VMWARE: vSPHERE, Configure, Optimize, Manage (Fast-Track)

TECHLAN ACADEMY

COURSE OBJECTIVE:

This course takes you from introductory to advanced VMware vSphere management skills. Learn Installation and configuration plus develop the advanced skills needed to manage and maintain a highly available and scalable virtual infrastructure. Through a mix of lecture and hands-on labs, you will install, configure, and optimize vSphere 6.5. You will explore the features that build a foundation for a truly scalable infrastructure, and discuss when and where these features have the greatest effect. This course prepares you to administer a vSphere infrastructure for an organization of any size using vSphere 6.5, which includes VMware ESXi™ 6.5 and VMware vCenter Server® 6.5.

By the end of the course, you should be able to meet the following objectives:
• Describe the software-defined data center
• Deploy an ESXi host and create virtual machines
• Describe the vCenter Server architecture
• Deploy VMware vCenter® Server Appliance™
• Back up and restore vCenter Server
• Deploy vCenter Server Appliance to be highly available
• Use vCenter Server to manage an ESXi host
• Configure and manage the vSphere infrastructure with VMware vSphere® Client™ and VMware vSphere® Web Client
• Configure virtual networks with vSphere standard switches
• Use vSphere distributed switches to improve network scalability
• Use vCenter Server to manage various types of storage
• Manage virtual machines, templates, clones, and snapshots
• Perform basic troubleshooting of ESXi hosts, virtual machines, and vCenter Server
• Create 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
• Manage VMware vSphere® High Availability 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 upgrades
• Configure and manage ESXi networking and storage for a large and sophisticated enterprise
• Configure and use virtual machine storage policies
• Configure VMware vSphere® Storage I/O Control
• Configure VMware vSphere® Storage DRS™
• Encrypt virtual machines for additional security

PREREQUISIT:

It is recommended, but not required, that students have the following knowledge and skills:

- System administration experience on Microsoft Windows or Linux operating systems

WHO SHOULD ATTEND

System administrators
System engineers

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COURSE CONTENT:

MODULE 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

MODULE 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

MODULE 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

MODULE 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

MODULE 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

MODULE 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 VMware vSphere® VMFS and NFS datastores
Describe the new features of VMFS 6.5
Introduce VMware vSAN™
Describe guest file encryption

MODULE 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 datastore
Use customization specification files to customize a new virtual machine
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

MODULE 8: 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

MODULE 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
Describe the high availability options for vCenter Server and VMware Platform Services Controller™
Describe and use VMware vCenter Server® High Availability

MODULE 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 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
Explain how Proactive DRS enhances virtual machine availability

MODULE 11: Network Scalability
Configure and manage vSphere distributed switches
Explain distributed switch features such as port mirroring, LACP, QoS tagging, and NetFlow

MODULE 12: 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

MODULE 13: Storage Scalability
Explain VMware vSphere® Storage APIs - Array Integration and VMware vSphere® API for Storage Awareness™
Configure and assign virtual machine storage policies
Configure vSphere Storage DRS and vSphere Storage I/O Control

MODULE 14: Network Scalability
Configure vSphere to encrypt virtual machines, core dumps, and vSphere vMotion migrations