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## Implementing a Software-Defined Datacenter MCSE Core Infrastructure (Option)

DURATION: 5 DAYS

COURSE CODE: M20745

FORMAT: LECTURE/LAB

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### COURSE DESCRIPTION

Install and manage Hyper-V on Windows Server 2016

In this course, you will discover how to implement and manage virtualization infrastructure in a software-defined datacenter by using System Center 2016 Virtual Machine Manager. The course also describes how to monitor the infrastructure by using System Center Operations Manager and protect it by using Data Protection Manager.

### WHO SHOULD ATTEND

IT professionals and administrators who are responsible for designing, implementing, and managing virtualization infrastructure in a software-defined datacenter by using System Center 2016 Virtual Machine Manager

Experienced IT professionals who support medium to large enterprises who are responsible for designing, implementing, managing, and maintaining a virtualization infrastructure

Individuals who determine which virtualization product to implement in their data centers

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### PREREQUISITES

An understanding of TCP/IP and networking concepts

An understanding of different storage technologies and concepts

Familiarity with different types of virtualizations

Familiarity with Windows Server and Windows Server administration

An understanding of Windows PowerShell

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### LEARNING OBJECTIVES

Virtualization options

Install and configure System Center 2016 Virtual Machine Manager

Manage storage fabric and fabric updates

Configure and manage the Virtual Machine Manager library and library objects

Manage the networking fabric

Create and manage virtual machines by using Virtual Machine Manager

Manage clouds in Virtual Machine Manager

Manage services in Virtual Machine Manager

Monitor virtualization infrastructure by using System Center Operations Manager

Implement and manage Hyper-V Replica and Azure Site Recovery

## COURSE OUTLINE

- 1. Introduction to Server Virtualization**
  - Overview of Microsoft Virtualization
  - Introduction to the software-defined datacenter
  - Extending virtualization to the cloud
- 2. Overview of Hyper-V Virtualization**
  - Installing and configuring the Hyper-V role
  - Creating and managing virtual hard disks and virtual machines
  - Creating and using Hyper-V virtual switches
  - Implementing failover clustering with Hyper-V
- 3. Installing and Configuring System Center 2016 Virtual Machine Manager**
  - Overview of System Center 2016 VMM
  - Installing System Center 2016 VMM
  - Adding hosts and managing host groups
- 4. Managing Storage Fabric and Fabric Updates**
  - Overview of server virtualization storage technologies
  - Managing storage fabric
  - Managing fabric updates
- 5. Configuring and Managing the Virtual Machine Manager Library and Library Objects**
  - Overview of the VMM library
  - Preparing Windows for deployment in VMM
  - Working with profiles
  - Working with virtual machine templates
- 6. Managing the Networking Fabric**
  - Networking concepts in VMM
  - Managing Software-Defined Networking
  - Understanding network function virtualization
- 7. Creating and Managing Virtual Machines by using Virtual Machine Manager**
  - Virtual machine management tasks
  - Creating, cloning, and converting virtual machines
- 8. Managing Clouds in System Center 2016 Virtual Machine Manager**
  - Introduction to clouds
  - Creating and managing a cloud
  - Creating user roles in VMM
- 9. Managing Services in Virtual Machine Manager**
  - Overview of services in VMM
  - Creating and managing services in VMM
- 10. Monitoring a Virtualization Infrastructure by using System Center Operations Manager**
  - Operations Manager architecture and security
  - Using Operations Manager for monitoring and reporting
  - Integrating Operations Manager with VMM and DPM
- 11. Implementing and Managing Hyper-V Replica and Azure Site Recovery**
  - Implementing and managing Hyper-V Replica
  - Implementing and managing Azure Site Recovery
- 12. Protecting a Virtualization Infrastructure by using Data Protection Manager**
  - Overview of backup and restore options for virtual machines
  - Configuring and managing DPM for virtualization infrastructure protection

## DISCOVERY LABS

1. **Evaluating Virtualization Options**
  - Selecting the appropriate virtualization method
  - Creating Azure virtual machines
2. **Creating and Managing Virtual Hard Disks and Virtual Machines**
  - Installing and configuring the Hyper-V server role
  - Creating a Nano Server virtual machine
  - Configuring virtual machines and virtual hard disks
3. **Implementing Failover Clustering with Hyper-V**
  - Creating a Hyper-V failover cluster
  - Managing a Hyper-V failover cluster
4. **Installing and Configuring System Center 2016**
  - Installing and configuring System Center 2016
  - Managing hosts and host groups
  - Managing an Azure Subscription by using VMM
5. **Managing Storage Fabric and Fabric Updates**
  - Implementing a storage infrastructure
  - Creating a file server cluster and a storage QoS policy
  - Managing fabric updates
6. **Configuring and Managing VMM library and Library Objects**
  - Configuring and managing a VMM library
  - Creating a Windows image for the VMM library
  - Creating and managing profiles and templates
7. **Creating and Configuring the Networking Fabric**
  - Associating virtual network adapters of Hyper-V hosts
  - Deploying Network Controller
8. **Configuring and Testing Hyper-V Network Virtualization**
  - Configuring Hyper-V Network Virtualization
  - Provisioning and testing tenant virtual machine networks
9. **Creating and Managing Virtual Machines by using System Center 2016 VMM**
  - Creating a virtual machine and modifying its properties
  - Creating and Managing Checkpoints
  - Cloning and migrating a virtual machine
10. **Managing Clouds in System Center 2016 VMM**
  - Creating a private cloud
  - Creating user roles
11. **Managing Services in VMM**
  - Creating a service template
  - Deploying a service and updating service template
  - Scaling out service and updating the service
12. **Monitoring a Virtualization Infrastructure by using Operations Manager**
  - Implementing the Operations Manager agents
  - Integrating Operations Manager with VMM
13. **Implementing and managing Hyper-V Replica and Azure Site Recovery**
  - Configuring and Managing Hyper-V Replica
  - Configuring and Managing Azure Site Recovery
14. **Protecting Virtualization Infrastructure by using DPM**
  - Configuring a DPM server and installing DPM protection agents
  - Creating and configuring protection groups
  - Recovering VMs and other data
  - Providing online protection with DPM