

VMware vSphere-4.1 Master Administration Training

Course Content

□ Module 1: Introduction

- ❖ What is Virtualization?
- ❖ A Virtual Machine
- ❖ How Virtualization Works
- ❖ VMware History
- ❖ Virtualization using a Bare-Metal Hypervisor
- ❖ ESX Server Architecture

□ Module 2-0: Virtual Infrastructure Overview

- ❖ Discussion of virtualization and virtual infrastructure components
- ❖ Understand the concept of virtualization
- ❖ Identify the benefits of using a virtual machine
- ❖ Describe vSphere components
- ❖ Describe scenarios for using virtualization

□ Module 3-0: ESX-4.1 Host Installation & configuration Administration

- ❖ Hardware Prerequisites
- ❖ ESX Host Maximums
- ❖ Configure Boot BIOS
- ❖ Setup ESXi Installable
- ❖ Partitioning an x86 Disk
- ❖ Understanding ESX & ESXi 4.1 Virtual & Physical Partitions Creation
- ❖ LAB 0: Install ESX-4.1 Server on Local Volume
- ❖ Installing ESX & ESXi-4.1 through GUI
- ❖ Installing ESX-4.1 through CUI
- ❖ Installing ESX & ESXi-4.0 through GUI
- ❖ Installing ESX-4.0 through CUI
- ❖ Login ESX Server Physical Console After Install

- ❖ Accessing ESX through the vSphere Client and Web Access login
- ❖ Upgrading ESX-4.0 to ESX-4.1
- ❖ Set-up ESX Server Configurations
- ❖ Enable the SSH login for root user
- ❖ Enabling VMware –web Access service
- ❖ Configure VMware –web Access as a startup service
- ❖ Enabling ESXi Console for troubleshooting
- ❖ ESX host Open in New window for managing individual
- ❖ Configuring Authentication Services
- ❖ Join ESX host to Domain
- ❖ Select trusted domain if required
- ❖ Configuring licensing features
- ❖ Date & Time configuration
- ❖ DNS & Routing Configuration
- ❖ Configuring ESX Power Management

□ Module 4-0: vCenter-4.1 Installation & Configuration Administration

- ❖ vCenter Server Overview
- ❖ Preparing VC Databases
- ❖ Maintaining VC Database
- ❖ vCenter-4.1 Components
- ❖ vCenter-4.1 Architecture
- ❖ Hardware and Software Prerequisites
- ❖ vCenter-4.1 Database
- ❖ VMware License Server (Centralized Licensing)
- ❖ vCenter-4.1 Server Services
- ❖ VI Client Overview
- ❖ ESX Server and vCenter-4.0 Communication
- ❖ Managing Across Geographies
- ❖ Backup Strategy for vCenter-4.0 Server
- ❖ vCenter-4.1 Inventory: Multiple Data Centers
- ❖ vCenter-4.1 Inventory: Clusters
- ❖ 8.0: Install SQL-Native client drivers

- ❖ 8.1:Configuring ODBC database for Vcenter-4.0
- ❖ 8.2: Install vCenter Server 4.0
- ❖ 9.0: Add Host to vCenter-4.0 Inventory
- ❖ 9.1: Troubleshooting vCenter Services problems
- ❖ vCenter 4.0 Log collection

□ **Module 4-1:Linked Mode Administration**

- ❖ Linked Mode Prerequisites
- ❖ Linked Mode Considerations
- ❖ Joining vCenter Server to member of DC
- ❖ Join a Linked Mode Group
- ❖ Isolating vCenter Server from a Linked Mode Group
- ❖ Linked Mode Troubleshooting

□ Module 4-2: vCenter Server Administration

- ❖ vCenter Server Settings Overview
- ❖ vCenter Licensing
- ❖ vCenter Statistics
- ❖ vCenter Runtime settings
- ❖ vCenter Mail alert configuration
- ❖ Configure vCenter SNMP traps
- ❖ vCenter SSL Settings
- ❖ Configure vCenter Advanced Settings

□ Module 5-0: Network Administration

- ❖ Comparison of Physical & Virtual Networking
- ❖ Virtual Networking Components
- ❖ Understanding Standard & Distributed Virtual Switches

□ Module 5-1: vSwitch Network Administration

- ❖ Virtual Switch “vSwitch Maximums”
- ❖ Adding & Configuring vSwitch Through VC
- ❖ Adding & Configuring vSwitch Through SC
- ❖ Network Connections
- ❖ Virtual Switch Property: Ports
- ❖ Virtual Switch Property: Network Adapters
- ❖ Port Group Property: VLANs
- ❖ Virtual Switch and Port Group Policies
- ❖ Security Policy
- ❖ Traffic-Shaping Policy
- ❖ NIC Teaming Policy
- ❖ Adding & Configuring NIC Teaming for vSwitch
- ❖ Adding & Configuring NIC Teaming for Service Consoles
- ❖ Adding & Configuring NIC Teaming for VM Networks
- ❖ Load-Balancing
- ❖ Detecting and Handling Network Failure

- ❖ 2.0: Create Virtual Switches
 - 2.1: Adding & Configuring NIC Teaming for vSwitch
 - 2.2: Adding & Configuring NIC Teaming for Service Consoles
 - 2.3: Load-Balancing
 - 2.4 Configuring vSwitch, Service Console and VMkernel using these commands
 - esxcfg-vswitch, esxcfg-vswif and esxcfg-vmknic
- ❖ 3.0: Design Networking
 - 3.1: Adding & Configuring vSwitch Through VC
 - 3.2: Adding & Configuring vSwitch Through SC
 - 3.3: Detecting and Handling Network Failure

□ Module 5-2: DvSwitch Network Administration

- ❖ DvSwitch Overview
- ❖ DvSwitch Maximums
- ❖ Creating DvSwitch and DvPortGroups
- ❖ Configuring a vNetwork Distributed Switch
- ❖ Configuring dvPort Groups

- ❖ Adding ESX hosts to DvSwitch
- ❖ Configuring vNetwork Distributed Switch Network Adapters
- ❖ Manage virtual adapters
- ❖ Manage Physical Adapters
- ❖ Configure VLANs
- ❖ Migrating vSwitch Configurations “Service Console and VMkernels to DvSwitch
- ❖ Migrating Virtual Machines from vSwitch portgroup to DvPortGroup
- ❖ Migrating DvSwitch Configurations “Service Console and VMkernels to Standard vSwitch
- ❖ Migrating Virtual Machines from DvSwitch PortGroups to Standard vSwitch

□ Module 6-0: Storage Administration

- ❖ Storage Overview
- ❖ VMFS Overview
- ❖ Storage Maximums

- ❖ How Fibre Channel is used with ESX Server
- ❖ Addressing SAN LUNs in the VMkernel
- ❖ Making SAN Storage Available to ESX Server
- ❖ How iSCSI is used with ESX Server
- ❖ How iSCSI Storage Authenticates the ESX Server
- ❖ iSCSI Software and Hardware Initiators
- ❖ VMFS
- ❖ Multipathing with Fiber Channel
- ❖ Multipathing with iSCSI
- ❖ Manage Multiple Paths
- ❖ Volume Grow / Hot VMDK Extend
- ❖ Service Console Storage
- ❖ How NAS/NFS is used with ESX Server
- ❖ Addressing and Access Control with NFS
- ❖ 4.0: iSCSI Storage
 - 4.1: Multipathing with iSCSI
- ❖ 5.0: VMFS Data store
- ❖ 6.0: Extend a VMFS
 - 6.1: Manage Multiple Paths
 - 6.2: Addressing and Access Control with NFS

□ Module 7-0: Virtual Machine Administration

- ❖ Virtual Machine Overview
- ❖ Virtual Machine Maximums
- ❖ Display a Virtual Machine's Files using the vSphere Client
- ❖ Display a Virtual Machine's Files using the webAccess
- ❖ Virtual Machine File types
- ❖ Virtual Machine Virtual Hardware
- ❖ Creating Virtual Machine using typical mode
- ❖ Creating Virtual Machine using typical custom mode
- ❖ Virtual Machine Console
- ❖ Install Guest Operating System into a Virtual Machine
- ❖ Deploying Across DataCenters
- ❖ Virtual Appliances
- ❖ Move VM Between ESX Servers: Cold Migration
- ❖ Modify Virtual Machine Settings
- ❖ 10.0: Create a Virtual Machine
- ❖ 14.0: Allow Virtual Machine Access to a Raw LUN

- ❖ 15.0: Accessing Virtual Machines in VCenter-4.0
- ❖ 15.1: VMware power operation using vmware-cmd “soft, trysoft and hard” commands

□ Module 7-1: Cloning & Templates Administration

- ❖ Clone VM to VM
- ❖ Clone the VM to Template
- ❖ Convert the VM to Template
- ❖ Deploy a Virtual Machine from Template
- ❖ Hot Cloning
- ❖ Cold Cloning
- ❖ Guest Operating System Customization

□ Module 7-2: Guided Consolidation Administration

- ❖ Guided Consolidation Overview
- ❖ Guided Consolidation Maximums
- ❖ Guided Consolidation Prerequisites
- ❖ Guided Consolidation Settings
- ❖ Adding to Analyze Physical Machines
- ❖ Viewing analysis Results
- ❖ Converting Physical Hosts to Virtual Machines

□ Module 7-3: VMware Converter Enterprise Administration

- ❖ Overview of VMware Converter Enterprise (P2V)
- ❖ Installing VMware Converter Enterprise
- ❖ Installing VMware Converter Enterprise Plug-in
- ❖ Importing a Physical Machine to Virtual Machine

□ Module 8-0: Cluster Administration

- ❖ Overview of VMware Clustering
- ❖ VMware Cluster Components
- ❖ VMware Cluster Prerequisites
- ❖ Prepare the ESX hosts for clustering
- ❖ Understanding VMware Enhanced vMotion Compatibility (EVC)
- ❖ Configure a Virtual Machine Swapfile Location for a Cluster

□ Module 8-1: Host Profiles Administration

- ❖ Host Profile Overview
- ❖ Host Profile Maximums
- ❖ Creating a Host Profile
- ❖ Editing a Host Profile
- ❖ Attaching the Profile to ESX hosts
- ❖ Associating & Applying a Host Profile

- ❖ Checking for Host Profile compliance
- ❖ Applying a Host Profiles
- ❖ Exporting/Importing Host Profiles

□ **Module 8-2: Resource Pool Administration**

- ❖ Resource Pool Overview
- ❖ Creating Standalone Resource Pool
- ❖ Managing resource allocations
- ❖ Manage CPU Reservation & Limitation allocations
- ❖ Manage RAM Reservation & Limitation allocations
- ❖ Manage Storage Reservation & Limitation allocations

□ Module 8-3: DRS Cluster Administration (Distributed Resource Scheduler)

- ❖ How Virtual Machines Compete for Resources
- ❖ Creating a Resource Pools
- ❖ Configuring a Pool's Resources
- ❖ Move VM Between ESX Servers: VMotion Migration
- ❖ How VMotion Works
- ❖ Virtual Machine Requirements for VMotion
- ❖ Host Requirements for VMotion
- ❖ What a DRS Cluster Is
- ❖ Create a DRS Cluster
- ❖ Enable or Disable VMware DRS
- ❖ Configure Advanced Options
- ❖ Configure the DRS Automation Level
- ❖ Using Affinity Rules
- ❖ Managing DRS Groups
- ❖ Customize DRS for Virtual Machines
- ❖ Set Cluster Power Management Options

- ❖ Configure Host Options for the Power Management Setting
- ❖ Best Practices for DRS
- ❖ Resource Pools in a DRS Cluster
- ❖ Delegated Administration
- ❖ Monitor Cluster Usage
- ❖ Planned Downtime: Maintenance Mode
- ❖ 16.0: Resource Pools on a Standalone Host
- ❖ 17.0: Migrate Virtual Machines Using vMotion
- ❖ 18.0: Create a DRS Cluster
- ❖ 19.0: Resource Pools in a DRS Cluster
 - 19.1: Checking Resource balancing
- ❖ VMware vCenter DPM/IPMI
- ❖ Enabling IPMI
- ❖ Enabling Power Management in a Cluster

□ Module 8-4: vApp Configuration & Deployment Administration

- ❖ vApp Overview
- ❖ Create a vApp
- ❖ Edit vApp Settings
- ❖ Configuring IP Pools for vApp
- ❖ Power On / Off a vApp
- ❖ Export vApp into OVF & OVA formats
- ❖ Export and deploy vApp

□ Module 8-5: HA Cluster Administration (High Availability Protection)

- ❖ HA Cluster Overview
- ❖ HA Cluster Maximums
- ❖ Creating vSwitch and PortGroups Network for HA

- ❖ Creating a vCenter High Availability (HA) Cluster
- ❖ Adding Hosts to High Availability (HA) Cluster
- ❖ Add the LUN 2 and 4 to your first ESX Server. This is shared LUNs for your VMs. The second ESX Server should see this LUN after performing a rescan
- ❖ Viewing High Availability (HA) Cluster Settings
- ❖ Modifying High Availability (HA) Cluster Settings
- ❖ Enable or Disable VMware HA
- ❖ Configure VMware HA Options
- ❖ Customize HA for Virtual Machines
- ❖ Virtual Machine Monitoring
- ❖ Configure VM Monitoring Settings
- ❖ Virtual Machine High Availability
- ❖ Clustering Inside VMs for High Availability
- ❖ 22.0: Using VMware HA
 - 22.1: Checking HA network failovers
 - 22.1: Checking HA VM failovers

□ Module 8-6: Fault Tolerance Administration

- ❖ Fault Tolerance Overview
- ❖ How Fault Tolerance Works
- ❖ Fault Tolerance Configuration Requirements
- ❖ Preparing Your Cluster and Hosts for Fault Tolerance
- ❖ Preparing Virtual Machine
- ❖ Turning On Fault Tolerance for Virtual Machines
- ❖ Failing Primary Fault Tolerance Virtual Machine
- ❖ Failing Secondary Fault Tolerance Virtual Machine
- ❖ Fault Tolerance Best Practices
- ❖ Checking Secondary Fault Tolerance VM to become Primary Fault Tolerance VM
- ❖ Troubleshooting Fault Tolerance

□ Module 9-0: Performance Monitoring Administration

- ❖ Systems for Optimizing VM Resource Use
- ❖ Monitoring Virtual Machine Performance
- ❖ Performance-Tuning Methodology
- ❖ Monitoring VM Resource Use with Performance Graphs
- ❖ Tools for Improving VM CPU and Memory Performance
- ❖ Monitoring Using Performance-Based Alarms
- ❖ Monitor Virtual Machine Performance
- ❖ Host-Based and VM-Based Performance Alarms
- ❖ Checking ESX performance through Service Console
- ❖ Checking VM performance Statistics through Service Console

□ Module 9-1: Hardware Status Monitoring

- ❖ Architectural Overview
- ❖ Hardware Status Information
- ❖ Available diagnostic data
- ❖ Enabling/Disabling CIM providers

□ Module 10-0: Data Recovery Administration

- ❖ Backup Strategies
- ❖ What To Back Up
- ❖ General Guidelines for Virtual Machine Backups
- ❖ Installing Data Recovery Plug-in
- ❖ Installing Data Recovery Appliance
- ❖ Configuring DR IP Address Settings
- ❖ Login to DR through vCenter Server

- ❖ Creating Storage Destination to store the backups
- ❖ Creating Schedules for taking VM backups
- ❖ Restoring Data Backup Images to VMs

□ **Module 11-0: Security Administration**

- ❖ vSphere Security Overview
- ❖ vSphere Security Components

□ **Module 11-1: Security Profile Administration**

- ❖ Security Profile Overview
- ❖ Enable & Disable the ESX Services
- ❖ Allow & Deny incoming & outgoing network traffic

□ **Module 11-2: Firewall Security Administration**

- ❖ Firewall Overview
- ❖ Port Enabling & Disabling for ESX Services
- ❖ Allow & Deny incoming & outgoing network traffic

□ **Module 11-3: vShield Zones (Virtual Firewall) Administration**

- ❖ vShield Zones Overview
- ❖ vShield Zones Components
- ❖ Deploying vShield Manager appliance
- ❖ Configure vShield Manager appliance
- ❖ Deploying vShield appliance
- ❖ Converting vShield to Template
- ❖ Setting up the vShield Manager network and time
- ❖ vShield Manager User Interface Basics

- ❖ Installing vShield using vShield Manager
- ❖ Backing Up vShield Manager Data
- ❖ User Management
- ❖ Configuring Application name space
- ❖ Configuring Layer 4, Layer 3 and 2 firewall rules
- ❖ Configure Allow and Deny inbound and out bound network traffic
- ❖ Check the traffic details through the VMflow and VMwall
- ❖ vShield Management
- ❖ Firewall Management
- ❖ Uninstall vShield through the vShield Manager

□ Module 12: vCenter Schedules Administration

- ❖ Schedules Overview
- ❖ Virtual Machine Schedules Administration
- ❖ Host Schedules Administration
- ❖ Resource Pool Schedules Administration
- ❖ Monitoring Current Schedules

□ Module 13: Alarms Administration

- ❖ vSphere Alarms Overview
- ❖ Configuring Alarms in vCenter level
- ❖ Configuring Alarms in Datacenter, Networking level
- ❖ Configuring Alarms in Host & Cluster level
- ❖ Configuring Alarms in Data store & VM level
- ❖ Configuring Alarms actions

□ Module 14: Access Control Administration

- ❖ Controlling administrator rights
- ❖ Security Model Overview
- ❖ Creating and Defining Users and Groups in ESX server and vCenter Server
- ❖ Creating Roles in Host Connection

- ❖ Creating Roles in VC Connection
- ❖ Creating Roles and checking dependencies
- ❖ Creating Roles using Privileges
- ❖ Assigning Roles to Users and Groups in ESX session and vCenter Server session.
- ❖ User sessions Administration
- ❖ Configuring session authentication time out
- ❖ Configure Active Directory list View
- ❖ VCenter-4.0 Security Model
- ❖ ESX Server Security Model

□ **Module 15: Events & Logs Administration**

- ❖ Generating ESX Log bundles for VMware Support
- ❖ Generating vSphere vCenter Server Log Bundle
- ❖ Generating vSphere Client Server Log Bundle
- ❖ Changing vCenter Server log generation Options
- ❖ Clearing Events & Logs from Database

□ Module 16: Update Manager Administration

- ❖ Overview
- ❖ Configure Database for update-manager
- ❖ Create a 32-Bit DSN on a 64-Bit OS
- ❖ Installing Update Manager
- ❖ Configuring update manager patch downloads
- ❖ Configuring update manager Settings
- ❖ Importing Host Upgrade Release Files
- ❖ Creating Baselines and Baseline Groups
- ❖ Attaching Baselines and Baseline Groups
- ❖ Scanning Selected vSphere Objects
- ❖ Remediating Selected hosts

Additional Administration Activities

❑ **Module 19: OpenFiler VirtualSAN Installation & Configuration**

- ❖ Installing & Configuring OpenFiler
- ❖ Deploy OpenFiler OVF Template
- ❖ Configuring iSCSI Targets
- ❖ Configuring iSCSI Targets network security

❑ **Module 20: EMC2 Navisphere VirtualSAN simulator Installation & Configuration**

- ❖ Installing Navisphere on WinXP
- ❖ Creating RAID Groups
- ❖ Creating STORAGE Groups
- ❖ Creating LUN's
- ❖ Binding LUN's to particular hosts

□ Module 21: Cisco Nexus1000v Centralized Networking switch Installation & Configuration

- ❖ Overview of Nexus 1000v
- ❖ Nexus 1000v Maximum
- ❖ Deploy Virtual Supervisor Module (VSM) from OVF template
- ❖ VSM and VMware vCenter Integration
- ❖ Deploy Virtual Ethernet Module from OVF template
- ❖ VEM-to-VSM Communication
- ❖ Creating Port Profiles for Control, Management and Packet
- ❖ Virtual Ethernet Profiles
- ❖ Live Policy Changes
- ❖ Creating Virtual Ethernet Profiles
- ❖ Creating Ethernet or Uplink Profiles
- ❖ System VLAN's
- ❖ Configuring VSM Clustering
 1. Standalone, Primary and Secondary

❑ **Module 22: vSphere Management Assistant Administration**

- ❖ Deploy vMA
- ❖ Configure vMA at First Boot
- ❖ Configure vMA for Active Directory Authentication
- ❖ Configure Unattended Authentication for Active Directory Targets
- ❖ Troubleshooting Unattended Authentication
- ❖ Enable the vi-user Account
- ❖ Add Target Servers to vMA
- ❖ Running vSphere CLI for the Targets
- ❖ Reconfigure a Target Server
- ❖ Remove Target Servers from vMA
- ❖ Modifying Scripts
- ❖ Shut Down vMA
- ❖ Vifptarget command for vi - fastpass Initialization
- ❖ Vifp Target Management Commands
- ❖ Vifp addserver
- ❖ Vifp removeserver
- ❖ Vifprotatepassword
- ❖ Vifp listservers
- ❖ Vifp reconfigure

□ **Module 23: VMware ESX / ESXi Host Design Administration**

- ❖ Number of Hosts
- ❖ Number of Hosts CPUs
- ❖ Number of vCPUs
- ❖ Number of Hosts Memory
- ❖ Service Console Memory
- ❖ Service Console SWAP
- ❖ Host Naming and Address
- ❖ Host Security

□ **Module 24: VMware vSphere Network Design Administration**

- ❖ Designing switch & portgroup failover
- ❖ Designing hosts networks for VMs
- ❖ Designing hosts networks for NFS
- ❖ Designing hosts networks for iSCSi

- ❖ Designing hosts networks for Vmotion
- ❖ Designing hosts networks for FT
- ❖ STP
- ❖ Domain Name System Design
- ❖ NIC Teams and Load Distribution

□ **Module 25: VMware vSphere Storage Design Administration**

- ❖ iSCSI, NFS, SAN Storage Benefits
- ❖ NFS Storage Size
- ❖ VMFS Block size
- ❖ Reducing SCSI Storage Latency
- ❖ NFS Storage Access
- ❖ iSCSI Access
- ❖ ESX Boot from SAN]
- ❖ Thin & Thick VMDKs

□ Module 26: VMware Virtual Machine Design Administration

- ❖ Maximizing memory performance
- ❖ Number of Virtual CPUs
- ❖ Multiple Virtual Disks
- ❖ Virtual Disk locations
- ❖ Swap file location
- ❖ Virtual NICs
- ❖ Virtual Machine Security
- ❖ Virtual Machine Naming Conversions

□ Module 27: VMware vSphere Management Design Administration

- ❖ Designing hosts Configuration
- ❖ vCenter Server Users & Groups
- ❖ Management Cluster
- ❖ vSphere Client and plug-in
- ❖ Statistics Collection Level
- ❖ CDP, CIM and SNMP

□ Module 28: VMware vCenter Orchestrator

- ❖ Introduction to vCenter Orchestrator
- ❖ Orchestrator System Requirements
- ❖ Hardware Requirements
- ❖ Install vCenter Server and Orchestrator
- ❖ Configuring Orchestrator
- ❖ vCenter Server Setup
- ❖ Directory Services Setup
- ❖ Orchestrator Database Setup
- ❖ Back Up Orchestrator Configuration Data
- ❖ Back Up Modified and Custom Orchestrator Elements

**This course specially designed for Master vSphere-4.1 Administration
We Provide 100% Real-Time LAB Practical's with Job Assistance**

Total duration of the course: - 20 Working days

Duration of the course per day: - 3 Hours

Course fee: - 17000Rs (INR) * service tax will be extra *****

Online Training Fee details: -

Course fee: - 20000Rs (INR) * service tax will be extra *****

Terms & Conditions

1. Additional Administration Tasks will be covered on weekends only.
2. Online LAB Access will be provided 24/7 for 30day's as per additional payment.
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