VMware vSphere 8.0 Skill Up

Course Name	**VMware vSphere 8.0 Skill Up**
Outline Download	VMware vSphere 8.0 Skill Up VMware vSphere 8.0 Skill Up
Format	5-day, 8hr/day instructor led training
Course Books	650+ page fully annotated Study Guide with slide notes 225+ page Lab Guide with detailed steps for completing all labs
vSphere Version	Course is based VMware vSphere 8.0
Delivery Options	Instructor Led On-site. Instructor Led Distance. Instructor Led Mixed On-Site & Remote
Remote Labs	Remote access to dedicated labs that include two ESXi hosts per student, an iSCSI SAN, DNS, DHCP, Active Directory, SMB shares, NFS shares, all media images and tools
Max Attendees	Limited by server availability. We currently have capacity for 100+ concurrent student sessions in our remote lab environment
Requirements	Course can be run from any location that has a reliable Internet connection. Each attendee needs a PC that supports Microsoft Terminal Services
Lab Time	45+% of class time is devoted to hands-on labs
Availability	February, 2024
Suggested Price	$3,595 USD

Overview

This powerful, fast paced 5-day class provides in-depth training on VMware vSphere 8.0. This course is intended for vSphere professionals who want to take their knowledge and skills to the next level. In this course, we assume that you already have a basic understanding of virtualization and work experience as a vSphere VM owner, as an operator or as a junior administrator. This could be on earlier versions of vSphere or on vSphere 8.0.

This course is popular with people who need to upgrade their VMware vSphere 8.0 knowledge and skills. People who attend this class do so because they want to:

- Go go deeper into vSphere features and capabilities
- Learn vSphere best practices
- Be able to diagnose vSphere issues
- Troubleshoot and fix common problems
- Upgrade vSphere 6.7 / 7.0 deployments to vSphere 8.0
- Learn how to use Lifecycle Manager to upgrade VM virtual hardware and VMware Tools
- Manage, review and configure ESXi hosts and vCenter from the command line
- Dig deep into performance issues with ESXtop
- Maximize scalability and performance while minimizing their spend on vSphere 8.0 subscription licenses
- Learn how to upgrade vCenter 6.7 or 7.0 to version 8.0

The approach taken with this course is – *Learn by doing* as 45+% of class time is devoted to hands-on labs

By the end of the class, attendees will have learned practical, actionable skills in vSphere design, implementation, upgrading, sizing, scalability, performance optimization and troubleshooting.
Now that Broadcom has completed its takeover of VMware is and VMware prices have increased substantially,

it is even more important than ever for you to maximize your ROI on your existing vSphere installation. This class will help you achieve that goal.

Prerequisites

This is not a beginner level course. Attendees should have experience installing and configuring and administering earlier versions of vSphere such as vSphere 5.x, 6.x or 7.0.

Chapter List

Our class consists of the following 19 chapters:

Chapter 0 – Course Introduction
Chapter 1 – Install, Configure and Secure ESXi 8.0 (HoL[1])
Chapter 2 – Virtual and Physical Networking (HoL[1])
Chapter 3 – Advanced Virtual Networking (HoL[1])
Chapter 4 – Connecting to NAS Shared storage (HoL[1])
Chapter 5 – Virtual Hardware and Virtual Machines (HoL[1])
Chapter 6 – Upgrade and Configure vCenter Server Appliance (HoL[1])
Chapter 7 – Virtual Machine Rapid Deployment (HoL[1])
Chapter 8 – Upgrading ESXi hosts with Lifecycle Manager (HoL[1])
Chapter 9 – Connecting ESXi to Shared Storage (HoL[1])
Chapter 10 – Direct VM to SAN Access with Raw Device Maps (HoL[1])
Chapter 11 – VMware File Systems (VMFS 6) (HoL[1])
Chapter 12 – Storage Load Balancing with SDRS Clusters (HoL[1])
Chapter 13 – VMotion Migration, Cold Migration, Storage Migration (HoL[1])
Chapter 13 – Distributed Resource Scheduling Clusters (HoL[1])
Chapter 15 – VMware High Availability Clusters (HoL[1])
Chapter 16 – VMware Fault Tolerance (HoL[1])
Chapter 17 – Distributed vSwitches Features and Scalability (HoL[1])
Chapter 18 – Final Thoughts (HoL[1])

Hands On Labs

Attendees will complete the following hands-on lab tasks during the class:

- Install of ESXi 8.0 and perform post-install configuration steps
- Review ESXi services and configure ESXi firewall
- Enable ESXi Lockdown mode to prevent direct host configuration changes
- Create/update Standard vSwitch configurations
- Configure vSwitch Security Policies for Promiscuous Mode, MAC Address Changes and Forged Transmits
- Configure vSwitches, VMkernel NICs for Jumbo Frame use
- Configure and connect to NFS storage via GUI and CLI
- Create a new VM according to best practices
- Import and configure vCenter Server Appliance from the command line
- Perform an upgrade of vCenter Server Appliance to v8.0
- Use vCLI command line tools like `esxcli`, `localcli`, `vmware-cmd` and other commands to review, troubleshoot and configure your ESXi host
- Use `esxtop` to monitor resource use and pinpoint performance concerns
- Rapidly deploy VMs from Templates and Clones
- Review and size VM vCPU to maximize CPU performance
- Enable and use Hot-plug virtual hardware
- Monitor storage controller queue length and performance
- Monitor ESXi host and VM memory use
- Configure and use VMware Lifecycle Manager to update an ESXi host from ESXi 7.0 to ESXi 8.0
- Use VMware Lifecycle Manager to upgrade a VM's virtual hardware
- Connect to an iSCSI SAN
- Create a new VMFS 6.0 file systems
- Create Storage DRS clusters and use Storage DRS to manage storage capacity and I/O load
- Expand VMFS 6.0 file systems using LUN Spanning and LUN expansion
- Create, configure and test vSphere High Availability Clusters
- Configure All Paths Down and Permanent Device Loss policies in an HA cluster
- Create a multi-core Fault Tolerant VM
- Create and test a VMware DRS compute load balancing cluster
- Create Distributed vSwitches
- Bulk migrate VMs from Standard to Distributed vSwitch networking
- Work with dvSwitch Configuration Backup Up and Restore
- Enable and use dvSwitch Health Management
- Using dvSwitch port shadowing
- Testing network health on dvSwitches
- Work with dvSwitch configuration roll back and recovery

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

Detailed Chapter List

Chapter 0 – Course Introduction

- Welcome to this course
- Course goals and objectives
- VMware vSphere 8.0 certification road map

Chapter 1 – Install, Configure and Secure ESXi 8.0

- Install and configure ESXi 8.0 using best practices
- Enable and secure command line access including the console and Secure Shell
- Using Lockdown mode to restrict management access
- Working with ESXi log files
- Working with VMkernel Paging Files on local storage, flash storage and shared storage
- Use command line tools to review and update host configurations
- Using command line tools to create/manage users and permissions

Chapter 2 – Virtual and Physical Networking

- Create / update standard Virtual Switches
- Create, configure VMkernel NICs
- Create, configure vSwitch Port Groups
- Network bandwidth management using Traffic Shaping
- Creating and updating pNIC teams
- Enabling and configuring Cisco Discovery Protocol

Chapter 3 – Advanced Virtual Networking

- Configuring vSwitch Security policies *Promiscuous Mode*, *Forged Transmits* and *MAC Address Changes*
- Improve network failure detection and recovery with Beacon Probing
- Configure and use Jumbo Frames to improve network performance
- Use command line tools to create, update, configure and repair Standard vSwitches
- Use `esxtop` to monitor network activity
- The Five physical NIC teaming policies including the pros, cons and use cases for each one
- Troubleshoot networking configuration and performance issues

Chapter 4 – Connecting to NAS Shared storage

- Connecting to NFS v3 storage
- Network design for high service availability
- Best practices for performance and reliability
- NFS v4.1 features, benefits and use cases

Chapter 5 – Virtual Hardware and Virtual Machines

- VM virtual hardware, options and limits
- Creating and right-sizing Virtual Machines for CPU, memory
- Installing VMware Tools
- Virtual Machine best practices
- Import and export VMs in Open Virtual Machine Format
- Configure and use vDisk flash based read caching to accelerate VM read performance

Chapter 6 – Upgrade and Configure vCenter Server Appliance

- Deploy vCenter Server Appliance from the command line and configuration files
- Upgrade vCenter Appliance to vCenter Appliance 8.0
- vCenter redundancy with vCenter High Availability
- Connecting Single Sign On (SSO) to Active Directory and other identity sources
- Create and test a vCenter Appliance backup job

Chapter 7 – Virtual Machine Rapid Deployment

- How to create a Template VM
- Using Guest OS Customization for Windows, Linux and BSD UNIX
- Enabling, using Hotplug Virtual CPU and memory
- Enabling, using Hotplug disks, networking, USB devices and more
- Predictive and adaptive sizing strategies for VMs
- Troubleshooting Virtual Machine issues
- Features, benefits and use cases of NVMe virtual disks
- Use **`esxtop`** to analyze VM performance

Chapter 8 – Upgrading ESXi hosts with Lifecycle Manager

- Configure VMware Lifecycle Manager
- Create a custom ESXi 8.0 ISO image
- Attaching a Host Upgrade baseline to a host and do a host upgrade pre-check
- Upgrading an ESXi host from ESXi 7.0 to ESXi 8.0
- Upgrading VM virtual hardware and VMware Tools using Lifecycle Manager
- Using command line tools to backup and restore an ESXi host's configuration

Chapter 9 – Connecting ESXi to Shared Block Mode Storage

- General SAN features and capabilities
- VMware APIs for Array Integration (VAAI)
- Storage network design for performance and redundancy
- Connecting to block mode shared storage
- iSCSI Hardware and Software Initiators
- iSCSI Static and Send Targets LUN discovery
- Troubleshooting storage issues
- Use `esxtop` to review storage controller and datastores configuration and I/O activity

Chapter 10 – Direct VM to SAN Access with Raw Device Maps

- Explain Physical and Virtual Raw Device Maps (RDMs)
- Use cases and benefits of Raw Device Maps
- How Raw Device Maps work with VM cold, VMotion and Storage VMotion migrations
- Using RDMs to implement Virtual and Virtual/Physical Windows Fail Over Clusters

Chapter 11 – VMware File System (VMFS 6)

- Features and benefits of VMFS 6
- Creating and managing shared Volumes
- Managing VMFS capacity with LUN spanning, LUN expansion
- Benefits, pros, cons and use cases for VMware's three multipathing policies
- Review storage queuing, I/O aborts and other storage issues
- Diagnose and troubleshoot storage performance
- Troubleshooting VMFS issues
- VMFS best practices

Chapter 12 – Storage Load Balancing with SDRS Clusters

- Creating and using Storage Distributed Resource Scheduling clusters (SDRS)
- Cluster properties for capacity and I/O load balancing
- Best practices for building storage clusters

Chapter 13 – 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 14 – Distributed Resource Scheduling Clusters

- Automatic CPU and Memory resource balancing clusters with VMware DRS
- DRS Cluster configuration and tuning
- Per-VM cluster policy overrides
- Features, benefits and use cases for Enhanced VMotion Compatibility (EVC)
- Configuring Per-VM EVC

Chapter 15 – VMware High Availability Clusters

- Minimize unplanned VM down time VMware High Availability clusters
- VM requirements for HA Clusters
- Storage fault recovery in High Availability clusters (All Paths Down, Permanent Device Loss)
- Monitoring VM health in HA clusters
- Admission Control policy settings for predictable pCPU/pRAM resource availability
- Identifying and troubleshooting issues in VMware HA clusters

Chapter 16 – VMware Fault Tolerance

- Eliminate VM unplanned down time with VMware Fault Tolerance
- Role of the Primary and Secondary VM in a Fault Tolerance configuration
- Explain how Fast Checkpointing keeps the Secondary VM vCPU, vRAM, vDisk up to date
- Enabling VM Fault Tolerance
- Initial VM synchronization
- Testing Fault Tolerance

Chapter 17 – Distributed vSwitch Features and Scalability

- Features and benefits of Distributed vSwitches
- Role of the DVUplink port group
- Adding ESXi hosts to dvSwitches
- Creating dvSwitch port groups
- Migrating physical NICs and VMkernel ports to dvSwitches
- dvSwitch configuration backup and restore
- Configuring custom VM MAC address generation policies
- Testing dvSwitch network health

Chapter 18 – Final Thoughts

- What to virtualize and what not to virtualize
- VM guest OS security in a virtual environment
- Protecting VMs and their data from unauthorized copying
- Useful books, white papers and online resources

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.