Overview:
This extended hours, five-day course features intensive, hands-on training that focuses on installing, configuring, managing, and troubleshooting 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. The material is presented in the Fast Track format.

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 Host Client™ and VMware vSphere® Web Client
• Troubleshoot vSphere environments with VMware vSphere® Management Assistant and command-line commands
• Describe virtual networks with vSphere standard switches
• Configure standard switch policies
• Troubleshoot virtual networks
• Use vCenter Server to manage various types of host storage: VMware vSphere® VMFS, NFS, iSCSI, and RDM
• Examine the features and functions of Fibre Channel and VMware vSAN™
• Manage virtual machines, templates, clones, and snapshots
• Create, clone, and deploy a vApp
• Describe and use the content library
• Migrate virtual machines with VMware vSphere® vMotion®
• Troubleshoot virtual machines
• Use VMware vSphere® Storage vMotion® to migrate virtual machine storage
• Troubleshoot vSphere storage
• Monitor resource usage and manage resource pools
• Use esxtop to identify and solve performance issues
• Troubleshoot ESXi hosts and vCenter Server
• Discuss the VMware vSphere® High Availability cluster architecture
• Configure vSphere HA
• Manage vSphere HA and VMware vSphere® Fault Tolerance
• Troubleshoot vSphere HA
• 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
• Troubleshoot vSphere DRS clusters
• 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:
Intended Audience:  
• System administrators  
• System engineers

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

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  
◦ 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

5 Troubleshooting vSphere  
◦ Use command-line commands with vSphere  
◦ Use vSphere Management Assistant
6 Configuring and Managing Virtual Networks
   ◦ Identify the location of vSphere log files
   ◦ Describe, create, and manage standard switches
   ◦ Configure virtual switch security and load-balancing policies
   ◦ Compare and contrast vSphere distributed switches and standard switches
   ◦ Describe the virtual switch connection types
   ◦ Describe the new TCP/IP stack architecture
   ◦ Use VLANs with standard switches
   ◦ Troubleshoot networks

7 Configuring and Managing Virtual Storage
   ◦ Identify 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 VMFS6.5
   ◦ Describe guest file encryption
   ◦ Describe storage connectivity and configuration
   ◦ Describe storage multipathing
   ◦ Discuss the use of vSAN and VMware vSphere® Virtual Volumes™

8 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 13
   ◦ 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
   ◦ Identify the types of content libraries and how to deploy and use them

9 Resource Management and Monitoring
   ◦ Explain 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
   ◦ Troubleshoot vCenter Server and ESXi hosts

10 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
- Troubleshoot vSphere HA

11 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 Predictive DRS
- Describe 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
- Troubleshoot vSphere DRS

12 vSphere Update Manager
- Describe the new vSphere Update Manager architecture, components, and capabilities
- Use vSphere Update Manager to manage the patching of ESXi, virtual machines, and vApps
- 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