VMware vSphere 5.5 Ultimate Bootcamp

Course Overview

VMware Ultimate Bootcamp vSphere 5.5 teaches advanced virtualization concepts and explores the VMware vSphere 5.5 product suite. This comprehensive class prepares the student to become a certified professional virtualization expert. The course objective is to instill the knowledge required for the student to do their job efficiently and effectively, starting from installation of the product to real-world troubleshooting issues. The course focus is not limited only to learning and harnessing the power of VMware but the entire concept of virtualization, and other 3rd party tools and technologies that will enhance VMware capabilities and increase the student’s virtualization expertise.

Course Introduction

Course Introduction

Chapter 01 - Course Introduction and Methodology

Course Introduction and Methodology
Course Methodology
Course Flip Book Site
Certified Virtualization Expert (CVE) Certification
VMTraining's Physical Setup
VMTraining's Setup - Student to Datacenter
VMTraining's Network IP Setup
Lab Terms Used
Lab Conventions Used
Chapter 01 Review

Chapter 02 - Virtualization Overview

Topic 1: VMware Virtualization
The Software-Defined Datacenter (SDDC)
vCloud Suite 5.5
vCloud Suite 5.5 - Add-ons
Class Exercise - Why Virtualize?
Why Virtualize? - Simplified Management!
VMware ROI TCO Calculator V 4.0
VMware TCO Comparison Calculator
What is Virtual Infrastructure?
VMware vSphere 5.5
Type 1 and Type 2 Hypervisors
Hypervisors Comparison
What is a Virtual Machine (VM)?
Topic 2: Other VMware & 3rd Party Virtualization Technologies
VMware Horizon View 5.3
VMware Workstation 10
VMware Fusion 6
VMware Player (Plus) 6
Windows Server Virtualization Hyper-V (Windows Server 2012 R2)
System Center Virtual Machine Manager 2012 R2
XenServer Enterprise v6
XenDesktop & Essentials for XenServer
Chapter 02 Review

Chapter 03 - Planning and Installing ESXi

Topic 1: Planning the ESXi Deployment
Physical Hardware Requirements
vSphere Hypervisor 5.5 (VMware ESXi)
VMware ESXi 5.x
Booting ESXi from a SAN LUN (Fibre Channel or iSCSI)
Booting ESXi from a SAN LUN
Linux, Windows & ESX/ESXi

Topic 2: vSphere 5.x Deployment Guidelines
Overview of Deployment Planning
ESXi Compatibility Guides
Storage: Capacity and Performance
VMware Capacity Planner

Topic 3: vSphere Hypervisor (ESXi) Installation
vSphere Hypervisor 5.x Installable
Demo: Installation of ESXi 5.5
Local Configuration of ESXi 5.5 using DCUI
UDA 2.0 Script ESXi/ESX Installation
vSphere 5.x ESXi Image Builder CLI
vSphere 5.x Auto Deploy for ESXi PXE Boot
vSphere 5.x Auto Deploy Architecture

Topic 4: Configuring Hostname Resolution and NTP
Configuring DNS Settings
Time Synchronization

Topic 5: Troubleshooting ESXi
ESXi Host Health Check
ESXi Host Boot Process
Resetting root Password ESXi 5.x
Troubleshooting: hostd
Troubleshooting ESXi CIM Management Agents
Purple Screen of Death (PSOD)
Chapter 03 Review

Chapter 04 - Using Tools to Administer a VMware Environment

Topic 1: Overview of 3rd Party Tools
WinSCP 5.1.7 (free)
ISO Programs
Xtravirt.com
Foglight for Virtualization - Free Edition (Dell Software)
RVTTools v 3.6
Other Tools
Topic 2: ESXi Management
ESXi Host & vCenter Server Management Overview
Direct Console User Interface (DCUI)
Managing ESXi with the vSphere Client (VIC)
The Management User Interface (MUI) (ESX/ESXi/vCenter)
Managing with the vSphere Web Client
SSH Access: PuTTY, SecureCRT, WinSCP, etc.
Datastore Browser
Configuration of Troubleshooting Options in ESXi 5.x
Troubleshooting Options: ESXi 5.x
CLI Commands Overview
CLI Commands
esxcli, vimsh, vim-cmd, "commands"
vSphere Command Line Interface (vCLI)
Managing ESX/ESXi with the vSphere CLI (vCLI)
vCLI Command Syntax
vSphere SDK for Perl
vSphere Management Assistant (vMA 5.5)
PowerCLI 5.5 Release 2
PowerGUI (Dell/Quest, free)
Topic 3: Linux Command Review
Windows Commands vs. Linux Commands
Common Command Line Interface (CLI) Options
ESXi 5.x Text Editor
Topic 4: Troubleshooting the vSphere Client (VIC)
vSphere Client Logs
Cannot Login Using vSphere Client
Demo - Tools to Administer
Demo - Deploy Windows 2012 VM for vCenter
Chapter 04 Review

Chapter 05 - vCenter Server 5.5 and Licensing
1h 46m

Topic 1: Licensing
vCenter Server 5.x & ESXi Host Licensing Model
vSphere Essentials 5.5 for Small Business
vSphere 5.5 License Types and Pricing
New Features per vSphere 5.1 License Type
Windows Licensing Calculator
Novell SUSE Linux Enterprise Server 11 SP1 - Free
VMware and Microsoft License Purchase Deal
Topic 2: vCenter Server Installation
vCenter Server 5.x Summary
vCenter Server 5.1 Update 1c
vCenter Server 5.5/5.5a/5.5b & 5.5 Update 1
vCenter Server 5.x Specifications
vCenter Server Database Overview
vCenter Server Virtual Appliance (vCSA) Specifications
vCenter Server 5.0 (and earlier) Host Functionality
Managing Multiple Enterprise Locations (5.1+)
vCenter Server 5.1/5.5 SSO
vCenter Server 5.1/5.5 Connection through SSO
SSO 5.5 Interoperability
vCenter Server 5.5 Architecture
SQL Server vCenter Database Setup for VC 5.x
vCenter 5.5 Installation
Order of vCenter 5.5 Manual Installation Method
Install Single Sign On Service (SSO) 5.5
Install vSphere Web Client 5.5
Install vSphere 5.5 Inventory Service
Install vCenter Server 5.5
vCenter Server 5.5 Simple Install (Windows)
vCenter Server 5.5 Post Install (RTM & 5.5a Only)
VIC Plug-ins Post UM Install
Topic 3: vSphere Web Client
vSphere Web Client
vSphere Web Client - Requirements
Using vSphere Web Client 5.5
Topic 4: vCenter Server Inventory
vCenter Server Home Page
Hosts and Clusters: Datacenters
Hosts and Clusters: Folders and Clusters
VMs and Templates: Subfolders
vCenter Inventory: VMs Tab
Datastores and Datastore Clusters: Folders and Datastores
Networks: Portgroups & Distributed Switches (vDS)
Demo - Add Host to vCenter Inventory
Demo - Install vCenter Server
Topic 5: Managing vCenter Server
Scheduled Tasks
Events
Sessions
Tasks/Alarms & Logged On As
System Logs
vCenter Solutions Manager
Client Settings
vCenter Mobile Access (vCMA)
Demo - vSphere Web Client
Topic 6: Planning vCenter Server Deployment
vCenter Server 5.x Database Sizing
Backup Strategy for vCenter Server
vCenter Server Heartbeat 6.6
Topic 7: Troubleshooting vCenter Server and Database
vCenter Server 5.1 Shows Disabled Plug-ins
Refreshing vCenter Server
Monitoring - Hardware Status
Monitoring - vCenter Server Status
ESXi Host Agent (hostd) Hangs
vCenter Server Log Files
SQL Recovery Models
vCenter Server Service (vpxd) Errors
vCenter Server Standalone Mode
Reinitializing the vCenter Server Database
vSphere Client Session Errors
VMware vCenter Orchestrator
NetIQ Cloud Manager
Chapter 05 Review

Chapter 06 - Configuring Networking
1h 53m

Topic 1: Creating & Modifying Virtual Networks
Networking Terms
vSphere 5.x Virtual Switch Types
Network Connections in ESXi
Add Network Wizard
Standard Virtual Switches - ESXi
Virtual Switch and Connection Type Identification
VMware Assigned MAC Addresses
Custom MAC Address
Virtual Switch Physical NIC Configurations
Ports Used by VMkernel
NIC Teaming
Cisco Discovery Protocol
Demo - Create Virtual Switches
Modifying vSwitch Properties (Ports Tab)
Modifying vSwitch Properties (Network Adapters Tab)
VLAN Overview
VLAN Implementations
Standard vSwitch VLAN Configuration
Standard vSwitch Protection and VLANs
Standard vSwitch and Port Group Policy Exceptions: Security
Standard vSwitch and Port Group Policy Exceptions: Traffic Shaping
Standard vSwitch and Port Group Policy Exceptions: NIC Teaming
Network Failure and NIC Teaming Options
Load Balancing Method: Route Based on the Originating Virtual Port ID (Default)
Load Balancing Method: Route Based on Source MAC Hash
Load Balancing Method: Route Based on IP Hash (Source + Destination)
Requirements for IP Hash
Port Group: Override vSwitch Failover Order
Multiple Policies Applied to a Single Team
Physical Switch Configuration

Topic 2: vSphere Distributed Switches
vSphere Distributed vSwitch (vDS) Overview
vSphere Distributed Switch (vDS) New Features in vSphere 5.0
vSphere Distributed Switch (vDS) New Features in vSphere 5.1
vSphere Distributed Switch (vDS) New Features in vSphere 5.5
Creating a vSphere Distributed Switch
Edit dvSwitch Settings
Edit dvSwitch Uplink Policy Settings
Edit dvSwitch Port Group Settings
Port Binding Methods
Private VLAN (PVLAN) Tagging
Private VLANs
Migrating VMkernel Port to vDS (or Service Console Port)
Network I/O Control (NIOC)
Network I/O Control (NIOC) - Best Practices
Create NetFlow
Using Port Mirroring
vDS Health Check
Traffic Filtering and Marking
Configure LACP on vDS 5.5
Create a LACP LAG
Configure LAG without Losing Connectivity
Use Template Mode to Assign NICs to the LAG on Multiple Hosts
Make the LAG Active to Finish Configuration
Cisco Nexus 1000v Virtual Switch
Nexus 1000v Editions Compared
Nexus 1000v Architecture
IBM System Networking Distributed Virtual Switch 5000V
Demo - Creating vSphere Distributed Switches
Topic 3: Creating & Modifying Virtual Networks Using CLI
Physical NIC Commands
Configure Physical NICs
Virtual Switch Commands
Configure Virtual Switches
VMkernel Port Commands
Configure the VMkernel Port
Demo - Create Virtual Switch CLI
Networking Review
Chapter 06 Review

**Chapter 07 - Configuring Storage**

Topic 1: Storage Concepts
Storage Terms
SAN vs NAS in vSphere
Device and Path Naming
vSphere’s Family of Storage APIs
Storage APIs - Array Integration
Multipathing
Storage APIs - Multipathing
Path Selection Considerations
Viewing Multipathing
Multipathing Commands
Multipathing Commands (vCLI)
Multipathing Command Examples
Example of 3rd Party Multipathing Plugin Installation (NMP)
All Paths Down (APD)
Storage I/O Control (SIOC)
SIOC Enhancements
SIOC Monitoring
Scanning LUNs - iSCSI/Fibre Channel

Topic 2: iSCSI Storage (GUI & Command Line)
Internet Small Computers Systems Interface (iSCSI) Overview
iSCSI Terms for ESX/ESXi
ESX/ESXi and iSCSI SAN Environment and Addressing
Hardware vs. Software Initiators
Multipathing with iSCSI
Setup Steps - Multipathing with Software iSCSI
iSCSI Software Initiator Networking
Configuring iSCSI
Configure Software Initiator
Bind VMkernel Ports to Storage Adapter (GUI)
Bind VMkernel Ports to Storage Adapter (CLI)
Discovering iSCSI Targets
Jumbo Frames
Configure Software Initiator: CHAP Authentication
iSCSI Session Options (CLI)
iSCSI Software Initiator Troubleshooting
iSCSI Vendors and Products
Demo - Configure iSCSI via GUI
Demo - Verify iSCSI via CLI
Topic 3: Fibre Channel Storage
What is Fibre Channel?
Fibre Channel Terms for ESXi
ESX / ESXi and Fibre Channel SAN Environment and Addressing
Multipathing with Fibre Channel
Fibre Channel Vendors and Products
Network/Storage Architecture Review
Topic 4: VMFS Datastores (GUI & Command Line)
Virtual Machine File System (VMFS-5)
Virtual Machine File System (Updates in vSphere 5.5)
Upgrade VMFS-3 to VMFS-5
Viewing and Creating a VMFS-5 Datastore
Extending Your VMFS Datastore Using Extents
Add an Extent to Existing VMFS
Expand an ESXi 5.x VMFS Volume
Demo - Create VMFS Datastore
Demo - Extend a VMFS Datastore
Partition Alignment
Disk Defragmentation
VMFS Operations - vmkfstools
Displaying Disk Usage Detail (ESXi df -h, ESX vdf -h)
Advanced I/O Management
Topic 5: NAS Storage and NFS Datastores (GUI & Command Line)
Network Attached Storage (NAS) and ESX/ESXi
NFS Components, Addressing and Access Control with NFS on Linux
NFS Target on Windows 2003 R2 and Later
Mount an NFS Datastore to Host
NFS Configuration Options (CLI)
Demo - Create NFS Datastore
Demo - Create and Install a VM using vCenter
Topic 6: Raw Device Mapping (RDM)
Raw Device Mapping (RDM)
RDM Compatibility Modes
Raw Device Mapping Benefits
RDM CLI Commands
Raw Device Mapping

Topic 7: Solid State Disks (SSD)
Solid State Disks (SSD)
When ESXi Fails to Identify Solid State Disks
Using SMART with SSD
Host Cache Configuration
vSphere Virtual Flash
Configure a Virtual Flash Resource
Configure Virtual Flash Host Swap
Virtual Flash Read Cache

Topic 8: Storage & Management Solutions
vFoglight Storage – Dell/Quest
vOptimizer Pro (vOPS Storage Optimizer) – Dell/Quest/VKernel

Chapter 07 Review

Chapter 08 - VM Creation, Configuration, and Snapshots
3h 40m

Topic 1: Create a VM
VM Virtual Hardware
vSphere 5.5 – Virtual Machine Enhancements
Types of Virtual NICs (vNIC)
Virtual Machine Files
VMDK Stub File Creation
VMDK Disk Provisioning
Virtual Disk
Larger 62 TB Virtual Disks
AHCI SATA Controller
Virtual SCSI Controller Type
DirectPath I/O (VMDirectPath)
Install Guest OS into VM
VM Console & Menus
VMware Tools
VMware Tools 5.0 & Earlier vs. 5.1/5.5
Demo - Configure a VM for Optimal Performance

Topic 2: Create Multiple VMs, Templates & Clones
Clones & Templates
Deploy VM from Template
Customizing the OS in a Virtual Machine
Customization Specification Manager
Deploying Across Datacenters

Topic 3: Virtual Appliances
Virtual Appliances
Import Virtual Appliances
Export VM to OVF Format
Demo - Work with vCenter’s Template Provisioning
Demo - Work with Virtual Appliance OVF

Topic 4: Configuration and Use of vApps
vApp Overview
Creating and Using vApps
Topic 5: VMware Converter (P2V – V2V)
VMware Converter 5.5
VMware Converter Sources
VMware vCenter Converter 5.5
Pre Conversion Tasks
Hot Cloning – 4 Step Process
Post Conversion Steps
VMware vCenter Converter 5.5 Standalone
Troubleshooting VMware Converter
NetIQ - PlateSpin Migrate 9.3
Demo - Using VMware Converter
Topic 6: Manage VMs
Hot and Cold VM Migrations
Hot Add Memory and CPUs
VM Properties - Hardware Tab
VM Properties HW v9 via vSphere Web Client
VM Properties HW v10 via vSphere Web Client
Adding USB Devices to VM
VM Properties - Options Tab
Resize a Virtual Disk
Extend VMDK
Dell’s extpart – NO REBOOT
Extend Partitions Using gparted
vOptimizer Pro
Thin Provisioned Disk Reclamation
SDelete – Zero Free Space in VM
VMware GuestReclaim Fling
Raxco PerfectStorage
Renaming a Virtual Machine
vmware-cmd.pl (vCLI)
Kill a VM with esxcli
Demo - Extending VMDK Files
Demo - Rename Virtual Machine Files
Topic 7: Virtual Machine Startup/Shutdown
Startup/Shutdown of VMs
Enabling VM Startup/Shutdown
VM Startup/Shutdown Override
Demo - VM Startup/Shutdown
Topic 8: Virtual Machine Snapshots
Virtual Machine Snapshots
Files Used by Snapshots
Taking Snapshots
Snapshot Manager
Reverting to a Snapshot
Deleting Snapshots
Consolidating Snapshots
Demo - Snapshots
Topic 9: Virtual Machine Troubleshooting & Best Practices
Troubleshooting VM Problems
Chapter 09 - Security and Permissions

Topic 1: Controlling User Access and Passwords
Types of Users
Lockdown Mode
vCenter/ESXi Host Security Model
Permissions
Roles
Privileges Explained
ESXi Host Permissions
Windows vCenter Permissions
vCSA Permissions
Multiple Group Permissions No Conflicts – Groups Only
Multiple Group Permissions No Conflicts – Users and Groups
Multiple Group Permissions Conflicting Permissions
Multiple Group Permissions User Overrides and Unions
Multiple User Permissions Explicit vs. Inherited
Multiple User Permissions Explicit vs. Inherited #2
Demo - Control Administrative Access to vCenter

Topic 2: ESXi Active Directory (AD) Integration
AD-ESX/ESXi 4.1/5 Authentication Services
Assign ESXi 4.1/5 Permissions Directly to AD Users
Demo - AD Integration

Topic 3: Managing Firewalls & Certificates
ESXi 5.x Firewall
TCP & UDP Ports
ESXi Firewall Configuration via vSphere Client
ESXi Host Firewall Commands
Data Encryption
Security Certificates
Demo - Implementing ESXi 5.1 Firewall

Topic 4: vCloud VMsafe and vShield
vCloud Networking & Security
VMsafe Components
vShield Product Family Overview
vShield App
vShield Edge
vShield Endpoint
For More Security Information

Chapter 09 Review
Chapter 10 - Server and VM Monitoring

Topic 1: Optimizing Resources
- Transparent Memory Page Sharing
- Memory Overcommitment
- Balloon-Driver: vmmemctl
- VMkernel Swap
- VM Swap Files
- VMkernel Swap Location
- Memory Compression
- Host System Swap File
- Memory Usage
- Virtual CPUs (vCPUs)
- VMkernel CPU Load Balancing
- VMs' CPU & Memory Resource Setting Terms
- CPU Resource Settings
- Memory Resource Settings
- Memory Overhead
- ESXi 5.x Resource Allocation per VM
- Resource Shares

Topic 2: Resource Pools
- Resource Pools Overview
- Resource Pool Configuration
- Expandable Reservations
- Troubleshooting Memory Resources
- Resource Pool Example Summary
- Resource Pool Example: CPU Limits
- Best Practices for VM Resources

Topic 3: Latency Sensitive Applications
- Deploying Extremely Latency-Sensitive Applications
- Latency-Sensitive Feature
- Best Practices for Extremely Latency-Sensitive Applications

Topic 4: Performance Monitoring
- Performance Monitoring - Overview
- Performance Monitoring - Advanced
- Customize Performance Chart
- Troubleshooting Performance
- Problem: High CPU Utilization
- Problem: High Memory Utilization
- Problem: High Disk Utilization
- Problem: High Network Utilization
- Veeam Monitor
- Veeam Monitor Demo
- Veeam ONE for VMware 6.5
- Veeam Management (formerly nworks)
- Dell/Quest Software vFoglight
- vFoglight
- Dell/Quest/VKERNEL vOPS Server
- Solarwinds Virtualization Manager
- PHD Virtual Monitor
- Demo - Monitoring CPU, Disk & Memory on a VM
Chapter 11 - Advanced ESXi and vCenter Server Management

Topic 1: Storage Views & Topology Maps
- vCenter Storage Views - Reports
- vCenter Storage Views - Maps
- vCenter Topology Maps

Cluster Map View

Topic 2: Storage vMotion
- Storage vMotion Migration

Requirements for Storage vMotion
- Storage vMotion in vSphere 5
- Storage vMotion in vSphere 5.x

Storage vMotion - Command-Line Interface

Demo - Advanced Storage vMotion using the GUI

Demo - Storage vMotion using the CLI

Topic 3: Configuring vMotion
- vMotion Migration

How vMotion Works
- vMotion: Host Requirements
- Identifying CPU Characteristics
- Execution Disable Flag (NX/XD)

vMotion Errors and Warnings

VM Map View

Advanced vMotion Errors

Topic 4: Enhanced vMotion

Enhanced vMotion Migration

Demo - vMotion & Enhanced vMotion Migration of a VM

Topic 5: Distributed Resource Scheduler (DRS) Cluster
vCenter Host Cluster
Distributed Resource Scheduler (DRS) Overview
DRS Cluster in the vCenter Inventory
Retaining Host Resource Pools
Configure Automation Level
Initial Placement
Dynamic Balancing / History
Virtual Machine Rules
Virtual Machine to Host Rules
Virtual Machine Options
Distributed Power Management (DPM)
Enhanced vMotion Compatibility (EVC)
VM Swapfile Location
Planned Downtime: Maintenance Mode
Demo - Create a DRS Cluster

Topic 6: Profile Driven Storage, Datastore Clusters & Storage DRS (SDRS)
Profile-Driven Storage
vSphere Storage API for Storage Awareness (VASA)
Manage Storage Capabilities
Enable VM Storage Profiles
Expert Tip: Known Port Conflict
Create VM Storage Profiles
Apply VM Storage Profiles to VMs
Datastore Clusters
Storage DRS (SDRS)
Create a Datastore Cluster for SDRS
Datastore Cluster Information
Demo - User Defined Storage Profiles

Topic 7: DRS Cluster Monitoring
Monitor Cluster Objects State
Monitoring the DRS Cluster – Resource Allocation
Monitoring the DRS Cluster – DRS Resource Distribution Graph
Monitoring the DRS Cluster – What to Look for ...
Demo - Controlling Resources in a DRS Cluster by using Resource Pools

Topic 8: Host Profiles
Host Profiles Overview
Create Host Profile
Edit Host Profile
Attach Host Profile
Check Compliance from Host Profile
Check Compliance from Cluster
Per Host Answer Files
Apply Host Profile
Export a Host Profile
Demo - Configuring and Using Host Profiles

Topic 9: Linked Mode Group of vCenter Servers
Linked vCenter Servers Overview
Linked Mode Group Prerequisites
Create a Linked Mode Group
Manage Multiple vCenters

Topic 10: vSphere Storage Appliance (VSA)
- vSphere Storage Appliance (VSA) - Overview (v5.1.1, replaced 5.1)
- vSphere Storage Appliance (VSA) - Components
- vSphere Storage Appliance (VSA) - New Features in 5.1/5.1.1
- vSphere Storage Appliance (VSA) - Architecture

Topic 11: VMware Virtual SAN (VSAN)
- VSAN Overview
- VSAN Device Configuration
- VSAN Cluster Configuration
- VSAN Architecture

Chapter 11 Review

Chapter 12 - Patching and Upgrading ESXi

Topic 1: Patching ESXi Standalone Hosts
- Standalone Patch Installation

Topic 2: Patching the vCenter Environment
- Update Manager 5.5 Patching
- Shavlik Protect (Standard & Advanced)
- Update Manager Terms
- Update Manager 5.5 Install (Windows)
- Update Manager vSphere Client Plug-in
- Update Manager Baselines
- Update Manager Remediation Defaults and Configuration Options
- Update Manager Events
- Update Manager Notifications

Patch Repository
- Update Manager Download Service
- Update Manager Sizing Estimator
- Update Manager Tab

Remediation
- Demo - Using Update Manager through vCenter

Topic 3: Upgrades and Migrations
- VC Upgrade Methodology
- VC Upgrade - All on 1 Server
- Upgrade vCenter to 5.5 – Separate Servers (Med-Lg Org)
- Upgrade of Multiple vSphere Products to Use vCenter 5.5
- Upgrading SSO from 5.1 to 5.5
- Upgrade Inventory Service 5.0 to 5.1/5.5
- Upgrade vCenter 4.1 to 5.5
- Upgrade Update Manager 4.1 to 5.5
- Upgrade Host to ESXi 5.5 Using Media
- ESX/ESXi Upgrade Using Update Manager (5.0 or 5.1 or 5.5)
- ESX/ESXi Migration to New Hardware
- Upgrade Distributed Switch to 5.5
- Upgrade the Virtual Machines
- Use the vSphere Client to Upgrade the VMware Tools
- Use vSphere Client to Upgrade Virtual Machine Hardware V10
- Use Update Manager to Upgrade Virtual Machines

Chapter 12 Review
Chapter 13 - Disaster Recovery and Backup

Topic 1: vSphere Replication 5.5
vSphere Replication v5.5
What’s New in vSphere Replication v5.5 (vR)
VR v5.5 Setup
VR v5.5 Configure Replication
VR v5.5 Recovery

Topic 2: Site Recovery Manager (SRM)
VMware Site Recovery Manager (SRM) V5.5
VMware Site Recovery Manager (SRM) V5.5 – Features
VMware Site Recovery Manager (SRM) V5.5 – What’s New
SRM Architecture Overview
SRM – Site Recovery Processes

Topic 3: High Availability (HA)
VMware High Availability
New vSphere 5 HA Features
New vSphere 5.1 HA Features
New vSphere 5.5 HA Features
vSphere 5 HA in Action
Configure HA Cluster
VMware HA: Virtual Machine Options
Host Isolation
Guidelines for Isolation Response Setting
HA VM Monitoring
App HA – Application High Availability
App HA – Policies
App HA – Architecture
HA Datastore Heartbeating
Viewing Your HA Cluster
Troubleshooting VMware HA

Demo - Configuring and Monitoring HA
Topic 4: VM Fault Tolerance
Fault Tolerance Overview
Fault Tolerance Requirements
Configure Fault Tolerance
Topic 5: Microsoft Clustering
Virtualizing Microsoft Clusters
Microsoft Cluster Services
Microsoft Cluster Services Requirements
vSphere 5.5 Updates for MSCS

Topic 6: Backup Strategies
Backup Strategies for VMs

Topic 7: VMware Data Protection
vSphere Data Protection 5.5.5
vSphere Data Protection 5.5.5 Installation & Features
vSphere Data Protection 5.5.5 – What’s new …
vSphere Data Protection Advanced 5.5.5 (vDPA)
vDP 5.5.5 - Configure Settings
Using VDP to Backup a VM
Using VDP to Restore a VM
File Level Restore (FLR)
Replication to/from Avamar
Direct-to-Host Restore
Demo - Using VMware Data Protection
Topic 8: Third Party Backups
PHD Virtual Backup 6.5 for VMware
PHD Virtual Backup v6.5 – vCenter Plugin
Dell/Quest vRanger (Pro) 6.1
vRanger Pro - Screenshots
Veeam Backup & Replication v7
Veeam Backup and Recovery v7
Veeam Backup - Screenshots
VeeamZip and Veeam Backup Free Edition
VeeamZip - Screenshots
Symantec NetBackup v 7.5
Chapter 13 Review
Course Closure

Total Duration: 20h 25m