VMware - vSphere

INSTALL & CONFIGURE BEYOND

INTRODUCTION **V1.3**

A complete course for all beginning and intermediate students with over 70% of all materials devoted to "Live Labs." Students will complete the course with a comprehensive knowledge of ESX Server, vCenter and Virtual Machine Architecture, as well as advanced management techniques. Students will:

Build their own ESX Server
Build VM's
Create Virtual Machine Clones
Migrate a physical computer to a Virtual Machine
Use a wide variety of third-party tools
Install vCenter
Configure a cluster
Initiate VMotion
See High Availability in action
Secure their ESX Server
Much, much more…

MODULE 1 – INTRODUCTION – WHY DO WE VIRTUALIZE?

- What is Virtualization
- A brief history of Virtualization
  - Virtualization
  - X86 Virtualization
  - Server Virtualization with VMware
- Why do we Virtualize
  - Save Money
  - Improve Agility
  - Implement Initiatives
- What's New in vSphere

MODULE 2 - TERMS AND CONCEPTS

- Host
- Virtual Machine
- Encapsulation & Portability
- P2V – Physical to Virtual
- Isolation
- Idealized Hardware
- Virtualization Layer
- Hypervisor (Virtual Machine Monitor)
- vmnic
- VMnet / vSwitch
- VMkernel
- VMXNET
- Hardware-assisted Memory Virtualization
- VMware Paravirtualized SCSI (PVSCSI)
- VMFS – Virtual Machine File System
- Swap Space
- Root /
- Jumbo Frames
- Virtual Infrastructure Client
- Service Console
- Compliance
- Remediation

MODULE 3 - INSTALLING ESX SERVER 4

- ESX Server 4 hardware requirements
- VMFS File system Limits
- ESX Server Maximums
- ESX Server Disk Partitioning
- Keeping a Server Build Document
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- The ESX 4 Installation Process[i]
- Post-installation tasks[ii]
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- Four Common P2V Methods
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- Adoption and Support of Server Virtualization
- Business Case and Technical Requirements
- Technology Strategy: Technology Refresh and Aging
- Infrastructure
- Cost Performance
- Service Agility
- Simplifying the Environment
- Compliance and Risk Reduction
- High-Level Requirements
- Classification and Estimated Work Hours
- The Financial Model
- Developing Your Project Methodology
- Establishing the Project
- Best Practices
- Addressing Typical Challenges
- Gathering Data and Application/Server Inventory
- Structured Interviews
- Application Inventory
- Process Documentation
- Application Repository
- Buy In and Collation
- Assessment
- Application Readiness
- Rationalization
- Technical Leadership to Provide Guidance and Structure
- Assessing Processes, Roles, and Responsibilities Technology Design
- Testing and Validating
- Capacity Planning

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  - Virtual Infrastructure Client
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APPENDIX A - VMWARE LICENSING FOR ESX 3.5 AND VCENTER 2.5

- vCenter and ESX Server Licensing Model
- License Key Functionality
- Per-Feature Licensing
- Server-Based Licensing
- License Server Availability
- ESX Server License Types
- The License File

LIST OF LIVE LABS

[i] Student performs full installation of ESX Server 4
[ii] Student will examine and analyze the log files from his/her ESX installation to validate installation
[iii] Student performs command-line operations to create VMware troubleshooting support file and enables remote console access
[iv] Student downloads Virtual Infrastructure Client from his/her own ESC Server and installs it on Windows
[v] Student Begins the process of creating his/her first Virtual Machine
[vi] Student configures and adds Datastore to ESX Server
[vii] Student's first VM is a Windows XP VM
[viii] Each student opens a Virtual Machine Remote Console window
[ix] Student installs WinSCP and examines the files created during VM build process
[x] Student creates new isolated network on ESX Server
[xi] Student creates new VMkernel Connection Type for storage data traffic
[xii] Student determines MAC of his/her own virtual machine, ESX Server and other ESX components then proves the correctness of these MAC addresses with both configuration files and Service Console commands
[xiiixiii] Student runs a series of Service Console troubleshooting commands which could be used to recover ESX Server networking
[xiv] Students install VMware Converter and use it to convert their Windows Workstation to a VM running on their own ESX Server
[xv] Students install and use Veeam Configurator to enable/disable root access
[xvi] Students install and use Veeam Backup and FastSCP, including command-line firewall configurations
[xvii] Students install and use WinISO to create an ISO file
[xviii] Students install and use Winimage to create a diskette image
[xix] Students learn how to use both Datastore ISO files and Client Device connections to add ISO's and diskette images to ESX Server
[xx] Students install and use NewSid to customize the identity of their P2V conversion
[xxi] Each Student performs a full installation of VCenter on his/her local Windows workstation
[xxii] Each student logs-in to vCenter using Windows credentials
[xxiii] Each Student adds a datacenter and host to his/her own vCenter
[xxiv] Each student creates a custom role specifying certain granular privileges then applies that role to a user, proving the ability of vCenter to control user access
[xxv] Student obtains correct version of deploy.cab for Windows version and installs extracted files to appropriate folders in vCenter to enable Customization Specification

[xxvi] Student creates a vCenter clone with customization
[xxvii] Student creates a VCenter template, examines the contents of the template and explored utilization of templates
[xxviii] Students create a custom alarm and prove its effectiveness
[xxix] Each student creates a baseline (reference point) against which his/her ESX Server can be compared, then explores the integrated patch management features of VCenter
[xxx] In this lab, each student makes sure his/her ESX Server is ready for VMotion by going through a checklist and taking care of missed/omitted steps. Students then have the opportunity to VMotion their VM's throughout the classroom datacenter at will, exploring the advantages and likely pitfalls of certain configuration settings.
[xxxi] For Storage VMotion each student installs plug-ins and snap-ins to enhance vCenter's abilities, and migrates their VM's from one Datastore to another.
[xxxii] Classroom exercise, the entire class works together to create a DRS and HA enabled cluster and explore all the options for creating clusters
[xxxiii] Each student creates his/her own resource pool and moves VM's into that resource Pool
[xxxiv] Students will install, configure and use Vizioncore vRanger Pro
[xxxv] Students use WinSCP to explore critical configuration files on their ESX Server
[xxxvi] Students learn how to navigate on the command line more effectively and with shortcuts
[xxxvii] Students explore copying, moving and renaming files
[xxxviii] Students learn how to search for files and strings within a file
[xxxix] Using VI, everybody's favorite text editor
[xl] In this lab students will learn how to add users, change passwords and "harden" ESX Server security by not permitting direct root access to the ESX Server.
[xli] Students create a TAR archive of their /etc (configuration settings) folder for possible use in an electronic runbook
[xlii] Students will both create and extend Virtual Machine disk files from the command line
[xliii] Students will manage Virtual Machines directly from the command line in the event that no instance of VCenter can be reached