



VMware vSphere 5.5 Advanced Administration

Format	4-day instructor led training
Course Books	630+ pg Study Guide with slide notes 180+ pg Lab Guide with detailed steps for completing labs
vSphere Version	This class covers VMware vSphere 5.5 including ESXi 5.5 and vCenter 5.5
Delivery	Remote access to dedicated servers with one server per student , an iSCSI SAN, etc.
Max Attendees	Limited by server availability. We currently have 150+ student servers available
Requirements	Course can be run from any location that has a reliable Internet connection that allows outbound HTTP/HTTPS connections
Lab Time	40+% of class time is devoted to hands-on labs
Availability	April, 2014
Certification	Prepares attendees to challenge the ESXLab Certified Virtualization Specialist exam (included with the class)

Overview

This popular 4-day class is an intensive introduction to the advanced features of VMware vSphere™ 5.5. Candidates are assumed 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 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 Server Appliance and Virtual Machines. From there, we look at host and storage performance and scalability topics including Hotplug Virtual Hardware, Profile Driven Storage, DRS, Storage DRS clusters and DRS Power Management. Availability is covered in HA Clusters, VM Fault Tolerance, vSphere Replication and vSphere Data Protection. VM network and operating system security topics are discussed within other topics.

We also cover upgrading your vSphere system by taking you through the steps to upgrade the vCenter Server Appliance, an ESXi host and then Virtual Machines.

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.

By the end of the class, attendees will have learned the benefits, skills, and best practices of virtualization. Attendees will be able to effectively design, implement, scale, secure, back up, recover, upgrade, manage and troubleshoot VMware vSphere 5.5 environments.

Who Should Attend?

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.x or 5.x. 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.



Certification

Attendees have the option to earn ESXLab Certified Virtualization Specialist (ECVS) by challenging a certification exam at the end of the course.

Chapter List

Our class consists of the following chapters:

- Chapter 1 - Virtualization Overview
- Chapter 2 - Install, Configure ESXi 5.1
- Chapter 3 - Virtual Hardware and Virtual Machines
- Chapter 4 - vCenter Server Appliance
- Chapter 5 - Upgrading vCenter, ESXi and Virtual Machines
- Chapter 6 - Advanced Virtual Networking
- Chapter 7 - Using Fibre and iSCSI Shared Storage
- Chapter 8 - VMFS 5 File Systems
- Chapter 9 - DRS Load Balanced Clusters, DRS Power Mgt.
- Chapter 10 - Profile Driven Storage
- Chapter 11 - Datastore Clusters and Storage DRS
- Chapter 12 - VMware HA and Fault Tolerance
- Chapter 13 - vSphere Replication
- Chapter 14 - VMware Data Protection

Hands On Labs

Attendees will complete the following hands on labs during the class:

- Install of ESXi 5 and perform post-install configurations
- Create / update Standard Virtual Switches
- Define, connect to and browse NFS file shares
- Create a Virtual Machine. Install Guest OS, VMware Tools into the VM. Add 3rd party tools and utilities
- Work with VM snapshots
- Use virtual hardware Hotplug to hot add CPU, memory to a running VM
- Import, install, review and configure vCenter Virtual Appliance
- Upgrade vCenter Appliance to version 5.5
- Upgrade ESXi hosts to version 5.5
- Upgrade VMs to new virtual hardware version. See how to select appropriate virtual hardware version for your needs
- Create and manage vSphere Distributed Virtual Switches
- Review and set vSwitch Security, Traffic Shaping and NIC Teaming policies
- iSCSI, Fibre Storage Area Networks. Connecting to shared storage
- Create/use an iSCSI Raw Device Maps
- Work with storage Path Selection Policies for better I/O performance
- VMware VMFS - How to create, tune and grow VMFS volumes
- Configure Storage I/O Control to ensure fair disk bandwidth allocation
- VM cold, hot and Storage migration
- Perform a combined VMotion and Storage VMotion migration
- Create a load balanced DRS cluster. Enable automated load balancing
- Enable DRS Power Management to dynamically adjust cluster size according to VM resource needs
- Create Storage Policies. Perform compliance scans. Remediate non-compliant VM placements based on declared storage needs
- Use Storage DRS to automatically resolve storage capacity or storage I/O performance issues
- Use High Availability clusters to minimize VM down time caused by unplanned server failures
- Enable and test VM Fault Tolerance for 100% VM uptime
- Use vSphere Replication to hot replicate/recover VMs
- Use VMware Data Protection to back up and recover VMs
- Use VMware Data Protection to perform individual File Level Recoveries

Detailed Chapter List

Chapter 1 - Virtualization Overview

- Virtualization explained
- How VMware virtualization compares to traditional PC deployments
- How virtualization effectively addresses common IT issues
- VMware vSphere software products
- Desktop Virtualization overview, tricks and traps
- Virtual Desktop strategy using Windows Server 2008 as a desktop
- Understanding VMware's licensing options. Save money and buy only what you need

Chapter 2 – Install, Configure ESXi 5.1

- Selecting, validating and preparing your server
- Software installation and best practices
- Joining ESXi to an Active Directory Domain
- Install ESXi 5.1 so we can perform an upgrade to 5.5
- Understand and configure vSphere Standard Switches
- Connecting to and using NFS file shares

Chapter 3 - Virtual Hardware and Virtual Machines

- VM virtual hardware, options and limits
- Creating and sizing VMs
- Assigning, modifying and removing Virtual Hardware including hotplug
- Working with a VM's BIOS
- Installing and customizing an OS for best performance
- Virtual hardware versions and capabilities

Chapter 4 – vCenter Server Appliance

- vCenter Virtual Appliance feature overview and components
- Installing and post-install configuration
- vCenter components; Single Sign On, Inventory Service and vCenter
- Sizing vCenter Appliance
- Database options and limitations
- Web Client vs. vSphere Client. How and when to use each client

Chapter 5 – Upgrading vCenter, ESXi and Virtual Machines

- How to upgrade the vCenter Appliance from vCenter Appliance from version 5.0/5.1 to version 5.5
- How to upgrade vCenter Server on Windows
- Strategies for upgrading ESXi hosts using VUM, Auto Deploy and manually
- Perform an ESXi in-place upgrade
- How to complete a VM virtual hardware upgrade

Chapter 6 - Advanced Virtual Networking

- Distributed virtual switches, distributed Port Groups
- Migrating configurations from Standard vSwitches to dvSwitches
- NIC teaming strategies/options for redundancy and performance
- Connecting to vLANs
- Enhanced Network Security, Load Balancing and NIC Teaming

Chapter 7 - Using Fibre and iSCSI Shared Storage

- Connecting to, scanning, rescanning for SAN volumes
- Working with Raw Device Maps
- Designing Networks for Optimum iSCSI performance, reliability
- VMware APIs for Array Integration (VAAI) features and benefits
- Checking for VAAI SAN capability
- Storage Alignment. What it is and how to manage/fix it

Chapter 8 – VMFS 5 File Systems

- Unique file system properties of VMFS 5 filesystems
- Creating, managing new VMFS partitions
- Managing VMFS capacity with LUN spanning and LUN expansion
- Native and 3rd party Multipathing with Fibre and iSCSI SANs
- VMFS 3 to VMFS 5 volumes. Upgrading vs. wipe and remake

Chapter 9 – DRS Load Balanced Clusters, DRS Power Mgt.

- Cold Migrations, Hot VMotion migrations
- Storage VMotion for hot VM disk migrations
- Create and manage host CPU, memory resources with VMware DRS
- VM cluster policy settings including Admission Control
- Configuring and enabling Power Management on DRS clusters
- Using local SSDs as VM paging and SAN read cache volumes

Chapter 10 – Profile Driven Storage

- User and SAN defined storage profile policies
- Perform compliance checks on VM storage placements
- Identify and fix VM storage compliance issues

Chapter 11 – Datastore Clusters and Storage DRS

- Storage I/O Control
- How to manage storage capacity, load using Storage DRS
- Create, update Storage DRS datastore clusters
- Identify and eliminate storage performance issues

Chapter 12 - VMware HA and Fault Tolerance

- VMware High Availability clusters options
- Fault Tolerance overview, features and limitations
- Configuration, monitoring and recovery
- FT ESXi hosts and network compatibility requirements
- Creating and administering FT VMs

Chapter 13 – vSphere Replication

- Configure vSphere Replication
- Enable Replication withing a vSphere Environment
- Understand and set Recovery Point Objectives
- Hot VM replication with VMware Replication

Chapter 14 – VMware Data Protection

- Import vSphere Data Protection appliance
- Configuring and using VMware Data Protection
- Enable VM backup
- Recover a VM from backup
- Perform File Level Recoveries (FLR)



For More Information

This class can be customized to meet your unique training and delivery needs, including:

- On-site delivery at your facility
- Custom timetables including 3-day rapid delivery boot-camps
- Content and Lab customization to meet your unique training needs
- Distance training
- Mentoring, implementation planning and assistance

For more information or to check pricing and availability, please contact your authorized ESXLab.com training partner.