



VMware Infrastructure 3 Fast Track

VI3

Length
5 days

Format
Lecture/lab

Track
Support

Version
3.5

Course Description

In this intensive, extended-hours training course, you will cover the installation, management, and use of VMware ESX Server, VMware VirtualCenter, VMware DRS, VMware HA, VMware Consolidated Backup (VCB), VMware Converter, Storage VMotion, and VMware Update Manager. The course combines the content from the 3.5 versions of the VMware Infrastructure 3: Install and Configure and VMware Infrastructure 3: Deploy, Secure, and Analyze training courses. Upon completion, you can use the voucher included with the course to take the VMware Certified Professional exam.

The Fast Track is designed to enable you to gain superior VI skills with minimal time away from the office.

Who Should Attend

Systems administrators and systems integrators who are responsible for deploying and supporting VMware.

Required Prerequisites

- Basic knowledge of operating system administration (Windows, Unix, Linux, or others) is strongly recommended

Related Training

- VMware Infrastructure 3: Install and Configure
- VMware Infrastructure 3: Deploy, Secure, and Analyze

Learning Objectives

After you complete this course, you will be able to:

- Perform manual and scripted ESX Server installations
- Understand and configure security on the Service Console
- Install, configure, migrate, manage, and monitor virtual machines using ESX Server and VirtualCenter
- Utilize VMware Converter and VMware Update Manager
- Learn specific commands used to administer an ESX Server
- Configure and implement VMware HA, DRS, and VCB
- Perform fault analysis in Virtual Infrastructure



Learning
Solutions

VMware Infrastructure 3 Fast Track

Module 1: Introduction

- What Virtual Infrastructure Is
- VMware Infrastructure

Module 2: Virtual Infrastructure

Overview

- Virtualization
- A Virtual Machine
- How Virtualization Works
- Virtualization Using a Bare-Metal Hypervisor
- ESX Server Architecture
- Using VMware Infrastructure in a Data Center
- Using VDI with VMware Infrastructure
- Using Lab Manager

Module 3: ESX Server

ESX Server Installation

- ESX Server Physical Setup
- Hardware Prerequisites
- Partitioning an x86 Disk
- Partitions Created During Installation
- Launch ESX Server Installation
- Build Disk Partitions
- Recommended Partitions
- Configure Service Console Networking
- ESX Server Physical Console After Install
- VMware Infrastructure (VI) Client
- Single-Host Licensing
- Configure ESX Server as NTP Client
- Configure an ESX Server User Account

ESX Server Troubleshooting Guidelines

- ESX Server Troubleshooting Philosophy
- What Happens If ESX Server Crashes?
- Collecting Diagnostics Data

Module 4: Networking

Create Virtual Switches Using the VI Client

- Virtual Switches
- Network Connections
- Connection Type: Service Console Port
- Connection Type: VMkernel Port
- Connection Type: Virtual Machine Port Group
- Defining Connections
- Naming Virtual Switches and Connections
- Mapping vmnics to Physical NICs

Create Virtual Switches Using the Command Line

- Physical & Virtual Switch Comparison
- Virtual Switches & Spanning Tree Protocol
- Virtual Switch VLANs
- Cisco Discovery Protocol
- Modify Physical NIC Attributes

Enabling Cisco Discovery Protocol

Create VMkernel Ports Using the Command Line

- Configure VMkernel Ports
- Handling VMkernel Traffic
- VMkernel Networking
- VMkernel Routing

Service Console Networking

- Configure Service Console Port Group
- Advanced Service Console NIC Configurations

Modify Virtual Switch Configurations

- Virtual Switch Properties: Ports
- Virtual Switch Properties: Network Adapters
- Network Policy: Traffic
- Load Balancing

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Module 4 (continued)

Managing Failover and Failure Detection

- Add an Uplink to a Port Group
- Define Failover
- Viewing Active/Standby NICs
- Display vSwitch Configuration
- Fault Tolerance Options
- Troubleshooting NIC Teaming

Virtual Network Security

- Using Network Segmentation
- Security Considerations for VLANs
- Virtual Switch Protection and VLANs
- Securing Virtual Switch Ports
- Notifying Switches

Service Console Firewall Management

- Service Console Firewall Management
- Client Utilities

Module 5: Storage

Fibre Channel SAN Storage

- How Fibre Channel is used with ESX Server
- Addressing SAN LUNs in the VMkernel
- Making SAN Storage Available to ESX Server

Fibre Channel HBA Configuration

- Controlling VM Disk Requests
- View HBA Driver Configuration
- Modifying Adapter Properties

iSCSI SAN Storage

- How iSCSI is used with ESX Server
- Components of an iSCSI SAN
- How iSCSI Storage Authenticates the ESX Server
- iSCSI Software and Hardware Initiators
- iSCSI Software Initiator Network Configuration
- Enable iSCSI Traffic through the Service Console Firewall
- Discover iSCSI LUNs

Module 5 (continued)

iSCSI Storage Command Line Utilities

- iSCSI Design Considerations
- Set Up Networking for iSCSI Software Initiator
- Configure the Firewall for Software iSCSI
- Configure iSCSI Targets
- iSCSI Software Initiator Troubleshooting

VMFS Datastores

- What a VMFS Is
- VMFS Properties
- Multipathing with Fibre Channel
- Multipathing with iSCSI
- Manage Multiple Paths

Managing VMFS Volumes

- LUN Identification
- Partitioning Disks
- VMFS Partition Alignment
- VMFS Volume Operations
- Display Volume Consumption

NAS Storage and NFS Datastores

- How NAS/NFS is used with ESX Server
- Addressing and Access Control with NFS
- Configure an NFS Datastore

Storage Considerations

- Storage Comparison-Fibre Channel, NAS, iSCSI
- ESX Server Feature Comparison by Storage Type

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Course Outline

Module 6: VirtualCenter Installation

VirtualCenter Software Installation

- VirtualCenter Components
- VirtualCenter Architecture
- VirtualCenter Database
- VMware License Server (Centralized Licensing)
- VirtualCenter Server Services
- VMware Infrastructure Client Overview
- ESX Server and VirtualCenter Communication
- Backup Strategy for VirtualCenter Server

VirtualCenter Inventory Hierarchy

- VirtualCenter Inventory: Multiple Data Centers
- VirtualCenter Inventory: Folders and Subfolders
- VirtualCenter Inventory: Clusters

Using VirtualCenter to Manage Hosts and VMs

- Scheduled Tasks
- Administration

Module 7: Virtual Machine Creation and Management

Create a Virtual Machine (VM)

- What VM Is
- VM Virtual Hardware
- VM Console
- Install Guest OS into VM
- VMware Tools

Create Multiple VMs

- Templates
- Deploy VM from Template
- Clone a VM
- Deploying Across Data Centers
- Virtual Appliances
- Export VM with OVF Format
- Import Virtual Appliance

Manage VMs

- Move VM Between ESX Servers: Cold Migration
- Snapshot a VM
- Modify VM Settings
- Virtual Machine Properties Options
- Advanced - Boot Options

VMware Converter Enterprise

- VMware Converter Enterprise Capabilities
- VMware Converter Components
- VMware Converter Concepts
- Hot Cloning
- Cold Cloning
- Importing a Server

Guided Consolidation

- Guided Consolidation
- Guided Consolidation Architecture
- Physical System Discovery
- Plan Consolidation

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Module 8: Access Control

VMware Infrastructure User Access

- Security Model Overview
- Defining Users and Groups
- Permissions
- VirtualCenter Security Model
- ESX Server Security Model
- Default Permissions for ESX Server

Accessing VMs Using Web Access

- Web Access
- Web Access Tasks

Module 9: Resource Management

Using Resource Pools

- VM CPU Resource Settings
- VM Memory Resource Settings
- How VMs Compete for Resources
- Configuring a Pool's Resources
- Viewing Resource Pool Information
- Expandable Reservation
- Admission Control for CPU and Memory Reservations

Migrate VMs with VMotion

- Move VM Between ESX Servers: VMotion Migration
- How VMotion Works
- Requirements for VMotion
- CPU Constraints on VMotion
- Checking VMotion Errors

Storage VMotion

- Introduction to Storage VMotion
- How Storage VMotion Works
- Storage VMotion - Best Practices
- Requirements and Limitations

VMware Distributed Resource Scheduler (DRS)

- DRS Clusters
- DRS Cluster Settings
- Add Hosts to Cluster
- Best Practices for DRS

Module 9 (continued)

Resource Pools in a DRS Cluster

- Resource Pools in a DRS Cluster Delegated Administration
- Monitor Cluster Usage
- Adding Host to DRS Cluster

Building and Monitoring DRS Clusters

- Guidelines for Initial VM CPU Resources
- Guidelines for Initial VM Memory Resources
- Guidelines for Resource Allocation
- Monitoring the DRS Cluster
- DRS Cluster Memory Resources
- Guidelines for DRS Clusters

Module 10: Resource Monitoring

Tools for Resource Optimization

- Virtual CPUs
- Hyper-Threading
- VMkernel CPU Load Balancing
- Transparent Memory Page Sharing
- vmmemctl: The Balloon-Driver Mechanism
- VMkernel Swap

Monitor VM Performance

- Performance Tuning Methodology
- Monitoring VM Resource Use with Performance Graphs
- Tools for Improving VM CPU and Memory Performance

Monitoring Using Performance-Based Alarms

- Creating a VM-Based Alarm
- Creating a Host-Based Alarm
- Actions to Take When an Alarm is Triggered
- Using Alarms to Monitor CPU and Memory Usage
- Configure VirtualCenter Notifications

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Module 11: Business Continuity and Data Protection

Virtual Machine High Availability

Clustering Options

Shared Storage Summary

HBA Configuration for MSCS Clusters

Configuring VMware HA

- What is VMware HA
- VMware HA in Action
- Guidelines for Restart Priority Setting
- Guidelines for Isolation Response Setting
- Customize VMware HA Cluster Behavior
- Customize VM Behavior in an HA Cluster
- Impact of DRS Affinity Rules on HA Clusters
- VMware HA Best Practices
- Troubleshooting VMware HA

Backup Strategies

- General Guideline for VM Backups
- Strategies for VM Backups
- Strategies for Service Console Backups

How VCB works

- VMware Consolidated Backup (VCB)
- Virtual Machine Snapshots
- Files that Make Up the Snapshot
- VCB File-Level Backup
- VCB Full Virtual Machine Backup
- Full Virtual Machine Backup: How it Works
- Multipath Software on the VCB Proxy Server
- VCB Log Files

Module 11 (continued)

Using VCB Command Line Utilities

- Using VCB Command-Line Utilities
- Identify a Virtual Machine(s) Backup or Snapshot
- Perform a Full Virtual Machine Backup
- Back Up Individual Virtual Disks
- Restore from VCB Backups
- Image Level Restoration
- File Level Restoration
- Restoration Using VMware Converter

Module 12: Operational Maintenance

VMware Update Manager

- VMware Update Manager Overview
- Installing VMware Update Manager
- Installing Client Plug-In
- Configuring VMware Update Manager Settings
- Scheduling Downloads
- Installing the Guest Agent
- Baseline Creation
- Updates Needed
- Report on a Non-Compliant VM
- Remediate: Baseline and Updates
- Responding to Guest Remediation Failure
- Scanning ESX Hosts
- DRS-enabled Remediation
- Troubleshooting - Update Manager

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Module 13: Modify Logging Behavior

Configure Logging for vpxd and vpxa

- Windows Environment Variables
- VirtualCenter Installation Logs
- The VirtualCenter Server Configuration File
- VirtualCenter Server - vpxd Logs
- Adjusting Log Detail With VI Client
- Log Options for vpxd & vpxa
- VI Client Log File Locations - VI Client Logs
- Miscellaneous VirtualCenter Log File Locations
- Virtual Machine Logging

Consolidating Service Console Log Files

- Configure Logging on the Service Console
- How to Configure /etc/syslog.conf
- ESX Specific syslog.conf Entries
- Using the logger Command

Rotating Service Console Log Files

- Rotating Service Console Log Files
- Third-Party Logs

Module 14: Service Console Security

Configure SSH

- Direct ESX Server Login Authentication Process
- Controlling Remote Service Console Access
- Enable an Illegal Access Warning
- Tracking User Access

Configure sudo

- Using the Switch User Command
- Limiting Access to the su Command
- Configuring sudo
- Preventing Shell Escapes
- ESX Command Summary
- Service Console OS Command Summary

Configure TCP Wrappers

- Controlling Host Access
- Advantages of TCP Wrappers
- TCP Wrapper Flow

Module 15: Rapid Provisioning of ESX Servers

Scripted ESX Server Installations/Overview of Scripted

- Create an Installation Script
- Installation Script Content
- Common Deployment Scenarios