

VMware vSphere 4.1 for Operators

Course Summary

Description

This class introduces help desk/service desk employees to VMware vSphere 4.1 including VMware ESX 4.1 and vCenter. Assuming no prior virtualization experience, this class starts with the basics and rapidly progresses to more advanced topics. More than 40% of class time is devoted to labs so concepts, skills and best practices are developed and reinforced. Initial labs focus on installation and configuration of stand-alone ESXi servers. As the class progresses, shared storage, networking and centralized management are introduced. The class continues on to more advanced topics including load balancing, high availability, troubleshooting and more. Upon completing this class, students will know how to use the most popular features of ESXi and vCenter and will be able to review, administer, support and troubleshoot basic ESXi and vCenter issues.

This class is unique in its approach; which is to identify common IT pain points and then clearly explain and demonstrate how virtualization delivers clear, tangible benefits (e.g.: reduced costs, greater consistency, responsiveness, reduced administration, server consolidation, etc.). Each topic is presented from the perspective of delivering key business value; not just the technical or mechanical aspects of the software.

Objectives

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

- Explain the many significant benefits of virtualization
- Install ESXi Server according to best practices
- Configure and manage local storage
- Create virtual and virtual to physical LAN segments
- Understand and use shared SAN storage including Fibre SAN, iSCSI SAN
- Define and use file share (NAS) datastores
- Configure and administer VMware vCenter
- Rapidly deployment of VMs using golden-master templates
- Create clones - one-time copies of virtual machine
- Perform VM cold migrations, hot migrations and Storage VMotion
- Create and manage load balanced clusters
- Understand, create and manage high availability clusters to protect against VM service loss caused by ESXi server failures
- Troubleshoot common problems

Topics

- Virtualization Infrastructure
- How to install ESXi 4.1 Installable
- Virtual and Physical Networking
- NAS Shared Storage
- Virtual Hardware and Virtual Machines
- vCenter
- VM Rapid Deployment using Templates, Clones
- Chapter 8 - Using Fibre and iSCSI Shared Storage and VMFS
- Resource Management and Resource Pools
- VM Hot and Cold Migration, Storage VMotion
- Load Balancing w. Distributed Resource Scheduler
- Failure Recover with High Availability Clusters

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Course Summary (cont'd)

Audience

This class is suitable for anyone who wants to learn how to extract the maximum benefit from their investment in Virtual Infrastructure, including:

- System architects or others who need to design virtual infrastructure
- Operators responsible for day-to-day operation of Virtual Infrastructure
- Backup Administrators who need to understand the impact of existing and new back up strategies in a virtual environment
- Storage administrators who need to understand how VMware ESX uses Fibre SAN and iSCSI SAN volumes and NAS datastores
- Managers who need an unbiased understanding of virtualization before committing their organization to a virtual infrastructure deployment.

Prerequisites

Attendees should have user, operator or administrator experience on common operating systems such as Microsoft Windows, Linux, UNIX, etc. Experience installing, configuring and managing operating systems, storage systems and or networks are useful but not required. We assume that all attendees have a basic familiarity with PC server hardware, disk partitioning, IP addressing, O/S installation, networking, etc.

Duration

Two days

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Course Outline

- I. Virtualization Infrastructure**
 - A. Virtualization explained
 - B. How VMware virtualization compares to traditional PC deployments
 - C. How virtualization effectively addresses common IT issues
 - D. VMware vSphere software products
- II. How to Install ESXi 4.1 Installable**
 - A. Understanding ESXi
 - B. Selecting, validating and preparing your server
 - C. Storage controllers, disks and partitions
 - D. Software installation and best practices
 - E. Joining ESXi to a Domain
 - F. First look at the VMware vSphere Client
- III. Virtual and Physical Networking**
 - A. vNetwork standard and distributed virtual Switches
 - B. Virtual Switches, Ports and Port Groups
 - C. Creating VMkernel ports
 - D. Creating, sizing and customizing Virtual Switches
- IV. NAS Shared Storage**
 - A. Benefits Shared Storage offer to Virtual Infrastructure
 - B. Shared Storage options
 - C. NFS Overview
 - D. Configuring ESX to use NFS Shares
 - E. Troubleshooting NFS connections
- V. Virtual Hardware and Virtual Machines**
 - A. Sizing and creating a new VM
 - B. Assigning, modifying and removing Virtual Hardware
 - C. Working with a VM's BIOS
 - D. VMware remote console applications
 - E. Installing an OS into a VM
- VI. vCenter**
 - A. vCenter feature overview and components
 - B. Organizing vCenter's inventory views
 - C. Importing ESXi hosts into vCenter management
- VII. 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. Cloning, one time copies of VMs
 - E. Best practices for cloning and templating
- VIII. Using Fibre and iSCSI Shared Storage, VMFS**
 - A. Identifying and using Fibre Host Bus Adapters
 - B. Scanning and Rescanning Fibre SANs
 - C. iSCSI overview
 - D. Virtual and physical iSCSI adapters
 - E. Scanning and rescanning iSCSI SANS
 - F. Creating new VMFS partitions
- IX. Resource Management and Resource Pools**
 - A. How ESX delivers resources to VMs
 - B. Shares, Reservations and Limits
 - C. Resource Pools
- X. VM Hot and Cold Migration, Storage VMotion**
 - A. Cold Migrations to new ESX hosts, datastores
 - B. Hot Migrations with VMotion
 - C. VMotion requirements and dependencies
 - D. Storage VMotion for hot VM disk migrations
- XI. Load Balancing w. Distributed Resource Scheduler**
 - A. Delegated resource management with Resource Pools
 - B. Resource balanced clusters with VMware Distributed Resource Scheduler
 - C. DRS Cluster configuration and tuning
 - D. Per-VM cluster policy overrides
- XII. Failure Recover with High Availability Clusters**
 - A. High Availability options to minimize unplanned down time
 - B. VMware High Availability clusters
 - C. VMware Fault Tolerance