

## **MOC 50273 B Planning and Designing Microsoft Virtualization Solutions**

### **Course Summary**

#### **Description**

This course provides students with the knowledge and skills to design a complex data center and desktop architecture using Microsoft Windows Server 2008 R2 with Hyper-V or Hyper-V Server 2008 R2, Remote Desktop Services (RDS), System Center Suite, Microsoft Enterprise Desktop Virtualization (MED-V), Application Virtualization 4.6 (APP-V), as well as supporting applications and utilities. The information included in this class will provide students with a solid baseline of technology solutions, architecture considerations, and management requirements that can be integrated to build a successful virtualization infrastructure.

#### **Objectives**

At the end of this course, students will be able to:

- Evaluate benefits of implementing virtualization technologies
- Understand how virtualization technology can be used to create more flexible and dynamic data center and desktop infrastructures
- Understand the selection process for local desktop or central VDI environments
- Design virtualization solutions for datacenter and desktop infrastructures
- Plan virtualization services such as Hyper-V, RDS, MED-V, and APP-V
- Integrate System Center Suite into a virtualization infrastructure to provide an end-to-end management strategy
- Understand and plan virtual machine conversion and deployment options
- Plan enterprise storage solutions to support virtualization infrastructures
- Design high-availability virtualization solutions
- Plan an enterprise backup and recovery strategy

#### **Topics**

- Planning a Virtualization Strategy
- Designing a Virtualization Platform Infrastructure and High-Availability Strategy
- Designing a Virtualized Desktop Infrastructure
- Designing an Application Virtualization Infrastructure
- Designing a Virtualization Infrastructure Management Strategy

#### **Audience**

This course is intended for Infrastructure Architects and Virtualization Specialists who are responsible for designing, deploying, and managing one or more data center or desktop virtualization environments.

#### **Prerequisites**

Before attending this course, students must have:

- Windows Server 2008 R2 knowledge and experience
- Fundamental knowledge of Hyper-V
- Fundamental knowledge of Remote Desktop Services (RDS)
- Fundamental knowledge of Microsoft Enterprise Desktop Virtualization (MED-V)
- Fundamental knowledge of Application Virtualization (APP-V)
- Fundamental knowledge of System Center products including System Center Configuration Manager, System Center Operations Manager, System Center Virtual Machine Manager, and System Center Data Protection Manager

#### **Duration**

Five days

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### Course Outline

#### I. Planning a Virtualization Strategy

This module will review key factors that must be considered when planning a data center or desktop virtualization strategy.

- A. Understanding Virtualization Levels
- B. Defining the Case for Virtualization
- C. Reviewing Virtualization Technologies
- D. Reviewing the System Center Suite
- E. Understanding Licensing Options
- F. Reviewing Integration with Third-Party Products

#### Lab: Hyper-V Server 2008 R2 Installation

- Installing Hyper-V Server 2008 R2
- Configuring Hyper-V Server 2008 R2

#### Lab: Windows XP Mode Installation

- Installing Windows 7
- Install Windows Virtual PC
- Install Windows XP Mode
- Configuring and Launching a Virtual Application

#### Lab: Application Virtualization 4.6 Installation

- Installing Application Virtualization Management Server
- Configuring the Windows Firewall
- Installing Application Virtualization Desktop Client
- Configuring the Default Application
- Launching the Default Application

**After completing this module, students will be able to:**

- Understand the major factors to consider when they begin to architect a data center or desktop virtualization infrastructure.
- Envision a virtualization infrastructure strategy based on a set of basic business and technical requirements.

#### II. Designing a Virtualization Platform Infrastructure and High-Availability Strategy

This module will explain how to design a highly-available server virtualization infrastructure using Windows Server 2008 R2 Hyper-V.

- A. Defining Server Virtualization Scenarios
- B. Defining Hyper-V Base Architectures
- C. Performing a Pre-Design Discovery
- D. Designing a Server Virtualization Infrastructure
- E. Designing the Hyper-V Host Architecture
- F. Designing the Virtual Machine Architecture
- G. Sizing a Hyper-V Host Farm

#### Lab: Configuring and Using MAP 4.0

- Collecting Client Inventory Data
- Assessing Windows 7 Readiness
- Defining and Setting Custom Assessment Properties

#### Lab: Hyper-V Storage Design and Configuration

- Building a Large disk
- Duplicating a Disk
- Designing a Pass-through Disk
- Designing a Mobile Clustering Storage Solution

#### Lab: Hyper-V Virtual Network Design and Configuration

- Virtual Network Design For VM Isolation
- Virtual Network Design Between Virtual Machines Using VLANs
- Virtual Network Design Using VLANs

#### Lab: Hyper-V Platform Virtualization Design Exercise

- Collecting Performance Data
- Obtaining Inventory Data for the Design Exercise
- Design Exercise
- Server Consolidation Using Virtualization

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### Course Outline (cont'd)

#### **Lab: Optional: Two-Node Virtual Machine Failover Cluster**

- Add and Configure Virtual Network Adapters
- Configuring the iSCSI Shared Disks
- Adding the Failover Clustering Feature to the Virtual Machines
- Configuring Failover Clustering on the Virtual Machines
- Using Failover Cluster Manager

#### **Lab: Optional: Two-Node Hyper-V Host Failover Cluster with Live Migration**

- Prepare the Physical Machines
- Configure the iSCSI Target
- Configure the iSCSI Initiator
- Adding the Failover Clustering Feature to the Hyper-V Hosts
- Configuring Failover Clustering on the Hyper-V Hosts
- Configuring Cluster Shared Volumes
- Creating a New Virtual Machine
- Making a Virtual Machine Highly Available
- Configuring Cluster Networks for Live Migration
- Initiating a Live Migration
- Live Migration of a High-Availability Virtual Machine

#### **After completing this module, students will be able to:**

- Understand and design a Windows Server 2008 R2 Hyper-V Virtualization Infrastructure
- Understand Hyper-V storage options and design a storage environment
- Understand Hyper-V virtual networks options and design a virtual network environment
- Understand Hyper-V Snapshots and how to manage a Snapshot hierarchy
- Understand Hyper-V host and virtual machine failover cluster options for high-availability and how to design a high-availability environment

#### **III. Designing a Virtualized Desktop Infrastructure**

This module will explain how to design a virtualized desktop infrastructure based on a local desktop or central VDI strategy.

- A. Defining Desktop Virtualization Scenarios
- B. Designing a Local Desktop Infrastructure
- C. Designing a VDI Deployment using Windows Server 2008 R2 Hyper-V and RDS
- D. Designing an Application Strategy using RemoteApp
- E. Designing a VDI Deployment using Windows Server 2008 R2 Hyper-V and Citrix XenDesktop

#### **Lab: VDI with Windows Server 2008 R2 Hyper-V and RDS Connection Broker**

- Configuring the Hyper-V Host Server
- Configuring the Remote Desktop Session Host Role Service
- Configuring the Remote Desktop Virtualization Host Role Service
- Configuring the Remote Desktop Connection Broker Role Service
- Configuring the Remote Desktop Connection Web Access Role Service
- Configuring the Virtual Machines for RDS
- Configuring the Virtual Machines for Rollback
- Configuring the Virtual Desktop Pool
- Connecting to a Virtual Desktop Pool
- Configuring the Personal Virtual Desktop
- Connecting to a Personal Virtual Desktop

#### **Lab: Using RemoteApp for Hyper-V to Deliver Applications in a VDI**

- Configuring the Virtual Machine Guest Operating System
- Creating an RDP File
- Connecting to the Notepad Application using RemoteApp

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### **Course Outline (cont'd)**

#### **Lab: Scenario-Based Virtualization Desktop Infrastructure Design Exercise**

- Design a Virtualization Desktop Infrastructure

#### **After completing this module, students will be able to:**

- Select and design a virtualized desktop infrastructure
- Design a VDI based on Windows Server 2008 R2 Hyper-V and RDS
- Design an application delivery strategy using RemoteApp

#### **IV. Designing an Application Virtualization Infrastructure**

This module will explain how to design an application delivery infrastructure for virtualized desktops using Application Virtualization 4.6.

- A. Planning an Application Virtualization 4.6 Infrastructure
- B. Designing an Application Virtualization 4.6 Infrastructure
- C. Using Application Virtualization 4.6 with System Center Configuration Manager 2007 R2
- D. Using Application Virtualization 4.6 with RDS

#### **Lab: Using Application Virtualization 4.6 to Deliver Applications in a VDI Scenario**

- Installing Application Virtualization Sequencer
- Sequencing Word Viewer 2003
- Launching the Word Viewer 2003 Application From a Personal Virtual Desktop

#### **After completing this module, students will be able to:**

- Understand the Application Virtualization 4.6 architecture
- Design an Application Virtualization 4.6 Infrastructure for application delivery in a VDI environment

#### **V. Designing a Virtualization Infrastructure Management Strategy**

This module will explain the factors to consider and Microsoft suite of applications available to design a management infrastructure.

- A. Developing a Virtualization Infrastructure Management Environment with the System Center Suite
- B. Developing a Virtual Machine Deployment Strategy
- C. Developing a Virtual Machine Conversion Strategy
- D. Developing an Administrative Strategy
- E. Developing a Virtual Machine Migration Strategy
- F. Developing a Disaster Recovery Strategy
- G. Developing a Maintenance Strategy

#### **Lab: Configuring and Using a System Center VMM Self-Service Portal**

- Configuring Self-Service User Policy
- Logging into a VMM 2008 R2 Self-Service Portal
- Creating a Virtual Machine using the Self-Service Portal

#### **Lab: Performing a P2V Conversion using System Center VMM 2008 R2**

- Performing a P2V Conversion

#### **Lab: Configuration and Use of the Remote Server Administration Toolkit**

- Windows 7 RSAT Installation
- Adding an RSAT Administration Tool for Hyper-V
- Managing a Hyper-V Server using RSAT

#### **Lab: Performing a Virtual Machine Export/Import using System Center VMM**

- Exporting a Virtual Machine Using VMM 2008 R2
- Importing a Virtual Machine Using VMM 2008 R2

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### **Course Outline (cont'd)**

#### **Lab: Performing a Virtual Machine Backup Using System Center DPM**

- Configuring Storage for Use with DPM 2007 SP1
- Installing a DPM Agent in a Virtual Machine
- Creating a Protection Group to Backup a Virtual Machine
- Recovering a Directory to a Virtual Machine

#### **Lab: Offline Virtual Machine Update using System Center ConfigMgr 2007 SP2**

- Configuring the Hyper-V Host Server
- Installing OVMST 2.1 on the VMM Server
- Adding the Hyper-V Host Server as a Managed VMM host
- Configuring the Client Virtual Machine Firewall Settings
- Configuring System Center ConfigMgr 2007 SP2
- Storing the Client Virtual Machine in the VMM Library
- Configuring OVMST 2.1 to Perform an Offline Virtual Machine Update
- Monitoring an Offline Virtual Machine Update using OVMST 2.1

#### **After completing this module, students will be able to:**

- Understand the critical areas of management for a virtualization infrastructure
- Understand the System Center Suite and how it can be used to design a virtualization infrastructure management strategy
- Identify applications and utilities available to perform virtualization infrastructure management tasks