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## **6422 – Implementing & Managing Server Virtualization in Windows Server 2008 (advanced course)**

**3 Day**

This three-day instructor-led course teaches students how to implement and manage Windows Server 2008 Hyper-V. It also teaches students how to manage Hyper-V with Solution Center Virtual Machine Manager (VMM) and with PowerShell.

### **WHO SHOULD ATTEND**

The primary audience for this course is Windows Server 2003/2008 System Administrators who manage and implement Server Virtualization technologies within their network.

The secondary audience for this course is Enterprise System Architects who plan enterprise server resources with an emphasis on server consolidation.

### **PREREQUISITES**

In addition to their professional experience, students who attend this training should have technical knowledge in the following areas.

- Windows Server 2000/2003 System Administration
- Server Virtualization using Virtual Server 2005 or Virtual PC

### **AT COURSE COMPLETION**

After completing this course, students will be able to:

- Install and configure Windows Server 2008 Hyper-V.
- Understand Hyper-V Virtual Networking.
- Understand the types of Virtual Hard Drives and their benefits.
- Create and manage Virtual Machines on the Hyper-V server.
- Understand how to configure the Hyper-V server to ensure high availability.
- Monitor the performance of the Hyper-V server.
- Understand how to use existing virtual machines in the Hyper-V server.



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- Understand the issues with migrating existing Virtual Machines to Hyper-V.
- Understand how System Center Virtual Machine Manager (VMM) can be used to manage Hyper-V servers throughout the enterprise.
- Use PowerShell to manage the Hyper-V server and the virtual machines hosted on the Hyper-V server.
- Implement a disaster recovery plan for Virtual Machines on Hyper-V.

## LESSON TOPICS

### **Module 1: Introduction to Windows Server 2008 Hyper-V**

This module introduces the concepts related to and the history of server virtualization. Through this module, the student will understand the business need for virtualization and how virtualization fits into their existing environment. Selecting the required hardware and basic installation and configuration are also covered.

#### **Lessons**

- Introducing Windows Server 2008 Hyper-V
- Hyper-V Requirements
- Installing the Hyper-V Server Role
- Configure Hyper-V to Be Highly Available

#### **Lab : Install Hyper-V and Perform Initial Configuration**

- Install Hyper-V
- Explore the Hyper-V Management Console

After completing this module, students will be able to:

- Explain the need for virtualization and list the benefits of Hyper-V on Windows Server 2008.
- List the hardware requirements for Hyper-V.
- Install the Hyper-V server role.
- Recognize the key areas of the Hyper-V management console.

### **Module 2: Configure Hyper-V Settings and Virtual Networks**

This module provides information on the configuration options available on the Hyper-V server and the Hyper-V Virtual Networks.



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### Lessons

- Configuring Hyper-V Options
- Configuring the Virtual Network

### Lab : Configuring Hyper-V and Virtual Networks

- Configure Hyper-V Server Settings
- Configure Hyper-V Virtual Networks

After completing this module, students will be able to:

- Understand the configurable settings available in the management console.
- Understand Hyper-V Virtual Networking.
- Understand the configurable options for the Virtual Network.
- Understand how to either isolate the virtual machine from the enterprise network or ensure access to the server on the network.

### Module 3: Hyper-V Remote Administration

This module explores the requirements for remote management of the Hyper-V Server and the tools available for remote management.

### Lessons

- Configuring Hyper-V Remote Administration
- Connecting to Hyper-V Remotely

### Lab : Accessing and Managing Hyper-V Remotely

- Configure the Windows Firewall
- Install the Hyper-V Manager on Windows Vista
- Connect to the Hyper-V Server Remotely

After completing this module, students will be able to:

- Understand how to configure the Hyper-V server to allow remote administration.
- Understand the options available to connect to the Hyper-V server and the scenarios to which these options apply.
- Configure Windows Firewall and Remote Desktop Protocol (RDP) to facilitate remote connectivity.



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## **Module 4: Creation of Virtual Hard Drives and Virtual Machines**

This module explores the creation of the Hyper-V Virtual Machines and their associated Virtual Hard Drives. The options available for the Virtual Machines and the types of Virtual Hard Drives will be covered. This module also covers the importance of Hyper-V Integration Services and Hypervisor.

### **Lessons**

- Creating Virtual Hard Drives
- Creating Virtual Machines

### **Lab : Creating Virtual Hard Drives and Virtual Machines**

- Creating New Virtual Hard Disks
- Creating New Virtual Machines

After completing this module, students will be able to:

- Understand the types of Virtual Hard Drives and their benefits.
- Create and manage Virtual Machines on the Hyper-V server.

## **Module 5: Virtual Machine Settings, Snapshots, and High Availability**

This module explores the settings available on each Virtual Machines hosted on the Hyper-V server and how to use and manage Virtual Machine snapshots. The module will also cover configuring Hyper-V for high availability and performance monitoring on the Hyper-V server.

### **Lessons**

- Managing Virtual Machine Settings
- Using Virtual Machine Snapshots
- Configuring Hyper-V for High Availability
- Monitoring Hyper-V Performance

### **Lab : Managing Virtual Machine Settings**

- Configure Virtual Machine Settings
- Monitor Hyper-V Performance

After completing this module, students will be able to:

- Configure the settings on the Virtual Machine.
- Use and manage Hyper-V Virtual Machine snapshots.



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- Configure the Hyper-V server to ensure high availability.
- Monitor the performance of the Hyper-V server, understand the factors that may affect server performance, and troubleshoot performance issues.

### **Module 6: Migration of Virtual Machines to Hyper-V**

This module provides instruction on how to migrate virtual machines hosted on earlier virtualization technologies to the Hyper-V server.

#### **Lessons**

- Migrating Legacy Virtual Machines
- Understanding the Impact of Migrated VMs

#### **Lab : Migrating Legacy Virtual Machines to Hyper-V**

- Migrate Existing Virtual Machines to Hyper-V
- Troubleshoot Issues on the Migrated VMs

After completing this module, students will be able to:

- Understand how to use existing Virtual Machines in the Hyper-V server.
- Understand the issues with migrating existing Virtual Machines to Hyper-V.

### **Module 7: Introduction to System Center Virtual Machine Manager**

This module introduces System Center Virtual Machine Manager and shows how it can be used to manage Hyper-V servers throughout an enterprise.

#### **Lessons**

- Introducing System Center Virtual Machine Manager
- Managing Virtual Machines with VMM

#### **Lab : Using VMM to Manage Hyper-V**

- Configuring VMM
- Managing Hosts
- Creating a New Virtual Machine
- Creating a VM from an Existing Hard Disk
- Converting a VMware Virtual Machine
- VMM Administration



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After completing this module, students will be able to:

- Understand how System Center Virtual Machine Manager can be used to manage Hyper-V servers throughout the enterprise.
- Understand how to manage Hyper-V Virtual Machines using VMM.

### **Module 8: Managing the VMM Virtual Machine Image Library and Checkpoints**

This module explores the Virtual Machine image library and checkpoints available in System Center Virtual Machine Manager.

#### **Lessons**

- Using the VMM Library
- Managing the Image Library in VMM
- Managing Checkpoints

#### **Lab : Using the VMM Library**

- Configuring Library Resources
- Working with Templates
- Creating Profiles
- Deploying a Virtual Machine from the Library
- Creating a Self-Service Policy

#### **Lab : Managing Checkpoints**

- Performing Checkpoint Operations

After completing this module, students will be able to:

- Use of Virtual Machine Image Library.
- Manage and provide access to the Image Library in VMM.
- Use of the Hyper-V Image Library.

### **Module 9: Windows PowerShell and Disaster Recovery**

This module explores how to use PowerShell to manage the Hyper-V server. This module also explores how to backup Virtual Machines in Hyper-V.

#### **Lessons**

- Using PowerShell to Manage Hyper-V



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- Virtual Machine Backup and Recovery

**Lab : Using PowerShell with VMM**

- Introducing the VMM Command Shell
- Using Basic PowerShell Cmdlets
- Using VMM Cmdlets
- PowerShell Scripts in VMM Wizards
- Creating a Simple VMM Script

**Lab : Creating Backups**

- Using Windows Server Backup to Backup Virtual Machines

After completing this module, students will be able to:

- Use PowerShell to manage the Hyper-V server and the Virtual Machines hosted on the Hyper-V server.
- Implement a disaster recovery plan for Virtual Machines on Hyper-V.