Course Name: VMware vSphere: Install, Configure, Manage [V6.5]
Duration: 5 Days

Overview:
This five-day course features intensive hands-on training that focuses on installing, configuring, and managing VMware vSphere® 6.5, which includes VMware ESXi™ 6.5 and VMware vCenter Server® 6.5. This course prepares you to administer a vSphere infrastructure for an organization of any size. It is the foundation for most other VMware technologies in the software-defined data center.

Note: This course is based on beta software.

Product Alignment
• ESXi 6.5
• vCenter Server 6.5

Objectives: By the end of the course, you should be able to meet the following objectives:
• Describe the software-defined data center
• Explain the vSphere components and their function in the infrastructure
• Deploy an ESXi host
• Deploy VMware vCenter® Server Appliance™
• Use a local content library as an ISO store and deploy a virtual machine
• Describe vCenter Server architecture
• Use vCenter Server to manage an ESXi host
• Configure and manage vSphere infrastructure with VMware vSphere® Client™ and VMware vSphere® Web Client
• Describe virtual networks with vSphere standard switches
• Configure standard switch policies
• Use vCenter Server to manage various types of host storage: VMware vSphere® VMFS, NFS, virtual SAN, Fiber Channel, and VMware Virtual SAN™
• Manage virtual machines, templates, clones, and snapshots
• Create, clone, and export a vApp
• Describe and use the content library
• Migrate virtual machines with VMware vSphere® vMotion®
• Use VMware vSphere® Storage vMotion® to migrate virtual machine storage
• Monitor resource usage and manage resource pools
• Use esxtop to identify and solve performance issues
• Discuss the VMware vSphere® High Availability cluster architecture
• Configure vSphere HA
• Manage vSphere HA and VMware vSphere® Fault Tolerance
• Use VMware vSphere® Replication™ and VMware vSphere® Data Protection™ to replicate virtual machines and perform data recovery
• Use VMware vSphere® Distributed Resource Scheduler™ clusters to improve host scalability
• Use VMware vSphere® Update Manager™ to apply patches and perform basic troubleshooting of ESXi hosts, virtual machines, and vCenter Server operations

Certifications
This course prepares you for the following certification:
• VMware Certified Professional 6 – Data Center Virtualization (VCP6-DCV)

Intended Audience: • System administrators
• System engineer

Prerequisites: This course requires the following prerequisites:
• System administration experience on Microsoft Windows or Linux operating systems

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 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

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. vCenter Server
- Introduce the vCenter Server architecture
- Deploy and configure vCenter Server Appliance
- Use vSphere Web Client
- Backup 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

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 Virtual SAN
- 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 vCenter Server inventory and data store
- Customize a new virtual machine using customization specification files
- Perform vSphere vMotion and vSphere Storage vMotion migrations
o Create and manage virtual machine snapshots
o Create, clone, and export vApps
o Introduce the types of content libraries and how to deploy and use them

8. Resource Management and Monitoring
o Introduce virtual CPU and memory concepts
o Explain virtual memory reclamation techniques
o Describe virtual machine over commitment and resource competition
o Configure and manage resource pools
o Describe methods for optimizing CPU and memory usage
o Use various tools to monitor resource usage
o Create and use alarms to report certain conditions or events
o Describe and deploy resource pools
o Set reservations, limits, and shares
o Describe expandable reservations
o Schedule changes to resource settings
o Create, clone, and export vApps
o Use vCenter Server performance charts and esxtop to analyze vSphere performance

9. vSphere HA and vSphere Fault Tolerance
o Explain the vSphere HA architecture
o Configure and manage a vSphere HA cluster
o Use vSphere HA advanced parameters
o Define cluster wide restart ordering capabilities
o Enforce infrastructural or intra-app dependencies during failover
o Describe vSphere HA heartbeat networks and data store heartbeats
o Introduce vSphere Fault Tolerance
o Enable vSphere Fault Tolerance on virtual machines
o Support vSphere Fault Tolerance interoperability with Virtual SAN
o Examine enhanced consolidation of vSphere Fault Tolerance virtual machines
o Introduce vSphere Replication
o Use vSphere Data Protection to back up and restore data

10. Host Scalability
o Describe the functions and benefits of a vSphere DRS cluster
o Configure and manage a vSphere DRS cluster
o Work with affinity and anti-affinity rules
o Describe the new capabilities for what-if analysis and proactive vSphere DRS
o Highlight the evolution of vSphere DRS using predictive data from VMware vRealize® Operations Manager™
11. vSphere Update Manager and Host Maintenance
   o Describe the new vSphere Update Manager architecture, components, and capabilities
   o Use vSphere Update Manager to manage ESXi, virtual machine and vApp patching
   o Install vSphere Update Manager and the vSphere Update Manager plug-in
   o Create patch baselines
   o Use host profiles to manage host configuration compliance
   o Scan and remediate hosts