles
- Explain the vSphere HA architectures and features
- Examine the new vSphere authentication proxy
- Manage vCenter Server inventory objects and licenses
- Access and navigate the new vSphere clients

## · Configuring and Managing Virtual Networks

- Describe, create, and manage standard switches
- Configure virtual switch security and load-balancing policies
- Contrast and compare vSphere distributed switches and standard switches
- Describe the virtual switch connection types
- Describe the new TCP/IP stack architecture
- Use VLANs with standard switches

## · Configuring and Managing Virtual Storage



- Introduce storage protocols and storage device types
- Discuss ESXi hosts using iSCSI, NFS, and Fibre Channel storage
- Create and manage VMFS and NFS datastores
- Describe the new features of VMFS v.
- Introduce vSAN
- Describe guest file encryption

## • **Virtual Machine Management**

- Use templates and cloning to deploy new virtual machines
- Modify and manage virtual machines
- Clone a virtual machine
- Upgrade virtual machine hardware to version ۱۲
- Remove virtual machines from the vCenter Server inventory and datastore
- Customize a new virtual machine using customization specification files
- Perform vSphere vMotion and vSphere Storage vMotion migrations
- Create and manage virtual machine snapshots
- Create, clone, and export vApps
- Introduce the types of content libraries and how to deploy and use them

## • **Resource Management and Monitoring**

- Introduce virtual CPU and memory concepts
- Explain virtual memory reclamation techniques



- Describe virtual machine overcommitment and resource competition
- Configure and manage resource pools
- Describe methods for optimizing CPU and memory usage
- Use various tools to monitor resource usage
- Create and use alarms to report certain conditions or events
- Describe and deploy resource pools
- Set reservations, limits, and shares
- Describe expandable reservations
- Schedule changes to resource settings
- Create, clone, and export vApps
- Use vCenter Server performance charts and esxtop to analyze vSphere performance

## • vSphere HA, vSphere Fault Tolerance, and Protecting Data

- Explain the vSphere HA architecture
- Configure and manage a vSphere HA cluster
- Use vSphere HA advanced parameters
- Define clusterwide restart ordering capabilities
- Enforce infrastructural or intra-app dependencies during failover
- Describe vSphere HA heartbeat networks and datastore heartbeats
- Introduce vSphere Fault Tolerance
- Enable vSphere Fault Tolerance on virtual machines
- Support vSphere Fault Tolerance interoperability with vSAN
- Examine enhanced consolidation of vSphere Fault Tolerance virtual



machines

- Introduce vSphere Replication
- Use vSphere Data Protection to back up and restore data

## • vSphere DRS

- Describe the functions and benefits of a vSphere DRS cluster
- Configure and manage a vSphere DRS cluster
- Work with affinity and anti-affinity rules
- Describe the new capabilities for what-if analysis and proactive vSphere DRS
- Highlight the evolution of vSphere DRS using predictive data from VMware vRealize® Operations Manager™
- Perform preemptive actions to prepare for CPU or memory changes
- Describe the vCenter Server embedded vSphere Update Manager, VMware vSphere® ESXi™ Image Builder CLI, and VMware vSphere® Auto Deploy capabilities
- Use vSphere HA and vSphere DRS together for business continuity

## • vSphere Update Manager

- Describe the new vSphere Update Manager architecture, components, and capabilities
- Use vSphere Update Manager to manage ESXi, virtual machine, and vApp



patching

- Install vSphere Update Manager and the vSphere Update Manager plug-in
- Create patch baselines
- Use host profiles to manage host configuration compliance
- Scan and remediate hosts

عبارتند از [V7.0] **Optimize and Scale** سر فصلهای تحت پوشش از دوره

#### • **Network Scalability**

- Configure and manage vSphere distributed switches
- Explain distributed switch features such as port mirroring, LACP, QoS tagging, and NetFlow

#### • **Storage Scalability**

- Configure and assign virtual machine storage policies
- Configure VMware vSphere® Storage DRS™ and VMware vSphere® Storage I/O Control

#### • **Host and Management Scalability**

- Explain the uses of VMware vCenter® Converter™
- Define and use content libraries



- Describe and use host profiles

## • CPU Optimization

- Explain the CPU scheduler operation, NUMA support, and other features that affect CPU performance
- 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 the performance features of network adapters
- Explain the performance features of vSphere networking
- Use esxtop to monitor key network performance metrics

## • Analyzing vSphere

- Explain how Proactive DRS enhances virtual machine availability

## • vCenter Server Availability and Performance

- Describe the high availability options for vCenter Server and VMware Platform Services Controller™
- Describe and use VMware vCenter Server® High Availability
- Identify the factors that influence vCenter Server performance
- Migrate a Windows vCenter Server ۵.۵ system to vCenter Server Appliance ۷.۰

## مخاطبان دوره

- مدیران سیستم های جدید و حتی با تجربه، مهندسين سیستم ها، و یکپارچه سازان سیستم ها که مایلند برای دستیابی به مهارت های پیشرفته vSphere در حداقل زمان تجربه کسب کنند.

## پیش نیازها

- تجربه مدیریت سیستم در Microsoft Windows یا سیستم عامل های Linux



- درک مفاهیم ارائه شده در VMware Data Center در Virtualization Fundamentals یا گواهینامه VCA-DCV

