

# **CXS-203-1 Citrix XenServer 6.0 Administration**

In the Citrix XenServer 6.0 classroom training course, students are provided the foundation necessary to effectively install, configure, administer, and troubleshoot XenServer 6.0. Students will also learn how to configure a Provisioning Services host, and create and manage vDisks in a XenServer environment. Through the use of hands-on labs, students will acquire the skills needed to configure the Distributed Virtual Switch (DVS) as well as Workload Balancing (WLB). Students will also create and manage Windows virtual machines and the resource pools in which they will be placed.

## **Audience**

This course is designed for IT professionals, Administrators, Architects, Systems Engineers.

## **Preparatory Recommendations**

Prior to taking this course, Citrix recommends that learners possess the following:

- A basic overall knowledge of virtualization technology
- An understanding of computing architecture, including network and storage devices, device drivers and operating systems
- Basic experience installing and administering Microsoft Windows Server 2003 or Windows Server 2008
- Basic experience installing and administering Linux variants
- Intermediate knowledge of network devices and site architecture, including configuring VLANs
- Basic knowledge of storage terminology and technologies, including partitions, SANs, LUNs, iSCSI, NFS, and CIFS file shares

## **Key Skills**

In this course, students will learn the skills necessary to configure and administer XenServer 6.0, XenCenter, and Provisioning Services 6.0. Through hands-on labs, students will gain experience with:

- Installing and Implementing XenServer
- Creating and Managing Networks
- Configuring Storage
- Managing and Maintaining Virtual Machines
- Installing and Configuring Provisioning Services
- Managing vDisks and Target Devices
- Implementing Resource Pools
- Implementing the Distributed Virtual Switch (DVS)
- Implementing Workload Balancing (WLB)
- Configuring High Availability
- Managing and Troubleshooting XenServer

## **Instructional Method**

This course is available in a classroom and self-paced online (SPO) format and includes access to a live lab environment.

## **Course Length**

5 days/30 hours

## Certification Preparation

This course prepares learners for [Exam A26 Citrix XenServer 6.0 Administration](#), a requirement for the [CCA for Citrix XenServer 6](#).

## Registration

For more information and to register for this course, please go to [www.citrixeducation.com](http://www.citrixeducation.com).

## Topic Outline

Provided is the outline for CXS-203-1:

### Module 1: Introduction to XenServer

- XenServer Product Line
- Product Simplification
- Product Simplification
- Architectural Changes
- Virtual Appliances and Broader Vendor Support
- Microsoft System Center Integration
- XenDesktop Integration
- Enhanced Operating System Support
- Other Enhancements and Improvements
- XenServer Architecture Overview
- XenCenter Overview
- Resource Pools
- XenServer Storage Overview
- XenServer Networking Overview
- Provisioning Services Overview

### Module 2: Installing and Configuring XenServer

- XenServer Installation
- Virtual Machine Storage
- Installing Single and Multiple Disk Systems
- Installing XenServer
- Pre-Installation Checklist
- XenServer Installation Process
- IntelliCache
- Configuring NTP
- XenCenter Installation and Management Consoles
- XenCenter Consoles
- XenServer Licensing Components
- License File Management
- Citrix License Server Virtual Appliance
- Obtaining License Files
- License Management Console
- Managing XenServer Users
- Key Benefits of Active Directory Integration
- Configuring Active Directory Integration
- End-User Authentication Using Active Directory
- Active Directory Integration
- External Authentication Process
- Role-Based Access Control
- Roles
- Security Logs

### Module 3: XenServer Networking

- XenServer Networking Overview

- Network Stacks Supported by XenServer
- Network Components and Architecture
- Network Architecture Diagram
- Network Adapter Drivers
- Private-Server and External Networks
- VLAN Support and Components
- Initial Network Setup
- NIC Bond
- NIC Bonding Architecture
- Load Balancing
- NIC Bond Configuration for Resource Pools

#### **Module 4: XenServer Storage Repositories**

- Storage Technologies
- Virtual Disk Image Formats
- Storage Technology Comparison
- XenServer Storage Architecture
- Storage Repository Architecture
- Multiple Storage Repositories
- Local Storage Repositories
- Virtual Disk Size
- Storage Capability Comparison
- NFS Storage Overview
- NFS Architecture
- NFS Virtual Disks
- NFS Remote Storage Configuration and Recommendations
- iSCSI Storage Overview
- iSCSI Architecture
- iSCSI Adapters
- iSCSI Setup Configuration and Recommendations
- Resizing a Storage Repository
- Resizing a Storage Repository - iSCSI
- Resizing a Storage Repository - HBA
- Fibre Channel SANs Overview
- Fibre Channel Architecture
- LUN Device Path
- Dedicated NIC Bonds for Remote Storage
- Dedicated Remote Storage Interface Configuration
- Storage Multipathing
- Citrix StorageLink Overview
- Citrix StorageLink Storage Repository
- StorageLink Supported Array Types
- Upgrading to StorageLink with XenServer

#### **Module 5: Creating and Managing Virtual Machines**

- Windows Virtual Machine Architecture
- Virtual Memory and Disk Size Limits for Windows Virtual Machines
- Virtual Device Support for Windows Virtual Machines
- Installation from an ISO
- ISO Libraries
- To Create a Windows Virtual Machine
- Linux Distributions
- Creating Linux Virtual Machines
- XenServer Tools
- XenServer Tools for Windows Virtual Machines
- XenServer Tools for Linux Virtual Machines
- To Install XenServer Tools

- Life Cycle Operations
- Suspend and Resume
- Deleting a Virtual Machine
- Virtual Machine Templates
- Virtual Machine Snapshots
- To Create a Template from a Windows Virtual Machine
- Creating a Template from a Linux Virtual Machine
- Exporting a Virtual Machine
- Copying a Virtual Machine
- Assigning Resources to a Virtual Machine
- Importing a Virtual Machine
- Modifying Virtual Machine or Template Resources
- Virtual Disks
- Virtual Disk Sizes
- Virtual NICs
- Virtual CPUs
- Memory
- Virtual Appliance Packages
- To Create Virtual Appliances
- Exporting an Appliance Package
- To Export an Appliance Package
- Importing an Appliance Package
- To Import an Appliance Package
- XenConvert Overview
- Physical Machine Conversion
- Converting from Physical to Virtual Machine
- Performing a PV Conversion
- Dynamic Memory Control
- Dynamic Memory Control Optimization
- Static Memory Range
- DMC Behavior when Launching New Virtual Machines

## **Module 6: Installing and Configuring Provisioning Services**

- Provisioning Services Technology
- Provisioning Services for XenServer
- Citrix Provisioning Services Components
- Citrix Provisioning Services Infrastructure
- Provisioning Services Administration
- Administrative Roles
- Key Services
- DHCP Deployment Options
- DHCP Configuration
- Installation Planning
- Provisioning Services Farm Design
- Farms
- SQL Database Server
- SQL Database Authentication and Configuration
- Configuration Wizard User Permissions
- Service Account Permissions
- Sites
- Stores
- Storage Requirements
- Sample vDisk Storage Requirements
- Provisioning Services Installation
- Provisioning Services Configuration
- Store Configuration

- Provisioning Services Hosts in the Console
- Target Device Connections
- Server Properties
- Target Device Collection
- Target Device Template
- Target Device Properties
- Target Device Additions to the Database
- Auto-Add Wizard
- Active Directory Integration
- Domain Password Validation Process
- Automatic Password Renegotiation
- To Integrate Active Directory
- To Reset Computer Accounts for Target Devices

## **Module 7: Managing vDisks and Target Devices**

- vDisk Image Modes
- Standard Image Mode
- Private Image Mode
- Write Caches
- Write-Cache Types
- Cache on Server Disk
- Cache on Server Disk: Local Storage
- Cache on Server Disk: Shared Storage
- Cache on Target Device Hard Drive
- Cache on Target Device Hard Drive: Local Storage
- Cache on Target Device Hard Drive: Shared Storage
- Target Device-based RAM Cache
- Target Device RAM
- Cache Persistent on Server
- Microsoft Licensing for Provisioning Services
- Master Target Device
- Preparing a Master Target Device
- Preparing the Hard Disk of the Master Target Device
- Configuring the BIOS of a Master Target Device
- To Configure the BIOS of a Master Target Device
- Installing Master Target Device Software
- Imaging a Windows Target Device with XenConvert
- vDisk File Creation
- vDisk Lifecycle Operations
- VHD Formats
- Create vDisks Automatically Using Imaging Wizard
- To Create a New vDisk Automatically Using the Imaging Wizard
- Creating a vDisk Manually
- vDisk Management
- Assigning vDisks to Target Devices
- To Assign a vDisk to a Single Target Device
- vDisk Versions
- vDisk Backup
- vDisk Updates
- Autoupdate Tool
- vDisk Update Management Requirements
- To Install Updates Automatically
- Incremental Update Rollback
- vDisk Replication
- vDisk Inventory Service
- High Availability Overview

- Provisioning Services Failover
- Configuring the Boot File for High Availability
- Adding Provisioning Services Hosts to the Boot File
- Enabling High Availability on vDisks
- To Provide Provisioning Services Hosts with Access to Stores
- Considerations for Offline Database Support
- To Enable Offline Database Support
- Stream Logging
- To Enable Logging
- Troubleshoot vDisk Images

### **Module 8: Implementing Resource Pools**

- Resource Pools
- Pool Member Types
- Resource Pool Communication
- Homogeneous Pools
- Heterogeneous Pools
- Shared Configurations
- Adding a Host to a Resource Pool
- To Add a Member to a Resource Pool
- To Remove a Secondary Member from a Resource Pool
- XenMotion
- Migrating a Virtual Machine or Template
- Pool Member Failure Overview
- Failure Detection Process
- To Promote a Secondary Member to a Master

### **Module 9: Distributed Virtual Switching**

- Distributed Virtual Switching Features
- Distributed Virtual Switching Components
- vSwitch Controller Virtual Appliance Deployment
- Accessing the vSwitch Controller
- vSwitch Controller Configuration .
- High Availability
- Monitoring Network Activity
- Viewing Flow Statistics
- Exporting NetFlow Statistics
- Managing Address Groups and Virtual Machine Groups
- Distributed Virtual Switching Policy Configuration Hierarchy
- Access Control List Policies
- Access Control Policies Hierarchy
- Defining Access Control List Rules
- Access Control List Rule Enforcement Order
- Configuring Fail Modes
- Setting Up Port Configuration Policies
- Configuring QoS
- Configuring RSPAN
- To Configure RSPAN
- Configuring Mac Address Spoof Checking
- Cross-Server Private Networks
- Cross-Server Private Network Requirements
- XenMotion with Cross-Server Private Networks
- Recovering from a Failed vSwitch Controller

### **Module 10: Workload Balancing**

- Workload Balancing Overview
- Workload Balancing Key Concepts

- Workload Balancing Components
- To Download the Workload Balancing Virtual Appliance
- Import Considerations for the Workload Balancing Virtual Appliance
- Workload Balancing Configuration
- To Update Workload Balancing Credentials
- Connecting to the Workload Balancing Virtual Appliance
- Workload Balancing Access Control Permissions
- Workload Balancing Settings
- Critical Thresholds
- Critical Threshold Evaluation and Edit
- Metric Weighting
- Fixed and Scheduled Optimization Modes
- Optimization Recommendations
- Workload Balancing Power Management
- Power Management Behavior
- Power Management and Virtual Machine Consolidation
- To Apply Optimization Recommendations Automatically
- Optimal Server Selection
- Host Exclusion from Recommendations

### **Module 11: Configuring High Availability**

- High Availability Requirements
- High Availability Considerations
- Restart Priorities
- Server Failure Tolerance
- Overcommitting
- Host Fencing
- Disaster Recovery
- Disaster Preparedness and Response
- Backup and Recovery of XenServer Hosts and Virtual Machines
- Metadata
- Backing Up a Pool Installation
- To Restore a Pool Installation
- Backing Up Virtual Machines as Snapshots
- To Take a Snapshot of a Virtual Machine
- To Restore a Running XenServer Host
- Listing Snapshots Using the Command-line Interface
- Deleting a Snapshot
- Restoring a Virtual Machine from a Snapshot

### **Module 12: Managing and Troubleshooting XenServer**

- Command-line Interface Overview
- Command-line Interface Operations Targets
- Command-line Interface Basics
- Command-line Interface Shortcuts
- XenServer Menu-Driven Text Console
- Monitoring XenServer
- Using the XenTop Utility to Monitor Host and Virtual Machine Performance
- Logging to a Remote Syslog Server
- To Log Using a Remote Syslog Server
- Events and Alerts
- Alert Customization
- Persistent XenServer Performance Statistics
- Performance Statistics in XenCenter
- XenServer Logs and Reports
- XenCenter Event Logs
- Server Status Reports

- Xen-Bugtool Utility
- XenServer Crashdump Overview
- Generating the Crashdump File in the Command-Line Interface
- Running a Network Trace and Triggering a Memory Dump
- XenServer Updates and Hotfixes
- Update or Hotfix Considerations
- To Update XenServer Hosts Using XenCenter
- To Update Hosts or Pool Using the Command-line Interface
- Rolling Pool Upgrade
- Planning a Rolling Upgrade
- Workload Balancing Reports Overview
- Workload Balancing Reports

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