Exam 70-246/Course 20246D
Monitoring and Operating a Private Cloud

Prerequisites

This course describes how to monitor and operate a cloud with System Center 2012 R2. Because this is an extensive technical domain that includes several individual products and technologies, it is strongly recommended administrators have prerequisite knowledge in the following areas:

- Windows Server 2012 experience.
- Active Directory Domain Services (AD DS) knowledge.
- Networking experience.
- Working knowledge of previous versions of System Center products.
- Knowledge of configuration of Microsoft SharePoint.
- Hyper-V knowledge.
- Microsoft Azure.
- Knowledge of cloud and data center management processes.
- Storage Area Network (SAN) Knowledge.

Course Outline

Module 1: Introduction to the Cloud Model
This module explains the key business and technical requirements behind choosing a cloud model and the elements it contains. The module also shows how to use Microsoft System Center 2012 R2 to monitor and operate clouds, ensuring that it is configured correctly and running in a healthy state. Finally, you will use System Center to verify cloud infrastructure for the cloud environment.

Lessons

- Overview of the Cloud Computing Model
- Requirements for a Private Cloud
- Requirements for a Public or Hybrid Cloud
- Operating a Hybrid Cloud Infrastructure with System Center
- Maintaining the Health of a Cloud
- Integrating System Center Components

Lab : Verifying the Private Cloud Infrastructure
After completing this module, you will be able to describe:

- The key features of a cloud computing model.
- Private cloud requirements
- Public cloud requirements.

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- How System Center 2012 R2 can be used to monitor and manage a hybrid cloud.
- How to maintain the health of a hybrid cloud infrastructure.
- How to integrate System Center components.

Module 2: Configuring a Private Cloud Environment
This module examines how Microsoft System Center 2012 R2 - Virtual Machine Manager (VMM) plays a pivotal role in the private cloud. The module first provides an overview of Virtual Machine Manager, and will then show how it is used to manage a virtual environment. Additionally, this module explains how to create private clouds by using Virtual Machine Manager. In the lab, you will create a private cloud and then optimize it so that is ready for production use.

Lessons

- Overview of System Center 2012 R2 Virtual Machine Manager
- Managing the Virtual Environment with Virtual Machine Manager
- Creating Clouds

Lab : Configuring and Optimizing a Microsoft Private Cloud
After completing this module you will be able to:

- Describe the, key features, architecture, and security features of Virtual Machine Manager, including the role that it plays in a cloud environment.
- Manage a cloud infrastructure using Virtual Machine Manager.
- Configure private cloud resources and security.

Module 3: Deploying Cloud Services
This module reviews the key elements that form a service in VMM and how the service is deployed to the private cloud.

Lessons

- Overview of Service Templates
- VMM Profiles
- Web Deploy Packages
- Overview of Server App-V
- Data-Tier Application Packages
- Deploying Services through App Controller

Lab : Importing and Deploying the StockTrader Application
After completing this module, you will be able to:

- Create service templates.
- Create VMM machine profiles.
- Create Web Deploy packages.

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- Sequence applications by using Server App-V.
- Create data-tier application packages.
- Deploy services by using App Controller.

Module 4: Monitoring Cloud Based Applications

Module 1 explained how the health of the private cloud infrastructure is monitored with Microsoft System Center 2012 R2 Operations Manager. This is important in maintaining the underlying infrastructure that the private cloud relies on. This module shows how Operations Manager is used to monitor the services deployed in a cloud.

Lessons

- Overview of System Center 2012 R2 Operations Manager
- Agent Deployment in Operations Manager
- Configuring Custom Monitoring
- Monitoring the Network Infrastructure
- Monitoring Distributed Applications

Lab : Monitoring Private Cloud Services
After completing this module, you will be able to:

- Describe Operations Manager, including its key features, security and architecture.
- Deploy agents in Operations Manager to application servers.
- Configure custom monitoring for applications and services in the cloud.
- Monitor the networking infrastructure that applications and services rely upon.
- Monitor Distributed Applications.

Module 5: Configuring Application Performance Monitoring

This module explains how to configure APM to monitor the performance and availability of a .NET application. Additionally, it discusses how Operations Manager 2012 R2 detects and reports failure of these monitors with its alerting and diagnostics tools.

Lessons

- Application Performance Monitoring
- Advanced Monitoring in APM
- Viewing Application Performance Data in Operations Manager

Lab : Configuring Application Performance Monitoring
After completing this module, you will be able to:

- Describe APM including the core components and best practices when using APM.
- Configure advanced monitoring in APM.
- View Application Performance Monitoring data in Operations Manager.

Module 6: Operating and Extending Service Management in the Private Cloud
This module covers the core features of Service Manager and the security model that supports it. It also covers how to map critical IT processes to Service Manager, and how to use the features of Service Manager to administer these processes. Additionally, the module describes methods to create and manage change requests, incidents, and release records.

Lessons

- Overview of Service Manager
- Configuring Security and User Roles
- Configuring Work Items
- Configuring Incident Queues
- Configuring Service Offerings for a Cloud

Lab : Operating and Extending Service Management in a Cloud
After completing this module, you will be able to:

- Describe Service Manager.
- Configure security and user roles.
- Configure work items.
- Configure incident queues.
- Configure service offerings.

Module 7: Automating Incident Creation, Remediation, and Change Requests
This module describes Orchestrator, reviews the integration features that are available through the installation of the System Center Integration Packs, and explains the processes to follow when configuring automation between Service Manager and Operations Manager.

Lessons

- Overview of System Center 2012 R2 Orchestrator
- Integrating Orchestrator with Operations Manager and Service Manager

Lab : Automating Incident Creation, Remediation and Change Requests
After completing this module, you will be able to:

- Describe Orchestrator including Integration Packs.
- Configure integration between Orchestrator, Operations Manager and Service Manager.

Module 8: Problem Management in the Private Cloud

This module explains how a defined set of processes can help reduce the time to resolve problems. It also reviews how incidents and problems are managed within Service Manager. Additionally, this module explains how the integration of Microsoft System Center 2012 R2 Service Manager, System Center 2012 R2 Orchestrator, and System Center 2012 R2 Operations Manager can provide an automated method of generating problem records in Service Manager.

Lessons

- Overview of Problem Management
- Creating Custom Rules

Lab : Automating Problem Management in the Private Cloud
After completing this module, you will be able to:

- Describe problem management.
- Create custom rules.in Operations Manager.

Module 9: Operating a Self Service, Multi-Tenant Cloud with Windows Azure Pack

In this module you will learn how the Windows Azure Pack can be used to provide a self-service portal for tenants and administrators, and a multi-tenant framework for onboarding users. You will also learn how to provision web site, virtual machine and service bus clouds as well as looking at providing database services and automation.

Lessons

- Windows Azure Pack Key Concepts
- Administer Windows Azure Pack
- Windows Azure Pack Providers

Lab : Operating a self-service multi-tenant cloud
On completion of this module you will be able to:

- Describe the key features, architecture, components, and security features of Windows Azure Pack.
- Describe the Windows Azure Pack concepts.
- Provision and Configure services in the Windows Azure Pack.

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Module 10: High Availability, Protection, and Recovery for the Cloud

This module explains how to manage a highly available cloud Infrastructure using SQL Server 2012 Always-On, Hyper-V Replica and Azure Site Recovery. This module also details how to use Microsoft System Center 2012 R2 - Data Protection Manager (DPM) to provide data protection for a cloud.

Lessons

- High Availability for a Cloud
- Protecting Data in the Private Cloud
- Recovering Data in the Private Cloud

Lab : Cloud Protection and Recovery
After completing this module, you will be able to configure:

- High availability for a cloud.
- Data protection for a cloud.
- Data recovery for a cloud.

Module 11: Optimizing Your Cloud Infrastructure

You will learn how Configuration Manager can be used to provide update management for Virtual Machines hosted in a cloud infrastructure. You will also learn how System Center Advisor can be used to optimize and manage cloud infrastructure by providing best practice guidelines for the configuration of the servers hosting cloud infrastructure. Finally you will learn how Pro-Tips can be used to optimize the virtualized environment and provide automated remediation when problems are detected in the environment.

Lessons

- Using Virtual Machine Manager to Keep the Cloud Infrastructure Up-to-Date
- Using Configuration Manager to keep Virtual Machines up-to-date
- Using System Center Advisor to Optimize Cloud infrastructure
- Using Pro-Tips to Optimize Cloud infrastructure

Lab : Optimizing your Cloud Infrastructure
After completing this module, you will be able to:

- Update the host infrastructure with Virtual Machine Manager.
- Update the host and guest infrastructure with Configuration Manager.
- Optimize your platform with System Center Advisor.
- Optimize your virtual machine workloads with Pro-Tips.

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Module 12: Configuring SLAs, Dashboards, and Widgets

As an IT operations toolset, Microsoft System Center 2012 R2 produces and collects a vast array of data. The challenge for IT organizations as a whole is to gather this information and present it in a meaningful way to the relevant stakeholders. This module explains the various available methodologies within System Center to collect, measure, and scorecard the performance and availability of the private cloud infrastructure.

Lessons

- Service Level Tracking
- Configuring and Deploying Widgets and Dashboards
- Publishing Real-Time State with Microsoft Visio Snap-in
- System Center Analytics
- Using Excel and SSRS to View Data
- Configuring Service Reporting

Lab : Configuring SLAs, Dashboards, and Widgets
After completing this module, you will be able to:

- Configure Service Level Tracking in Operations Manager.
- Configure and deploy dashboards and widgets.
- Publishing real-time dashboards with Microsoft Visio.
- Use System Center analytics.
- Analyze Service Manager OLAP cube data using Microsoft Office Excel.

Install, configure and use Service Reporting to create chargeback reports.