VMware vSphere 6.0 with ESXi and vCenter Boot Camp

Course Name	**VMware vSphere 6.0 with ESXi and vCenter Boot Camp** 📕 VMware vSphere 6.0 with ESXi and vCenter Boot Camp 📘 VMware vSphere 6.0 with ESXi and vCenter Boot Camp
Format	5-day, 10hr/day instructor led training
Course Books	735 pg Study Guide fully annotated with slide notes 244 pg Lab Guide with detailed steps for completing all labs 146 pg Boot Camp supplement document (with 4 extra chapters and labs)
vSphere Version	Covers VMware vSphere 6.0 Update 2 which was released March 2016
Delivery Options	Instructor Led On-site. Instructor Led Distance. Instructor Led Mixed On-Site & Remote
Remote Labs	Remote access to dedicated servers with one Server per student, an iSCSI SAN, etc.
Max Attendees	We recommend you place no more than 16 students per class We can provide concurrent lab access for 150+ students
Requirements	Course can be run from any location that has a reliable Internet connection. Each attendee needs a PC with an HTML 5 compliant Web Browser
Lab Time	40+% of class time is devoted to hands-on labs
Availability	First released August, 2015, last updated March 2016
Certification	Prepares attendees to challenge the ESXLab Certified Virtualization Specialist exam One exam voucher included with this class
Suggested Price	$3,995 USD per seat

Overview

This powerful 5-day, extended hours class is an intensive introduction to VMware vSphere™ including VMware ESXi™ 6.0 and vCenter™. This course has been completely rewritten to reflect the changes and improvements introduced in vSphere 6. Our courseware and labs have been fully updated and now use Web Client rather than legacy vSphere Client for both presentation material and lab procedures.

Assuming no prior virtualization experience, this class starts with the basics and rapidly progresses to advanced topics. With 40+% of class time is devoted to labs, students learn the skills they need to become effective vSphere administrators.

Labs start with installation and configuration of stand-alone ESXi servers and progress to shared storage, networking and centralized management. The class continues to advanced topics including resource balancing, high availability, power management, back up and recovery, performance, vCenter redundancy, VM redundancy. Disaster recovery, rapid deployment, hot migration and workload consolidation are also covered.

This class is unique in its approach; which is to identify and eliminate common IT pain points using vSphere. Students learn how to deliver business value; not just the technical or mechanical aspects of the software.

By the end of the class, attendees will have developed in-depth vSphere knowledge, skills, best practices. Attendees will be able to design, implement, configure, monitor, manage and troubleshoot vSphere 6.0.

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Objectives

At the end of the course, attendees will be able to:

- Explain the many significant benefits of virtualization
- Install ESXi Server according to best practices
- Configure and manage local storage
- Create virtual switches and use pNICs to uplink virtual to physical LAN segments
- Understand and use advanced vSwitch settings like NIC Teaming and Security
- Improve network performance with Jumbo Frames
- Understand and use shared SAN storage including Fibre SAN, iSCSI SAN
- Create and use Raw Device Maps
- Define and use file share (NAS) datastores
- Install, configure and update the Platform Service Controller and vCenter Server Appliance
- Create virtual machines, install operating systems and applications
- Configure and use hotplug hardware including hot-add vCPUs and Memory
- Add and grow virtual disks including system disks and secondary volumes
- Rapidly deployment of VMs using golden-master templates
- Create clones – one-time copies of virtual machine
- Perform VM cold migrations, VMotion hot migrations and Storage VMotion storage migrations
- Configure, manage, monitor and secure users and groups
- Understand the benefits and trade offs of network attached storage and Fibre, iSCSI SANs
- Deploy and use VMware Replication to implement Virtual Machine disaster preparedness
- Create and manage load balanced Distributed Resource Scheduling clusters
- Understand, create and manage high availability clusters to protect against VM service loss caused by ESXi server failures
- Configure VMware Fault Tolerance to maintain VM availability in the event of an ESXi host failure
- Monitor and tune both ESXi and virtual machine performance
- Patch and update ESXi servers using vCenter Update Manager
- Understand how VMware and third party products, including operating systems, are impacted by virtualization
- Create and use Distributed Virtual Switches
- Troubleshoot common problems

Prerequisites

Attendees should have user, operator or administrator experience on common operating systems such as Microsoft Windows®, Linux™, UNIX™, etc. 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.

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:

- **System architects** or others who need to design virtual infrastructure
- **Security specialists** responsible for administering, managing, securing Virtual Infrastructure
- **Operators** responsible for day-to-day operation of Virtual Infrastructure
- **Performance analysts** who need to understand, provision, monitor Virtual Infrastructure
- **Business Continuity specialists** responsible for disaster recovery and high availability
- **Storage administrators** who work with Fibre / iSCSI SAN volumes and NAS datastores
- **Managers** who need an unbiased understanding of virtualization before committing their organization to a virtual infrastructure deployment.

Topics List

Our class covers the following topics:

1. Virtualization Infrastructure Overview
2. How to Install, Configure ESXi 6.0 Installable(HoL[1])
3. Virtual and Physical Networking(HoL)
4. Advanced Virtual Networking(HoL)
5. Configure and use NAS Shared Storage(HoL)
6. Virtual Hardware and Virtual Machines(HoL)
7. Install and Deploy the vCenter Server Appliance(HoL)
8. VM Rapid Deployment using Templates, Clones(HoL)
9. Advanced Virtual Hardware – Hot Plug CPU/Memory(HoL)
10. ESXi and vCenter Permission Model(HoL)
11. Using Fibre and iSCSI Shared Storage(HoL)
12. Work with Raw Device Maps(HoL)
13. VMFS – The VMware Cluster File System(HoL)
14. ESXi and vCenter Alarms(HoL)
15. Resource Management and Resource Pools(HoL)
16. Consolidation with vCenter Converter(HoL)
17. VMotion Hot migration, Cold Migration, Storage VMotion(HoL)
18. Load Balancing w. Distributed Resource Scheduler clusters(HoL)
19. Failure Recovery with High Availability Clusters(HoL)
20. High VM availability with HA Fault Tolerance(HoL)
21. Disaster Preparedness with vSphere Replication (HoL)
22. Patch Management with VMware Update Manager(HoL)
23. Managing Scalability and Performance(HoL)
24. Create, configure and use vNetwork Distributed Virtual Switches(HoL)
25. Final Thoughts

[1] **HoL** – Every attendee perform one or more **Hands on Labs** at the end of each chapter

Hands On Labs

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

- Install of ESXi 6.0 and perform post-install configurations
- Create and update network Standard Virtual Switches
- Use NIC Teams for improved performance and redundancy. Enable Jumbo Frames for improved network performance. Configure Stand-by pNICs for improved network availability
- Define, connect to and browse NFS file shares. Create a Content Library and add ISO images
- Create a Virtual Machine and install a guest OS into the VM. Install VMware Tools into the VM. Add 3rd party tools and utilities to the VM
- Export a powered off VM in Open Virtual Machine Format. Import the OVF VM back into ESXi
- Installing and Configuring the Platform Service Controller
- Install and configure the vCenter Server Appliance
- Configure Single Sign On (SSO) identity sources including Active Directory
- Configure vCenter's inventory views to organize inventory objects
- Configure and use VMware Web Client
- Work with Clones and Templates. Convert a VM into a template. Rapidly deploy new VMs from template. Copy VMs using cloning.
- Use Guest OS customization to easily change the identity of a VM. Create, update and deploy VMs using Guest OS Customization Specifications
- Work with virtual disks. Hot add a secondary virtual disk. Grow a non-system volume. Grow a Windows system disk and increase it's partitions without the need for 3rd party tools
- Configure and test hotplug vCPUs. Create multi-core vCPUs
- Work with vCenter permissions. Use and customize Roles
- vCenter alarms for monitoring key infrastructure objects. Send SNMP traps to a trap receiver on high VM resource consumption
- iSCSI, Fibre Storage Area Networks. Connecting to shared storage
- Configure and add a Virtual Raw Device Map to a VM
- VMware VMFS – VMware's proprietary cluster file system. How to create, tune and grow VMFS volumes
- Create, manage and monitor Resource Pools. Work with resource tuning settings.
- VM VMotion migration, Cold Migration, Storage Migration
- Automated VM resource load balancing with Distributed Resource Scheduling clusters
- Use High Availability clusters to minimize VM down time due to server failures
- Implementing VM disaster preparedness with VMware Replication
- Using Converter Enterprise 6.0 to migrate physical machines to VMs
- Set up VMware Update Manager to patch/update ESXi hosts
- Create configure and use vNetwork Distributed Switches
- Performance analysis and benchmarking storage and networking

Certification

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

Detailed Chapter List

Chapter 1 – Virtualization Infrastructure Overview

- Virtualization explained
- How VMware virtualization compares to traditional PC deployments
- Common pain points in PC Server management
- How virtualization effectively addresses common IT issues
- VMware vSphere software products
- What's New and Improved in vSphere 6.0

Chapter 2 – How to Install, Configure ESXi 6.0 Update 2

- Understanding ESXi
- Selecting, validating and preparing your server
- Storage controllers, disks and partitions
- Software installation and best practices
- Joining ESXi to a Domain
- Local User Management and Policies
- First look at the VMware vSphere Client

Chapter 3 – Virtual and Physical Networking

- vNetwork standard and distributed virtual Switches
- Virtual Switches, Ports and Port Groups
- Creating VMkernel ports
- Creating, sizing and customizing Virtual Switches

Chapter 3.1 – Advanced Virtual Networking

- Understand and use vSwitch Security
- Five pNIC teaming strategies
- Implementing Jumbo Frames

Chapter 4 – Connecting to NAS Shared Storage

- Benefits Shared Storage offer to Virtual Infrastructure
- Shared Storage options
- NFS Overview
- Configuring ESXi to use NFS Shares
- Configuring NFS for performance and redundancy
- NFS Use Cases
- Troubleshooting NFS connections

Chapter 5 – Virtual Hardware and Virtual Machines

- VM virtual hardware, options and limits
- Sizing and creating a new VM
- Assigning, modifying and removing Virtual Hardware
- Working with a VM's BIOS
- VMware remote console applications
- Installing an OS into a VM
- Driver installation and customization

Chapter 6 – vCenter Server and Web Client

- The need for Identity Source management
- Installing the Platform Service Controller
- Installing and configuring vCenter Server Appliance
- Connecting Single Sign On (SSO) to Active Directory and other identity sources
- vCenter feature overview and components
- Organizing vCenter's inventory views
- Importing ESXi hosts into vCenter management
- Installing and Using the vSphere Next Generation Web Client

Chapter 7 – VM Rapid Deployment using Templates, Clones

- Templates – Virtual Machine Golden Master images
- Creating, modifying, updating and working with Templates
- Patching, and refreshing Templates
- Cloning, one time copies of VMs
- Best practices for cloning and templating
- Adding and resizing virtual disks

Chapter 8 – ESXi and vCenter Permission Model

- VMware Security model
- Configuring local users and groups
- Managing local permissions
- vCenter security model
- Local, Domain and Active Directory users and groups
- How permissions are applied

Chapter 9 – Using Fibre and iSCSI Shared Storage

- Fibre SAN overview
- Identifying and using Fibre Host Bus Adapters
- Scanning and Rescanning Fibre SANs
- iSCSI overview
- Virtual and physical iSCSI adapters
- Connecting to iSCSI storage
- Scanning and rescanning iSCSI SANS
- Performance and redundancy considerations and best practices
- Understanding the benefits of VMware VAAI compliant storage

Chapter 9.1 – Raw Device Maps

- Connecting VMs directly to SAN LUNs
- Physical vs. Virtual Raw Device Maps
- Impact of vMotion, Storage vMotion on RDMs

Chapter 10 – VMware File System (VMFS)

- Unique file system properties of VMFS
- Managing shared Volumes
- Creating new VMFS partitions
- Managing VMFS capacity with LUN spanning and LUN expansion
- Native and 3rd party Multipathing with Fibre and iSCSI SANs
- VMFS performance considerations
- VMFS scalability and reliability

Chapter 11 – ESXi and vCenter Alarms

- Alarm categories and definitions
- Creating custom alarms and actions
- Reviewing alarms and acknowledging them

Chapter 12 – Resource Management and Resource Pools

- How ESXi delivers resources to VMs
- Shares, Reservations and Limits
- CPU resource scheduling
- Memory resource scheduling
- Resource Pools

Chapter 13 – Consolidation with VMware Converter

- vCenter Converter overview
- Converting physical machines, virtual machines and OS Images
- Cold migrations of physical machines to virtual machines
- Hot migrations of physical machines to virtual machines

Chapter 14 – VMotion Migration, Cold Migration, Storage VMotion

- Cold Migrations to new ESXi hosts, datastores
- Hot Migrations with VMotion
- VMotion requirements and dependencies
- How VMotion works – detailed explanation
- Troubleshooting VMotion
- Storage VMotion for hot VM disk migrations

Chapter 15 – Distributed Resource Scheduling Clusters

- Delegated resource management with Resource Pools
- Resource balanced clusters with VMware Distributed Resource Scheduler
- DRS Cluster configuration and tuning
- Per-VM cluster policy overrides
- Learn the features and benefits of DRS Power Management

Chapter 16 – Failure Recovery with High Availability Clusters

- High Availability options to minimize unplanned down time
- VMware High Availability clusters
- VMware Fault Tolerance

Chapter 16.1 - HA Fault Tolerance

- Delivering zero unplanned VM downtime with Fault Tolerance
- Fault Tolerance scalability improvements in vSphere 6
- Fault Tolerance overview, features and limitations
- Configuration, monitoring and recovery
- FT ESXi hosts and network compatibility requirements
- Creating and administering FT VMs

Chapter 17 – Disaster Preparedness with vSphere Replication

- Explain vSphere Replication features and Use Cases
- Import the vSphere Replication virtual appliance
- Configure vSphere Replication including Recovery Point Objectives (RPOs)
- Enable vSphere Replication on a VM
- Recover a VM using vSphere Replication

Chapter 18 – Patch Management with VMware Update Manager

- Configure and enable VMware Update Manager
- Establishing a patch baseline
- Verifying compliance and patching ESXi hosts

Chapter 19 – Managing Scalability and Performance

- VMkernel CPU and memory resource management mechanisms
- Tuning VM storage I/O performance
- Identifying and resolving resource contention
- Monitoring VM and ESXi host performance
- Performance and capacity planning strategies

Chapter 20 – Distributed Virtual Switches

- Understanding, creating and administering vNetwork Distributed Switches
- Migrating Standard vSwitch configurations to dvSwitches
- Adding ESXi hosts to dvSwitches

Chapter 21 – Final Thoughts

- Consolidation guidelines for VMs and Storage
- Determining which workloads to consolidate
- Other considerations

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 or visit www.esxlab.com.