

This powerful 5-day class is an intense introduction to virtualization using VMware's vSphere™ 5.0 including VMware ESX™ 5.0 and vCenter™. This class starts with the basics and rapidly progresses to more advanced topics. More than 40% of class time is devoted to labs so concepts, skills and best practices are developed and reinforced.

Initial labs focus on installation and configuration of stand-alone ESXi servers. As the class progresses, shared storage, networking and centralized management are introduced. The class continues on to more advanced topics including resource balancing, high availability, back-up and recovery, troubleshooting and more. Disaster recovery, rapid deployment, hot migration and workload consolidation are also covered. This class is unique in its approach; which is to identify common IT pain points and then clearly explain and demonstrate how virtualization delivers clear, tangible benefits (e.g.: reduced costs, greater consistency, responsiveness, reduced administration, server consolidation, etc.). Each topic is presented from the perspective of delivering key business value; not just the technical or mechanical aspects of the software.

Course Objectives:

- Explain the many significant benefits of virtualization
- Install ESXi Server according to best practices
- Create virtual, distributed virtual, and virtual to physical LAN segments
- Install, configure and administer VMware vCenter
- Rapid deployment of VMs using golden-master templates
- Perform VM cold migrations, hot migrations and Storage VMotion
- Monitor power consumption with Distributed Power Management
- Monitor and tune both ESXi and virtual machine performance
- Patch and update ESXi servers using vCenter Update Manager
- Understand how VMware and third part products, including operating systems, are impacted by virtualization

Audience: System Architects, security specialists, analysts, back-up and storage administrators.

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. All attendees should have a basic familiarity with PC server hardware, disk partitioning, IP addressing, O/S installation, networking, etc.

Number of Days: 5 days

<p>1</p> <p>Introduction to vSphere VMware vSphere 5.0 Problems and Opportunities Server Resource Utilization Server Consolidation Datacenter Issues</p>	<p>OS, Application Imaging Back Up & Recovery Server Refresh Hardware Maintenance High Windows OS Costs MS Virtualization Calculator</p>
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- Disaster Recovery
- Test, Development & QA
- IT Technical Career Benefits
 - Virtualization Over Time
 - VMware ESXi
 - vSphere Hardware Limits
 - Small Business Bundles
 - vRAM
 - Full vSphere
 - Cloud Computing
 - vSphere 5 New Features
- 2. VMware ESXi 5.0**
 - Scalable ESXi Deployment
 - ESXi vs. ESX
 - ESXi 5.0
 - Configure Management Network
 - IP, DNS Configuration
 - ESXi Ready
 - vSphere Client → ESXi
 - ESXi > Configuration
 - Sizing ESXi CPU, Memory, Storage, NICs
- 3. Virtual Networking**
 - Virtual to Physical Networking
 - Project Plan
 - vNetwork Switches
 - Standard vSwitches
 - Distributed vSwitches span ESXi hosts
 - VMkernel owns physical NICs
 - ESXi Networking
 - vSwitch Properties
 - Multi-homed Networking
 - Port Groups
 - Add Network Wizards
 - ESXi Physical NICs
 - vSwitch Rules
- 4. NAS/NFS**
 - Network Attached Storage
 - Network File System
 - NAS Components
 - Defining NFS Shares on Linux
 - NSF VMkernel Port
 - NFS Share in Storage Roster
 - NAS/NFS Trade-offs
- 5. Virtual Machines**
 - Virtual Hardware
 - Creating Virtual Machines
 - Datastore Browser
 - New Virtual Machine Wizard
 - Multicore vCPUs
 - Installing a Guest Operating System
 - Complete the Virtual Machine
 - VMware Tools
 - USXi 5.0 Supports USB
 - Windows Performance Tips
 - Supported Guest OS
- 6. vCenter**
 - Central Management w. vCenter
 - Introduction to vCenter
 - Installation and Configuration
 - Organizing Inventory
 - Web Access
 - Migrating a VM
 - VM Actions
 - Web Access Remote Console
- 7. Templates, Clones**
 - Template Theory
 - Disk Format
 - VM Cloning
 - Windows VM Customization
 - Guest OS Customization
 - Virtual Appliances
 - Managing Virtual Hardware
- 8. Permissions**
 - Permission Privileges and Roles
 - ESXi users, groups defined
 - Default and custom roles
 - How permissions are applied
- 9. Shared Storage**
 - Fibre Storage Area Networks
 - World Wide Names
 - iSCSI SAN storage
 - LUN Discovery Options
 - Troubleshooting iSCSI
- 10. VMware File System**
 - VMFS Overview
 - Unique features and benefits
 - Shared Storage
 - VMware File System
 - Creating VMFS
 - Working with VMFS
 - Managing VMFS capacity

- Create/Grow a LUN Span
 - Multipath access to VMFS
- 11. Resource Pools**
 - Resource Administration
 - CPU Resource Tunables
 - Dynamic Memory Balancing
 - Expandable Reservations
- 12. Alarms**
 - Performance Alarms
 - vCenter Alarms
 - Default Alarms
 - Alarm Best Practices
- 13. Host Profiles**
 - Managing ESXi Host Configuration
 - Host Profiles
 - Edit, Review, Attach a Profile
 - Apply a Profile
- 14. Converter**
 - VMware vCenter Converter
 - Install and Enable Converter
 - Converter targets VMware platforms
 - Clone Physical Disk(s)
 - Guest OS Customization
 - New VM Housekeeping
- 15. VMware Data Recovery**
 - Backup, Recovery agents in Guest OS
 - VMware Data Recovery for VM backup
 - ESXi configuration back up, data recovery
 - Connect VMDR to vCenter
- 16. VM Migration**
 - The act of moving a VM
 - Cold Migration
 - Hot Migration
 - VMotion Migration
 - Host Compatibility
 - Storage VMotion
- 17. DRS**
 - Distributed Resource Scheduler
 - Balanced Clusters
 - Power Management
 - Migration Threshold
 - EVC
 - Affinity, Anti-Affinity Rules
 - DRS Groups Manager
 - Adopting DRS
- 18. High Availability Clusters**
 - High Availability Clusters
 - HA Cluster Heartbeat
 - Maintenance Mode
 - HA and DRS
- 19. Update Manager**
 - VMware Update Manager capabilities
 - Patch and update ESXi hosts
 - VUM Components
 - VUM and DRS Clusters
- 20. Performance**
 - Performance Analysis & Tuning
 - Scalability – Efficient resource utilization
 - Active VM CPU Scheduling
 - Memory Ballooning
 - Ballooning vs. VMkernel Swap
 - Overview Performance Charts
 - Performance Problems
- 21. Final Thoughts**
 - What to Virtualize
 - Storage Considerations
 - Network Considerations
 - Server Capacity Management
 - Delivering High Availability
 - Virtualization Security Issues