

VMware Certified Professional

Exam Blueprint

VCP-410 Exam

Exam Blueprint Version 1.7

19 January 2011



Disclaimer:

This blueprint is intended to provide information about the objectives covered by this exam, related resources, and recommended courses. The material contained within this blueprint is not intended to guarantee that a passing score will be achieved on the exam. VMware recommends that a candidate thoroughly understands the objectives indicated in this guide and utilizes the resources and courses recommended in this guide where needed to gain that understanding.

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Section 1: The Exam

1.1 Purpose of Exam

The VCP-410 VMware Certified Professional on vSphere exam tests potential VCP candidates on their skills and abilities installing, configuring and administering a vSphere 4 environment. Successful candidates demonstrate mastery of these skills and abilities.

1.2 Number of Questions

The VCP-410 exam consists of 85 questions and a short pre-exam survey consisting of 8 questions.

1.3 Passing Score

The passing score for this exam is 300, using a scaled scoring method. The scale is from 100-500. Scaled scores are calculated using a mathematical formula that considers a variety of factors, including the number and type of exam questions included in a specific version of the exam. Because this combination may vary in different versions of the same examination, scaled scores provide a fair score for each individual based on the version of the exam taken.

1.4 How Objectives Relate to Questions on the Exam

Objectives summarize what the test is designed to measure. Objectives are developed by Exam Developers and SMEs based on identified tasks that relate to the job of administering a vSphere environment. Once the initial development process is complete, these objectives are verified using an external group of individuals in the actual job role. The external survey determines the number of questions for each objective, which relates directly to the criticality of the task in the job role.

1.5 Languages

The exam is available in English and Japanese.

1.6 Time Limit

The time limit for the exam is 90 minutes, with an additional 15 minutes to complete the survey questions and agreements. Candidates who take the VCP410 exam in a country where English is not a primary language will have an additional 30 minutes added to the exam time. This time extension is automatic, no additional action is required from the candidate. For the purposes of this exam, countries where English is considered one of the primary languages include Australia, New Zealand, Belize, South Africa, Bermuda, the United Kingdom, Canada, the United States and Ireland.

1.7 Scheduling and Taking the Exam

This exam is administered through Pearson VUE. For details on the rules and procedures associated with registering for and taking the exam, which exams are available, latest certification news and more, please visit the VMware page on Pearson VUE's website at <http://www.pearsonvue.com/vmware>.

Pearson VUE's website can also be used to locate a testing center in your area, schedule a VMware exam, and review exam history information.

1.8 Certification Tracks

The VCP410 exam is a core component of the VCP certification. The certification requires a passing score on the exam and successful completion of a required VMware authorized course. Courses that meet this requirement are listed in [section 4](#).

The VCP Certification is a requirement for several advanced certification tracks, including the VMware Certified Advanced Professional: Datacenter Administration, the VMware Certified Advanced Professional: Datacenter Design and the VMware Certified Design Expert.

1.9 Retake Policy

If a candidate fails an exam on the first attempt, he or she must wait 7 business days from their original appointment time before he or she can register to retake the exam. There is no limit to the number of retakes a candidate can attempt, but the same waiting period applies after each failed attempt. Once the exam is passed, a candidate may not make any further attempts.

1.10 Exam Security

VMware reserves the right to refuse certifying a candidate who violates exam security policies. This includes copying and redistribution of exam material, using any type of study material during the exam itself, attempting to photograph exam items and taking an exam using a false identity. VUE testing centers will take your photo and capture your digital signature upon arrival to take the exam.

Section 2: Intended Audience

2.1 Intended Audience

A candidate for the VCP Certification has approximately six months experience in a virtual environment. They are typically infrastructure personnel, who are capable of installing and configuring ESX Servers and can use vCenter to monitor, manage, troubleshoot, and administer virtual machines. The successful candidate will most likely have additional industry-recognized general IT certifications--or the equivalent experience (typically 2-5 years).

Section 3: Objectives covered in the VCP410 Exam

3.1 Introduction

It is recommended that candidates have the knowledge and skills necessary to install, configure and administer a vSphere 4 environment before taking the VCP410 exam. It is also recommended that the candidate complete the course requirement prior to attempting the exam. It is not required that the course is completed prior to the exam, but the course requirement must be completed in order to obtain the VCP certification.

3.2 Objectives

Prior to taking this exam, candidates should understand each of the following objectives. Each objective is listed below; along with related tools the candidate should have experience with, and related documentation that contains information relevant to the objective. All objectives may also be referenced in other product

documentation not specifically highlighted below. The candidate should be familiar with all relevant product documentation or have an equivalent skillset.

VCP 410 Section 1 – Plan, Install and Upgrade VMware ESX/ESXi

Objective 1.1 -- Install VMware ESX/ESXi on local storage

Knowledge

- Identify minimum hardware requirements
- Download, prepare and validate installation media
- Determine appropriate ESX/ESXi configuration in a given situation
- Obtain required information for environment
- Verify hardware against the VMware Hardware Compatibility Guide
- Perform a custom installation
- Customize storage layout for given situations
- Configure ESXi from the direct console
- Configure ESX/ESXi NTP
- Manage ESX/ESXi licensing
- Compare/Contrast VMware vSphere editions
- Manage license keys

Tools

- [VMware Hardware Compatibility Guide](#)
- [VMware ESXi and vCenter Server Setup Guide](#)
- [VMware ESX and vCenter Server Installation Guide](#)
- [Configuration Maximums Guide](#)
- Product Documentation
- [VMware Virtualization Toolkit](#)

Objective 1.2 – Upgrade VMware ESX/ESXi

Knowledge

- Plan a VMware vSphere upgrade
- Backup/Restore ESX/ESXi host configuration
- Understand Virtual Machine backup options
- Determine if existing hardware meets upgrade requirements
- Understand VMware ESX/ESXi upgrade scenarios
- Perform upgrade to ESX 4.0
 - Upgrade VMware ESX/ESXi
 - Upgrade virtual machine hardware
 - Upgrade VMware Tools

- Verify success of upgrade
- Understand upgrade roll back options

Tools

- vSphere Host Update Utility
- vCenter Update Manager
- [vSphere Upgrade Guide](#)
- [ESX 4 Patch Management Guide](#)
- Product Documentation
- esxupdate

Objective 1.3 – Secure VMware ESX/ESXi

Knowledge

- Identify default security principles
- Understand Service Console firewall operation
 - Service Console Security Level
 - Opening/Closing ports in the firewall using the vSphere Client
- Set up user/group accounts
- Determine applications needed for accessing the service console in a given scenario

Tools

- vSphere Client
- [ESX Configuration Guide](#)
- [ESXi Configuration Guide](#)
- Product Documentation

Objective 1.4 – Install VMware ESX/ESXi on SAN Storage

Knowledge

- Configure LUN Masking
- Prepare SAN
- Configure FC or iSCSI HBA BIOS
 - Enable BIOS
 - Select Boot LUN
- Install VMware ESX/ESXi
- Determine boot LUN size in a given situation

Tools

- FC or iSCSI HBA BIOS Tools
- [FC SAN Configuration Guide](#)
- [iSCSI SAN Configuration Guide](#)
- Product Documentation

Objective 1.5 – Identify vSphere Architecture and Solutions

Knowledge

- Differentiate VMware platform products and editions
- Understand the various datacenter solutions (View, SRM, Lab Manager, etc.)
- Explain ESX/ESXi architecture
- Compare and contrast bare metal vs. hosted architecture

Tools

- [Introduction to VMware vSphere Guide](#)
- Product Documentation
- [VMware vSphere Editions Comparison Chart](#)

VCP410 Section 2 – Configure ESX/ESXi Networking

Objective 2.1 – Configure Virtual Switches

Knowledge

- Understand Virtual Switch and ESX/ESXi NIC and port maximums
- Determine the vSwitch NIC teaming policy in a given situation
- Determine the appropriate vSwitch security policies in a given situation
- Create/Delete Virtual Switches
- Create Ports/Port Groups
- Assign Physical Adapters
- Modify vSwitch NIC Teaming and failover policies
- Modify vSwitch security policy and VLAN settings
- Configure VMotion

Tools

- [ESX Configuration Guide](#)
- [ESXi Configuration Guide](#)
- Product Documentation
- VMware vSphere Client

Objective 2.2 – Configure vNetwork Distributed Switches

Knowledge

- Understand ESX Host and port maximums for dvSwitches
- Determine the virtual port group NIC teaming and fail-over policy in a given situation
- Determine the appropriate virtual port group security policies in a given situation
- Create/Modify a vNetwork Distributed Switch
- Create/Modify Uplink Group settings
- Create/Modify dvPort Group settings
- Add an ESX/ESXi Host to a vNetwork Distributed Switch
- Add/Delete a VMkernel dvPort
- Migrate Virtual Machines to a vNetwork Distributed Switch

Tools

- [ESX Configuration Guide](#)
- [ESXi Configuration Guide](#)
- Product Documentation
- VMware vSphere Client

Objective 2.3 – Configure VMware ESX/ESXi Management Network

Knowledge

- Modify Service Console IP Settings
- Configure Service Console availability
- Configure DNS and Routing settings for an ESX Host

Tools

- [ESX Configuration Guide](#)
- [ESXi Configuration Guide](#)
- Product Documentation
- VMware vSphere Client

VCP410 Section 3 – Configure ESX/ESXi Storage

Objective 3.1 – Configure FC SAN Storage

Knowledge

- Identify FC SAN hardware components
- Identify how ESX Server connections are made to FC SAN storage
- Describe ESX Server FC SAN storage addressing
- Describe the concepts of zoning and LUN masking
- Configure LUN masking
- Scan for new LUNs
- Determine and configure the appropriate multi-pathing policy
- Differentiate between NMP and third-party MPP

Tools

- [FC SAN Configuration Guide](#)
- Product Documentation
- VMware vSphere Client

Objective 3.2 – Configure iSCSI SAN Storage

Knowledge

- Identify iSCSI SAN hardware components
- Determine use cases for hardware vs. software iSCSI initiators
- Configure the iSCSI Software Initiator
- Configure Dynamic/Static Discovery
- Configure CHAP Authentication
- Configure VMkernel port binding for iSCSI Software multi-pathing
- Discover LUNs
- Identify iSCSI addressing in the context of the host

Tools

- [iSCSI SAN Configuration Guide](#)
- Product Documentation
- VMware vSphere Client
- `esxcli`

Objective 3.3 – Configure NFS Datastores

Knowledge

- Identify the NFS hardware components
- Explain ESX exclusivity for NFS mounts
- Configure ESX/ESXi network connectivity to the NAS device
- Create an NFS Datastore

Tools

- [ESX Configuration Guide](#)
- [ESXi Configuration Guide](#)
- Product Documentation
- VMware vSphere Client

Objective 3.4 – Configure and Manage VMFS Datastores

Knowledge

- Identify VMFS file system attributes
- Determine the appropriate Datastore location/configuration for given virtual machines
- Determine use cases for multiple VMFS Datastores
- Create/Configure VMFS Datastores
- Attach existing Datastore to new ESX host
- Manage VMFS Datastores
- Group/Unmount/Delete Datastores
- Grow VMFS volumes

Tools

- [ESX Configuration Guide](#)
- [ESXi Configuration Guide](#)
- Product Documentation
- VMware vSphere Client

VCP410 Section 4 – Install and Configure vCenter Server

Objective 4.1 – Install vCenter Server

Knowledge

- Identify hardware requirements
- Understand configuration maximums

- Determine availability requirements for a vCenter server in a given situation
- Determine appropriate vCenter Server edition
- Determine database size requirements
- Prepare/Configure vCenter Server database
- Install vCenter Server using downloaded installer
- Install additional modules
 - vCenter Guided Consolidation
 - vCenter Update Manager
 - vCenter Converter
- Determine use case for vCenter Linked Mode Groups

Tools

- [VMware ESXi and vCenter Server Setup Guide](#)
- [VMware ESX and vCenter Server Installation Guide](#)
- Product Documentation
- [Database Sizing Tool](#)/Calculators

Objective 4.2 – Manage vSphere Client plug-ins

Knowledge

- Identify available plug-ins
- Determine required plug-ins for a given application
- Ensure permissions to install plug-ins
- Enable plug-ins after installation

Tools

- [VMware ESXi and vCenter Server Setup Guide](#)
- [VMware ESX and vCenter Server Installation Guide](#)
- Product Documentation
- vSphere Client

Objective 4.3 – Configure vCenter Server

Knowledge

- Identify the vCenter Server managed ESX Hosts and Virtual Machine maximums
- Join ESX/ESXi Hosts to vCenter Server
- Configure Guest OS Customization
- Use datacenters and folders to organize the environment
- Configure/Use Scheduled Tasks
- Configure/Use Resource Maps

- Use Storage Reports/Storage Maps
- View/Manage Events
- Configure vCenter Server settings
- Configure vSphere Client settings

Tools

- [vSphere Datacenter Administration Guide](#)
- Product Documentation
- vSphere Client

Objective 4.4 – Configure Access Control

Knowledge

- Create/Modify user permissions in vCenter
- Create/Modify user permissions in ESX Server
- Restrict access to vCenter inventory objects
- Define vCenter predefined roles and their privileges
- Create/Clone Edit roles
- Assign roles to users and groups
- Describe how privileges propagate
- Understand permissions as applied to user and group combinations

Tools

- [vSphere Datacenter Administration Guide](#)
- Product Documentation
- vSphere Client

VCP410 Section 5 – Deploy and Manage Virtual Machines and vApps

Objective 5.1 – Create and Deploy Virtual Machines

Knowledge

- Understand virtual machine hardware maximums
- Create a virtual machine
- Determine appropriate SCSI adapter
- Determine Virtual Disk type
- Install/Upgrade/Configure VMware Tools
- Create/Convert templates
- Customize Windows/Linux virtual machines
- Manage Customization Specifications

- Deploy a virtual machine from a template
- Deploy a virtual machine using VMware vCenter Converter Enterprise
- Perform a Hot Clone
- Perform a Cold Clone
- Perform System Reconfiguration
- Deploy a virtual machine using Guided Consolidation
 - Perform Discovery
 - Analyze discovered virtual machines
 - Consolidate selected virtual machines
- Clone a virtual machine
- Import a virtual machine from a file/folder

Tools

- [vSphere Virtual Machine Administration Guide](#)
- Product Documentation
- vSphere Client

Objective 5.2 – Manage Virtual Machines

Knowledge

- Configure/Modify virtual machines
- Add/Hot Add virtual machine hardware
- Grow virtual machine disks
- Determine appropriate disk format
- Connect virtual machines to devices
- Configure virtual machine options
 - General Options
 - Advanced Options
 - Power Management Options
 - VMware Tools Options
- Configure appropriate virtual machine resource settings

Tools

- [vSphere Virtual Machine Administration Guide](#)
- Product Documentation
- vSphere Client

Objective 5.3 – Deploy vApps

Knowledge

- Determine whether a vApp is appropriate for a given situation
- Define Open Virtual Machine Format (OVF)
- Import/Export a Virtual Appliance
- Build a vApp
- Create/Add virtual machines to a vApp
- Edit vApp Properties
- Export vApps
- Clone a vApp

Tools

- [vSphere Virtual Machine Administration Guide](#)
- Product Documentation
- vSphere Client
- [OVF Tool](#)

VCP410 Section 6 – Manage Compliance

Objective 6.1 – Install, Configure and Manage VMware vCenter Update Manager

Knowledge

- Determine installation requirements and database sizing
- Install Update Manager Server and Client components
- Configure update manager settings
- Configure patch download options
- Create baselines
- Attach baselines to vCenter inventory objects
- Scan ESX hosts and virtual machines
- Remediate ESX hosts and virtual machines
- Stage ESX/ESXi Host updates
- Analyze compliance information from a scan

Tools

- [VMware vCenter Upgrade Manager Administration Guide](#)
- Product Documentation
- [Update Manager Database Sizing Tool](#)

Objective 6.2 – Establish and Apply ESX Host Profiles

Knowledge

- Create/Delete Host Profiles
- Import/Export Host Profiles
- Edit Host Profile Policies
- Associate an ESX host with a host profile
- Check for Compliance
- Apply Host Profiles
- Analyze configuration compliance information from a scan

Tools

- [vSphere Datacenter Administration Guide](#)
- Product Documentation
- vSphere Client

VCP410 Section 7 – Establish Service Levels

Objective 7.1 – Create and Configure VMware Clusters

Knowledge

- Create new cluster
- Add ESX/ESXi hosts to a cluster
- Configure High Availability basic/advanced settings
- Enable/Configure VM Monitoring
- Configure Distributed Resource Scheduler basic/advanced settings
- Configure Distributed Power Management
- Configure Enhanced VMotion Compatibility
- Configure swap file location
- Analyze HA host failure capacity requirements
- Analyze HA admission control
- Determine use cases for DRS automation levels and migration thresholds
- Determine use cases for DPM policies

Tools

- [vSphere Availability Guide](#)
- [vSphere Resource Management Guide](#)
- Product Documentation
- vSphere Client

Objective 7.2 – Enable a Fault Tolerant Virtual Machine

Knowledge

- Identify FT restrictions
- Evaluate FT use cases
- Set up an FT network
- Verify requirements of operating environment
- Enable FT for a virtual machine
- Test an FT configuration
- Upgrade ESX hosts containing FT virtual machines

Tools

- [vSphere Availability Guide](#)
- Product Documentation
- vSphere Client

Objective 7.3 – Create and Configure Resource Pools

Knowledge

- Determine Resource Pool requirements for a given situation
- Evaluate appropriate shares, reservations, and limits in a given situation
- Evaluate virtual machines for a given Resource Pool
- Create Resource Pools
 - Set CPU resource shares/reservations/limits
 - Set memory resource shares/reservations/limits
- Define Expandable Reservation
- Add virtual machines to pool
- Describe resource pool hierarchy

Tools

- [vSphere Resource Management Guide](#)
- Product Documentation
- vSphere Client

Objective 7.4 – Migrate Virtual Machines

Knowledge

- Identify compatibility requirements
- Cite the three methods of virtual machine migration
- Determine migration use cases
- Compare and contrast migration technologies
- Migrate a virtual machine using VMotion
- Migrate a virtual machine using Storage VMotion
- Cold migrate a virtual machine

Tools

- [vSphere Datacenter Administration Guide](#)
- Product Documentation
- vSphere Client

Objective 7.5 – Backup and Restore Virtual Machines

Knowledge

- Describe different back-up/restore procedures and strategies
- Create/Delete/Restore Snapshots
- Install Backup and Recovery Appliance
- Install vCenter Data Recovery plug-in
- Create a backup job with vCenter Data Recovery
- Perform test and actual restores using vCenter Data Recovery

Tools

- [VMware Data Recovery Administration Guide](#)
- Product Documentation
- vSphere Client
- Backup and Recovery Appliance

VCP410 Section 8 – Perform Basic Troubleshooting and Alarm Management

Objective 8.1 – Perform Basic Troubleshooting for ESX/ESXi Hosts

Knowledge

- Understand general ESX Server troubleshooting guidelines
- Troubleshoot common installation issues

- Monitor ESX Server system health
- Understand how to export diagnostic data

Tools

- [VMware ESXi and vCenter Server Setup Guide](#)
- [VMware ESX and vCenter Server Installation Guide](#)
- Product Documentation
- vSphere Client

Objective 8.2 – Perform Basic Troubleshooting for VMware FT and Third-Party Clusters

Knowledge

- Analyze and evaluate VM population for maintenance mode considerations
- Understand manual Third-Party failover/failback processes
- Troubleshoot Fault Tolerance partial or unexpected failovers

Tools

- [vSphere Availability Guide](#)
- Product Documentation
- vSphere Client

Objective 8.3 – Perform Basic Troubleshooting for Networking

Knowledge

- Verify VM is connected to the correct port group
- Verify port group settings are correct
- Verify that the network adaptor is connected within the VM
- Verify VM network adaptor settings
- Verify physical network adaptor settings
- Verify vSphere network management settings

Tools

- [ESX Configuration Guide](#)
- [ESXi Configuration Guide](#)
- Product Documentation
- vSphere Client
- ping, vmkping, tcpdump, nslookup

Objective 8.4 – Perform Basic Troubleshooting for Storage

Knowledge

- Identify storage contention issues
- Identify storage over-commitment issues
- Identify storage connectivity issues
- Identify iSCSI software initiator configuration issues
- Interpret Storage Reports and Storage Maps

Tools

- [FC SAN Configuration Guide](#)
- [iSCSI SAN Configuration Guide](#)
- Product Documentation
- vSphere Client

Objective 8.5 – Perform Basic Troubleshooting for HA/DRS and VMotion

Knowledge

- Explain the requirements of HA/DRS and VMotion
- Verify VMotion functionality
- Verify DNS settings
- Verify the service console network functionality
- Interpret the DRS Resource Distribution Graph and Target/Current Host Load Deviation
- Troubleshoot VMotion using topology maps
- Troubleshoot HA capacity issues
- Troubleshoot HA redundancy issues

Tools

- [vSphere Availability Guide](#)
- [vSphere Resource Management Guide](#)
- Product Documentation
- vSphere Client
- DRS Resource Distribution Graph
- Topology Maps
- `cpuid`, `ping`, `vmkping`

Objective 8.6 – Create and Respond to vCenter Connectivity Alarms

Knowledge

- List vCenter default connectivity alarms
- List possible actions for connectivity alarms
- For a given alarm, analyze and evaluate the affected virtual infrastructure components
- Create a vCenter connectivity alarm
- Relate the alarm to the affected components

Tools

- [vSphere Datacenter Administration Guide](#)
- Product Documentation
- vSphere Client

Objective 8.7 – Create and Respond to vCenter Utilization Alarms

Knowledge

- List vCenter default utilization alarms
- List possible actions for utilization alarms
- For a given alarm, analyze and evaluate the affected virtual infrastructure resource
- Create a vCenter utilization alarm
- Relate the alarm to the affected resource

Tools

- [vSphere Datacenter Administration Guide](#)
- Product Documentation
- `esxtop/resxtop`
- Performance Charts
- vSphere Client

Objective 8.8 – Monitor vSphere ESX/ESXi and Virtual Machine Performance

Knowledge

- Identify critical performance metrics (e.g., CPU ready, queue depth, etc.)
- Explain memory metrics (ballooning, shared, etc.)
- Explain CPU metrics (ready/wait time, etc.)
- Explain network metrics (usage, packet drops, etc.)

- Explain storage metrics (latency, queuing, etc.)
- Compare and contrast Overview and Advanced Charts
- Create an Advanced Chart
- Determine host performance using guest Perfmon

Tools

- [vSphere Resource Management Guide](#)
- Product Documentation
- esxtop/resxtop
- Performance Charts
- vSphere Client

Section 4: VCP Paths and Course Requirement Options

4.1 VCP Path Options



4.2 Course Requirement

In order to obtain the VCP Certification, an authorized VMware course is required. Several options are available, including:

VMware vSphere: Install, Configure, Manage

A five-day, hands-on training course that explores installation, configuration and management of VMware® vSphere™, which consists of VMware ESXi/ESX™ and VMware vCenter™ Server. The course covers the following objectives:

- Install and configure ESX or ESXi
- Install and configure vCenter Server components
- Configure and manage ESX/ESXi networking and storage using vCenter Server
- Deploy, manage, and migrate virtual machines
- Manage user access to the VMware infrastructure
- Use vCenter Server to monitor resource usage
- Use vCenter Server to increase scalability
- Use VMware vCenter Update Manager to apply ESX/ESXi patches
- Use vCenter Server to manage higher availability and data protection r

This course covers a majority of the objectives on the VCP410 exam and is recommended for individuals who want to gain a better understanding of the objectives represented in the VCP410 exam.

VMware vSphere: Bootcamp

A five-day, extended hours hands-on training course focused on installing, configuring, managing, and troubleshooting VMware® vSphere™. It combines the content of the VMware vSphere 4: Install, Configure, Manage course with advanced tasks and skills for troubleshooting a highly available and scalable virtual infrastructure. The course covers the following objectives:

- Install and configure ESX/ESXi
- Install and configure vCenter Server components
- Use vCenter Server to configure and manage ESX/ESXi networking and storage
- Deploy, manage, convert, and migrate virtual machines
- Manage user access to the vSphere infrastructure
- Use vCenter Server to monitor resource usage
- Use vCenter Server to increase scalability
- Use VMware vCenter Update Manager to apply ESX/ESXi patches
- Use vCenter Server to manage higher availability and data protection
- Use the VMware vSphere Client and command-line utilities to configure, manage, and troubleshoot a vSphere infrastructure
- Configure and use a network packet capture utility to display and troubleshoot virtual switch network traffic

This course covers a majority of the objectives on the VCP410 exam, as well as additional learning objectives that are not a part of the exam. It is recommended for individuals who want to gain a better understanding of the objectives represented on the VCP410 exam which learning additional vSphere topics focused on availability and scalability.

VMware vSphere: Troubleshooting

This lab-intensive, four-day course focuses on providing system administrators with the advanced knowledge, skills, and abilities to achieve competence in troubleshooting a VMware vSphere™ virtual infrastructure. In this course, students spend a majority of the time diagnosing and rectifying configuration problems created on VMware® ESX™/ESXi hosts and VMware vCenter™ Server systems. The course covers the following objectives:

- Use the VMware vSphere Client and service console commands to configure or diagnose and rectify problems on ESX
- Use the vSphere Client and the VMware vSphere Management Assistant (vMA) appliance to configure or diagnose and rectify problems on ESX and ESXi hosts
- Use ESXi technical support mode to diagnose and rectify problems on ESXi
- Create and use a network sniffer to capture and display virtual switch network traffic
- Use the vSphere Client and command-line tools to troubleshoot VMware VMotion™, VMware Storage VMotion, VMware High Availability, VMware Distributed Resource Scheduler, and virtual machine power-on problems

This course is recommended for experienced individuals who are thoroughly familiar with the VCP410 objectives and are looking to further their knowledge of VMware vSphere troubleshooting techniques.

VMware vSphere: What's New

This 2-day, hands-on training course focuses on the new features found in VMware vSphere™, including new features related to VMware® ESX™/ESXi hosts and VMware vCenter™ Server systems. The course also covers upgrade procedures, and covers the following objectives:

- Upgrading VMware deployments from VMware Infrastructure 3 to vSphere 4
- Deploying distributed virtual switches to simplify datacenter-wide network management
- Using VMDirectPath to assign a PCI adapter directly to a virtual machine
- Migrating live virtual machine's storage resources with VMware Storage VMotion
- Growing virtual disks and VMware vStorage VMFS datastores while they are live
- Employing VMware's new Pluggable Storage Architecture
- Ensuring application availability with VMware Fault Tolerance
- Managing multiple vCenter Server installations from a single client
- Using Host Profiles to keep hosts uniformly configured
- Saving energy with Distributed Power Management
- Saving disk space with Thin Provisioning

- Administering virtual appliances consisting of multiple virtual machines

This course is recommended for VCP3 certified professionals who are looking to upgrade their certification to vSphere 4. This course CANNOT be use as a requirement for certification unless the candidate already possesses a VCP3 certification.

Section 5: Additional Resources

5.1 Mock Exam

VMware provides a mock exam for the VCP410. The mock exam contains sample questions, along with explanation for incorrect responses. The mock exam presents xx questions, drawn from a larger pool. The mock exam pass score is set to 100%, and a candidate can retake the mock exam as many times as desired until the 100% score is achieved. Please be advised that the pass score for the mock exam is unrelated to the pass score for the actual exam. Refer to section 1.3 for the scoring information for the VCP410 exam.

The mock exam is located at: http://mylearn.vmware.com/quiz.cfm?item=15211&ui=www_cert

5.2 VCP Community

VMware provides an online community for VCP candidates. This community contains valuable information from other candidates and senior VCPs, and is moderated by VMware certification staff. The community is located at: <http://communities.vmware.com/community/vmtn/certedu/certification/vcp>

5.3 VMware vSphere: Certified Professional Exam Preparation Workshop

VMware offers a one day class designed to prepare candidates for the VCP410. The workshop covers the main objectives of the exam, includes practice questions, an instructor-led answer and review session and reviews of case studies that highlight key points of the vSphere suite. A VCP410 exam voucher is included with the class. More information, available dates and enrollment can be found at: <http://www.vmware.com/education>

5.4 Building a vSphere Test Environment

All VMware products, including vSphere 4, can be downloaded and evaluated for 60 days. If you have the equipment to install a copy of ESX/ESXi 4.x, you can install ESX in a VM. This would allow you to install multiple copies of ESX and a copy of vCenter Server. For shared storage, obtain a virtual appliance that contains an iSCSI target. Several of these are available on the [appliance marketplace](#).