

VMware vSphere 5.X Advanced Administration

Course Summary

Description

This powerful 4-day class is an intensive introduction to the advanced features of VMware vSphere 5.x. Candidates are assuming to have working knowledge of VMware vSphere 4.x or vSphere 5.x. We build on that knowledge through a rapid review of common features followed by in-depth presentations of advanced topics including vSphere 5.x performance, availability, scalability and security. 40+% of class time is devoted to labs so concepts, skills and best practices are developed and reinforced.

Labs start with installation and configuration of ESXi server, vCenter, vCenter Linux Appliance and Virtual Machines. From there, we look at performance and scalability topics including Hotplug Virtual Hardware, Profile Driven Storage and DRS and Storage DRS clusters. Availability is covered in vCenter Linked Mode, HA Clusters and VM Fault Tolerance. VM security topics include vShield Endpoint anti-malware and vShield Zones virtual firewall services.

This class is unique in its approach; which is to identify and eliminate common IT pain points and then to use virtualization to deliver clear, tangible benefits. 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 all major features and components of vSphere 5.x
- Install ESXi 5.x according to best practices
- Build and right-size Virtual Machines
- Perform Guest OS customizations for performance and best practices
- Install, and configure vCenter on Windows Server
- Import, configure and use the new vCenter Server Appliance for Linux
- Use Templates and Clones for rapid and efficient VM deployments
- Use advanced virtual hardware techniques such as VM Hotplug to eliminate VM downtime due to virtual hardware upgrades
- Use vCenter Linked Mode to eliminate vCenter single points of failure
- Create, administer and manage VMFS 5.x file systems
- Create and use Storage Profiles
- Create Datastore Clusters for capacity and performance management
- Create custom vSphere alarms to monitor your virtual infrastructure
- Create, review and enforce Host Profiles
- Create DRS load balanced clusters
- Save power and cooling costs with DRS Power Management
- Create HA failure recovery clusters to minimize unplanned downtime
- Eliminate unplanned VM downtime with VMware Fault Tolerance
- Create, configure and work with Distributed Virtual Switches
- Review network traffic with vDS port mirroring
- Enable efficient VM anti-malware defenses with vShield Endpoint
- Configure highly secure virtual network segments with vShield Zones

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Course Summary (cont'd)

Topics

- Virtualization Infrastructure Overview
- How to Install, Configure ESXi 5.x Installable
- Virtual Hardware and Virtual Machines
- vCenter on Windows
- vCenter Linux Virtual Appliance
- VM Rapid Deployment using Templates, Clones
- Advanced Virtual Machines
- vCenter and vCenter Linked Mode
- Using Fibre and iSCSI Shared Storage
- VMware File System (VMFS) 5.x
- Profile Driven Storage
- Datastore Clusters and Storage DRS
- ESXi and vCenter Alarms
- Host Profiles
- DRS Load Balanced Clusters, Power Mgt.
- VMware HA and Fault Tolerance
- Advanced Virtual Networking
- VM Malware Defense with vShield Endpoint
- VM Network Defense with vShield Zones

Audience

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

- vSphere Administrators currently working on vSphere 4.x installations
- System architects or others who need to design virtual infrastructure
- Security specialists responsible for monitor, managing, securing and administering Virtual Infrastructure
- Performance and capacity analysts who need to understand, provision, monitor and performance tune Virtual Infrastructure
- Backup Administrators who need to understand the impact of existing and new back up strategies in a virtual environment
- Business Continuity specialists responsible for disaster recovery and high availability
- Storage administrators who need to understand how VMware ESX uses Fibre SAN and iSCSI SAN volumes and NAS datastores

Prerequisites

Attendees should have good familiarity with VMware vSphere 4.0 or newer. Experience installing, configuring and managing operating systems, storage systems and or networks is 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

Four days

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Course Outline

- I. Virtualization Infrastructure Overview**
 - 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
 - E. Understanding VMware vRAM licensing
- II. How to Install, Configure ESXi 5.x Installable**
 - A. Selecting, validating and preparing your server
 - B. Software installation and best practices
 - C. Joining ESXi to an Active Directory Domain
- III. Virtual Hardware and Virtual Machines**
 - A. VM virtual hardware, options and limits
 - B. Creating and sizing VMs
 - C. Assigning, modifying and removing Virtual Hardware
 - D. Working with a VM's BIOS
 - E. Installing and customizing an OS for best performance
- IV. vCenter on Windows**
 - A. vCenter feature overview and components
 - B. Importing ESX hosts into vCenter management
 - C. vSphere Web Client Installation and Use
- V. vCenter Linux Virtual Appliance**
 - A. vCenter Virtual Appliance feature overview and components
 - B. Installing and post-install configuration
 - C. Sizing vCenter Appliance
 - D. Database options and limitations
- VI. VM Rapid Deployment using Templates, Clones**
 - A. Creating, modifying, updating and working with Templates
 - B. Cloning, one time copies of VMs
 - C. Best practices for cloning and templating
- VII. Advanced Virtual Machines**
 - A. Adding, resizing virtual disks and partitions
 - B. Enabling and using VM Hotplug virtual hardware
 - C. CPU and Memory hot plug
 - D. Virtual NIC hot plug
- VIII. vCenter and vCenter Linked Mode**
 - A. Redundant vCenter configurations using vCenter Linked Mode
 - B. Managing ESXi hosts, VMs from any vCenter Linked peer
- IX. Using Fibre and iSCSI Shared Storage**
 - A. Fibre SAN, iSCSI SAN overview
 - B. Connecting to, scanning, rescanning iSCSI SANS
 - C. Working with Raw Device Maps
- X. VMware File System (VMFS) 5.x**
 - A. Unique file system properties of VMFS 5 filesystems
 - B. Creating, managing new VMFS partitions
 - C. Managing VMFS capacity with LUN spanning and LUN expansion
 - D. Native and 3rd party Multipathing with Fibre and iSCSI SANS
- XI. Profile Driven Storage**
 - A. Create storage profile policies
 - B. Perform compliance checks on VM storage placements
 - C. Remediate VM compliance issues
- XII. C Datastore Clusters and Storage DRS**
 - A. How to manage storage capacity, load using Storage DRS
 - B. Create, update Storage DRS datastore clusters
 - C. Identify and eliminate storage performance issues

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Course Outline (cont'd)

XIII. ESXi and vCenter Alarms

- A. Alarm categories and definitions
- B. Creating custom alarms and actions
- C. Defining alarms on VMs, Hosts, Datastores, Networks, etc.

XIV. Host Profiles

- A. Using Host Profiles to capture an ESXi host configuration
- B. Perform configuration compliance scans
- C. Remediating out of compliance configuration issues
- D. Rapid ESXi host deployment/configuration with Host Profiles

XV. DRS Load Balanced Clusters, Power Mgt.

- A. Cold Migrations, Hot VMotion migrations
- B. Storage VMotion for hot VM disk migrations
- C. Create and manage host CPU, memory resources with VMware DRS
- D. DRS Cluster configuration and tuning
- E. VM cluster policy overrides
- F. How Power Management can reduce your electricity and cooling costs
- G. Configuring hosts for Power Management
- H. Enabling Power Management on DRS clusters
- I. Using Power Management to power stand-by unneeded ESXi hosts
- J. Using SSDs to improve VM paging performance

XVI. VMware HA and Fault Tolerance

- A. VMware High Availability clusters
- B. Cluster options and their effects on failure recovery

- C. Fault Tolerance overview, features and limitations
- D. Configuration, monitoring and recovery
- E. FT ESXi hosts and network compatibility requirements
- F. Creating and administering FT VMs

XVII. Advanced Virtual Networking

- A. Distributed virtual switches and distributed Port Groups
- B. NIC teaming for redundancy and Performance
- C. Connecting to vLANs
- D. Enhanced Network Security
- E. Uplinking Virtual and Physical Network segments using NICs

XVIII. VM Malware Defense with vShield Endpoint

- A. Understanding antivirus defense options in a VM environment
- B. Using vShield Endpoint to reduce VM resource overhead
- C. Installing, configuring vShield Endpoint
- D. Performing scheduled malware scans on VMs

XIX. VM Network Defense with vShield Zones

- A. vShield Zones, application level firewall protection for VMs
- B. Install, configure, manage vShield Zones
- C. Create firewall rules to packet filter based on IP, port, protocol
- D. Monitor, review firewall activity