# **TechyEdz Solutions**

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Virtualization Masters Program









# **Virtualization Masters Program**

## Course Overview:

This program provides complete, theoretical and practical vision of Virtualization: Windows Operating System, VMware ICM (Installation, Configuration & Maintenance) and Troubleshooting. Students will gain skills in DNS, DHCP, Active Directory, diagnose and supervise a virtual platform, and plan the migration to a virtual infrastructure, know how to install it and measure its performance. Upon successfully completion of the program students may pursue a career as VMware engineer and Virtualization engineer. Students will study subjects such as MCSA 2016, VMware vSphere 6.7 and VMware Troubleshooting 6.7.

#### Course Outline:

## MCSA 2016

## 70-740: Installation, Storage, and Compute with Windows Server 2016

- > Install Windows Servers in Host and Compute Environments
- Implement Storage Solutions
- Implement Hyper-V
- > Implement Windows Containers
- > Implement High Availability
- Maintain and Monitor Server Environments

## 70-741: Networking with Windows Server 2016

- Implement Domain Name System (DNS)
- > Implement DHCP and IPAM
- Implement Network Connectivity and Remote Access Solutions
- Implement Core and Distributed Network Solutions
- Implement an Advanced Network Infrastructure

## 70-742: Identity with Windows Server 2016

- Install and Configure Active Directory Domain Services (AD DS)
- Manage and Maintain AD DS
- Create and Manage Group Policy
- Implement Active Directory Certificate Services (AD CS)
- Implement Identity Federation and Access Solutions

# VMware vSphere: Install, Configure, Manage [V6.7]

## Course Outline:

#### 1. 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

## 2. Introduction to vSphere and the Software-Defined Data Centre

- Describe the topology of a physical data centre
- > 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 vCentre Server
- > Explain the software-defined data centre
- Describe private, public, and hybrid clouds

## 3. 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

## 4. vCentre Server

- Introduce the vCentre Server architecture
- > Deploy and configure vCentre Server Appliance
- Use vSphere Web Client

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- Backup and restore vCentre Server
- > Examine vCentre Server permissions and roles
- > Explain the vSphere HA architectures and features
- Examine the new vSphere authentication proxy
- > Manage vCentre Server inventory objects and licenses
- Access and navigate the new vSphere clients

## 5. 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

## 6. 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 data stores
- Describe the new features of VMFS 6.5
- Introduce vSAN
- Describe guest file encryption

## 7. 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 12
- > Remove virtual machines from the vCentre 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

## 8. Resource Management and Monitoring

- Introduce virtual CPU and memory concepts
- > Explain virtual memory reclamation techniques
- > Describe virtual machine over commitment 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 vCentre Server performance charts and esxtop to analyze vSphere performance

## 9. 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

## 10. 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 vCentre 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

## 11. 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

# VMware vSphere: Troubleshooting [V6.7]

## Course Outline:

#### 1. Course Introduction

- Introductions and course logistics
- Course objectives

## 2. Introduction to Troubleshooting

- Identify the effects of a system problem
- Define the scope of troubleshooting
- Use a structured approach
- Discuss the principles of troubleshooting
- Follow a logical troubleshooting procedure
- Examine examples of troubleshooting

## 3. Troubleshooting Tools

- Use command-line tools to identify and troubleshoot problems
- Use vSphere CLI
- Find and interpret important log files
- Use vRealize Log Insight for log aggregation, efficient log search, and problem analysis

## 4. Networking

- ➤ Identify the symptoms of network-related problems
- Analyze and resolve standard switch and distributed switch problems
- Analyze virtual machine connectivity problems and fix them
- Examine common management network connectivity problems and restore configurations
- > Identify and prevent potential problems

## 5. Storage

- Troubleshoot storage (iSCSI, NFS, VMware vSphere VMFS, VMware vSAN, and VMware vSphere Virtual Volumes) connectivity problems
- Analyze storage-related logs
- Analyze hardware malfunction and software misconfiguration scenarios
- ➤ Identify multipathing-related problems, including permanent device loss (PDL) and all paths down (APD)
- Analyze possible causes, recover from faulty conditions, and restore storage visibility

## 6. vSphere Clusters

- ➤ Identify and recover from problems related to vSphere HA
- Analyze and troubleshoot various types of vSphere vMotion problems related to virtual machine migrations
- Discuss and recover from vSphere DRS problems to achieve proper function and balanced resource use
- Examine vSphere cluster failure scenarios and possible solutions

#### 7. Virtual Machines

- Analyze and resolve common virtual machine snapshot problems
- ➤ Identify possible causes and resolve virtual machine power-on problems
- > Troubleshoot virtual machine connection state problems
- Resolve problems seen during VMware Tools™ installations
- Examine failure scenarios and provide solutions

#### 8. vCenter Server and ESXi

- Describe the vCenter Server and VMware Platform Services Controller™ architecture in vSphere 6.x
- Identify and resolve authentication problems
- Troubleshoot VMware Certificate Authority and certificate problems
- Analyze and fix problems with vCenter Server services
- Analyze and fix vCenter Server database problems
- ➤ Identify VMware vCenter Server® High Availability problems
- Examine ESXi host and vCenter Server failure scenarios and resolve the problems

# 🖶 Prerequisites:

- System administration experience on Microsoft Windows or Linux operating systems
- Basic Knowledge on Networking and Storage

- **Who Should Attend:**
- > System Administrators
- System Integrators
- **♣** Number of Hours: 100hrs
- **♣** Certification: VCA, VCP, 70-740, 70-741 & 70-742
- **Key Features:**
- One to One Training
- Online Training
- > Fastrack & Normal Track
- > Resume Modification
- Mock Interviews
- Video Tutorials
- Materials
- > Real Time Projects
- Virtual Live Experience
- Preparing for Certification