VMware vSphere Advanced Administration

Course Summary

Description

The focus on this class is the effective and efficient use of vSphere software to improve deployment, performance, availability, back up and recovery. The class includes some command line and scripting content and labs. Attendees use these tools to automate repetitive tasks.Service availability is covered through in-depth looks at VMware High Availability clusters and VMware Fault Tolerance. Performance is extensively covered, helping you keep your vSphere and VMs running at top speed.VM back up and recovery is addressed using VMware Data Recovery. Learn how these tools can be used for daily VM back up and also for Disaster Recovery and remediation.

Windows patching is covered along with ESX Host Profiles. These tools let you set configuration and patch baselines and then help you deploy and update to ensure policy and configuration compliance.Virtualization introduces new security concerns. These are identified and addressed both by creating awareness and by demonstrating how security can be improved and monitored.This class includes lectures/labs that use the VMware Management Assistant command line. Linux command line skills are helpful but not required.

Objectives
At the end of this course, students will be able to:

- Explain the many significant benefits of virtualization
- Minimize Windows licensing costs and improve licensing compliance
- Explain the benefits and limitations of the various vSphere licenses
- Install ESXi according to best practices
- Configure and manage local and SAN storage
- Create virtual and virtual to physical LAN segments
- Define and use NAS datastores
- Create virtual machines, install operating systems and applications
- Install, configure and administer VMware vCenter
- Improve vCenter availability through the use of Linked Clones
- Rapidly deployment of VMs using golden-master templates and VM Specification files
- Take advantage of advanced virtual hardware properties such as multi-core vCPUs and hot-plug memory, disks and NICs
- Configure VMs to use USB devices
- Understand and use shared SAN storage including Fibre and iSCSI SANs
- Test for and implement Jumbo Frame network support
- Design and implement redundant iSCSI storage to improve network performance
- Manage SAN storage volumes and virtual disks for performance and space efficiency
- Use VMware Data Recovery to back up and recover VMs and files
- Create and manage VMware High Availability clusters to protect against VM service loss caused by ESX server failures
- Use Fault Tolerance to eliminate unplanned VM down time due to hardware failures
- Configure VM patch management using vCenter Update Manager
- Create and enforce server configuration standards with Host Profiles
- Troubleshoot common problems
- Perform common ESXi and VM tasks from the vMA command line
- Install, configure and administer VMware vSphere according to Best Practices

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Course Summary (cont'd)

Topics

- Virtualization Overview
- VMware vSphere
- ESXi Server Installation
- Virtual Networking
- NFS File Shares
- Virtual Hardware and Virtual Machines
- vCenter and vCenter Linked Mode
- VM Rapid Deployment using Templates, Clones
- Fibre and iSCSI Storage and VMware File Systems
- VMware High Availability Clusters and VMware FT
- VMware Fault Tolerance
- VM Backup with VMware Data Recovery
- VMware Update Manager
- VMware vApp
- VMware vMA Installation & Use
- Host Profiles

Audience

- System architects or others who need to design virtual infrastructure
- Senior administrators responsible for technical design and implementation of new Virtual Infrastructure projects
- Security specialists responsible for monitor, managing, securing and administering Virtual Infrastructure
- Performance and capacity analysts who need to understand, provision, monitor and performance tune Virtual Infrastructure
- Backup Administrators who need to understand the impact of existing and new back up strategies in a virtual environment
- Business Continuity specialists responsible for disaster recovery and high availability
- Storage administrators who need to understand how Virtual Infrastructure sees and uses Fibre SAN and iSCSI SAN volumes and NAS datastores
- Technical Managers who need an unbiased understanding of virtualization before committing their organization to a virtual infrastructure deployment.

Duration

Four days

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Course Outline

I. Virtualization Overview
- A. Introduction to the class
- B. Key topics
- C. Remote lab environment

II. VMware vSphere
- A. Virtualization benefits and use cases
- B. VM licensing options
- C. vSphere Editions, Bundles
- D. vSphere hardware limitation by license
- E. Private compute, network and storage clouds

III. ESXi Server Installation
- A. Understanding ESXi and ESX
- B. Selecting, validating and preparing your server
- C. Software installation and licensing
- D. Joining ESXi to a Windows Domain
- E. Using Power Management profiles

IV. Virtual Networking
- A. Virtual Switches, Ports and Port Groups
- B. Management and VMkernel ports
- C. NIC team and vLAN configurations
- D. Jumbo frame compatibility, configuration and performance

V. NFS File Shares
- A. Defining and connecting to NFS shares
- B. Moving files between ESXi and Windows

VI. Virtual Hardware and Virtual Machines
- A. Creating, modifying and customizing Virtual Hardware
- B. Installing Windows into a new VM
- C. Understanding and working with the Snapshot Manager
- D. Windows Guest OS performance tips
- E. Defining and using USB devices within a VM
- F. Virtual NIC choices, benefits and trade offs

VII. vCenter and vCenter Linked Mode
- A. vCenter architectural and feature overview
- B. vCenter components & licensing
- C. vCenter sizing considerations
- D. Importing ESXi hosts into vCenter management
- E. vCenter web access
- F. Redundant vCenter configurations using vCenter Linked Mode
- G. Troubleshooting vCenter

VIII. VM Rapid Deployment using Templates, Clones
- A. Templates - Virtual Machine Golden Master images
- B. Creating, modifying, updating and working with Templates
- C. Patching, and refreshing Templates
- D. Cold and hot cloning VMs
- E. Using Guest OS customization Specification files
- F. Hot plugging virtual hardware including CPUs, RAM, Disks and NICs
- G. Growing Windows Basic and System disks

IX. Fibre and iSCSI Storage and VMware File Systems
- A. Fibre SAN and iSCSI overview
- B. Virtual and physical iSCSI adapters
- C. Creating and using virtual iSCSI adapters
- D. Scanning and rescanning Fibre and iSCSI SANS
- E. Configuring storage Multipath properties
- F. Optimize software iSCSI configurations for performance and redundancy
- G. Creating new VMFS partitions
- H. Managing VMFS capacity with LUN expansion and LUN spanning
- I. VMFS performance considerations

X. VMware High Availability Clusters and VMware FT
- A. Creating VMware HA clusters
- B. Configuring HA cluster properties
- C. Admission control policies and settings
- D. Maintenance mode

XI. VMware Fault Tolerance
- A. Fault Tolerance overview
- B. Features and limitations
- C. Configuration, monitoring and recovery

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Course Outline (cont'd)

D. FT ESXI hosts and network compatibility requirements
E. Creating and administering FT VMs

XII. VM Backup with VMware Data Recovery
A. Data Recovery virtual appliances overview
B. Installing and configuring VMware Data Recovery
C. Defining backup storage volumes and shares
D. Creating and running backup jobs
E. Full VM recovery
F. File level restores within VMs

XIII. VMware Update Manager
A. VMware Update Manager overview
B. Installing, configuration VUM
C. Selecting and downloading patch lists
D. Creating, updating patch baselines
E. Scanning VMs for patch compliance
F. Remediating VMs found to be out of compliance

XIV. VMware vApp
A. VMware vApp overview
B. Creating and working with vApps
C. Adding VMs to a vApp
D. Setting vApp properties such as start up/shutdown sequence
E. Administering, customizing vApps

XV. VMware vMA Installation & Use Cases
A. Overview of VMware Virtual Management Appliance
B. VMware vCLI for Windows, Linux
C. Installing, configuring vMA
D. Overview of vMA scripting capabilities
E. Querying ESX(i) host and VM status
F. Managing ESX(i) hosts from a

XVI. Host Profiles
A. Create and refine a new Host Profile template
B. Verify host configuration compliance using Host Profiles
C. Enforce configuration standards on non-compliant ESX hosts

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