

# VMware ESX Installation and Administration

**Prerequisites:** None

**Length:** 3 Days

**Summary:** In this course, students will learn ESX server installation, creating and configuring virtual machines, configuring ESX's file system, managing user rights and permissions, using VMware VirtualCenter, using VMotion, using Snapshot Manager, understanding hyper threading and licensing and implementing high availability.

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## Course Content

### INTRODUCTION TO VMWARE ESX VIRTUALIZATION

- Reasons for Virtualization
- Comparison of Virtualization Products
- Product Architectures
- ESX Server Architecture

### CONFIGURING ESX'S FILE SYSTEM (VMFS-3)

- Configuring Multiple Data Paths for Fault Tolerance and Performance
- Configuration of Network Attached Storage (NAS)
- Reducing Storage Requirements

### ESX SERVER INSTALLATION

- Pre-Installation Guidelines
- Installation Best Practices
- Installation Steps
- Using the Infrastructure Client Tool
- Networking ESX Virtual Machines Together
- ESX Network Components
- Virtual Switches
- VMkernel Ports
- Service Console Ports
- Port Groups
- Configuring Policies
- Creating a Secure Environment
- Firewall Configuration

- Controlling Bandwidth
- Virtual Local Area Network Configuration
- Load Balancing
- Fault Tolerance Configuration

### CONFIGURING ESX SERVER'S USE OF STORAGE

- Comparison of Fiber and iSCSI-based Disk Storage Solutions
- Fiber Channel Architecture and Configuration
- Configuring Storage area Network Masking and Zoning
- Storage Area Network World Wide Names
- SCSI Channel Architecture and Configuration (iSCSI)
- iSCSI Initiators and Targets
- Hardware Initiators
- Software Initiators
- iSCSI Addressing and Discovery Mechanisms

### VIRTUALCENTER CONFIGURATION TOOL

- VirtualCenter Components and Architecture
- Installation and Requirements
- Configuring the VirtualCenter Database
- Installing a License Server for the ESX Environment

### CREATING AND CONFIGURING VIRTUAL MACHINES

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- Building a Basic Virtual Machine
- Allocating a Virtual Disk
- Allocating Memory
- Installing "VMware Tools" Utility
- Configuring USB Connectivity
- Creation and Use of Templates
- Using sysprep within VirtualCenter to Ensure Unique Security Identifiers for Windows Systems
- Exporting a Virtual Machine
- Adding Additional "Hardware" to a Virtual Machine
- Physical Server to Virtual Server Conversion Using VMware Converter Enterprise
- Guided Consolidation from within VirtualCenter
- VMware Converter
- Portlock Storage Manager
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#### **WEB-BASED MANAGEMENT VS. THE INFRASTRUCTURE CLIENT**

- Managing User Rights and Permissions
- Creating VirtualCenter Roles
- Using Role Assignments to Control Permissions

#### **ESX SERVER HARDWARE RESOURCE MANAGEMENT**

- Configuration of Priorities on Resources
- Distributing the Shares of Resources Using Normal and Custom Modes
- Reserving Resources for Particular Virtual Machines
- Creating Resource Pools to Control Resource Allocation for Multiple Virtual Machines
- Configuring Resource Pools to Maximize Resource Utilization

#### **MOVING VIRTUAL MACHINES BETWEEN ESX SERVERS USING VMOTION**

- Vmotion Requirements
- Configuring Vmotion
- VMotion Warnings and Error Notifications
- VMotion CPU Compatibility Concerns

- Viewing and Understanding VMotion Compatibility Maps

#### **VMOTION AND HIGH AVAILABILITY SERVICES**

- Using Distributed Resource Services to Load Balance Virtual Machines Across Multiple ESX Servers
- Requirements of Distributed Resource Services
- Creating Clusters for Distributed Resource Services
- Implementation of Distributed Resource Services
- Configuring Distributed Resource Services Automation Levels
- Creating Distributed Resource Services Rules

#### **HIGH AVAILABILITY IN THE EVENT OF SERVER FAILURE**

- Requirements of High Availability
- Implementation of High Availability
- Configuring High Availability
- Implementing Traditional Clustering

#### **USING ESX SERVER CONSOLE COMMANDS**

- Network Commands
- Firewall Commands
- Service Console Commands

#### **RESOURCE MONITORING AND BOTTLENECK OPTIMIZATION**

- Understanding Hyperthreading and Licensing
- Improving Memory Utilization
  - Page Sharing
  - Ballooning Memory Saving Techniques
- Interpreting Performance Graphs
  - Disk
  - Network
  - CPU
  - Memory
- Setting Alarms
  - ESX Server Alarms
  - Virtual Machine Alarms
- Network Management Using SNMP

### **BACKUP GUIDELINES**

- Configuring Snapshots Using Snapshot Manager
- Using VMware Consolidated Backup to Backup and Restore Virtual Machines
- VMware Consolidated Backup Architecture
- VMware Consolidated Backup Limitations

### **PLANNING GUIDELINES**

- Hardware Compatibility List
  - Hardware Installation Guidelines
  - Server Capacity Planning for CPU, Memory and Disk Requirements
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