MOC 10992 B: Integrating On-Premises Core Infrastructure with Microsoft Azure

Course Summary

Description

This three-day instructor-led course covers a range of components, including Azure Compute, Azure Storage, and network services that customers can benefit from when deploying hybrid solutions. In this context, the term hybrid means integrating infrastructure technologies that customers host in on-premises datacenters with Azure IaaS and PaaS services. This course offers an overview of these services, providing the knowledge necessary to design hybrid solutions properly. It also includes a number of demonstrations and labs that enable students to develop hands-on skills that are necessary when implementing such solutions.

Objectives

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

- Describe the core concepts of Azure.
- Explain the primary methods for integrating an on-premises environment with Azure Virtual Machines and Azure Cloud Services.
- Describe Azure hybrid networking technologies.
- Describe the Azure services that provide data storage, management, and analytics capabilities in hybrid scenarios.
- Explain the use of Azure disaster recovery and business continuity solutions for on-premises environments.
- Explain how to design and implement cross-premises applications.
- Describe Azure monitoring and management solutions that offer hybrid capabilities.

Topics

- Introduction to Microsoft Azure
- Integrating with Azure Compute services
- Integrating with Microsoft Azure virtual networks
- Integrating with Azure Storage and data services
- Designing and implementing Azure Site Recovery solutions
- Designing and implementing cross-premises applications
- Integrating operations and application monitoring and management

Audience

This course is intended for IT professionals and development operations (DevOps) professionals who are well versed in on-premises technologies and who have some knowledge of cloud technologies but want to learn more about integrating their on-premises environments with Azure. These professionals should have at least three years of experience working in their respective fields—typically, in the areas of on-premises system administration or network administration, in addition to DevOps support. These IT professionals have broadly applicable administration and operational skills, and they generally work for both enterprise-level organizations and small and medium business environments.

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Course Summary (cont'd)

More specifically, the intended audience includes:

- IT professionals who have used on-premises virtualization technologies, including both Hyper-V and VMware platforms, but who want to deploy, configure, and administer services and virtual machines in Azure.
- IT professionals who have used Microsoft System Center to manage and orchestrate an on-premises server infrastructure.
- Windows and Linux administrators who are looking to evaluate and migrate on-premises workloads and services to the cloud.
- IT professionals who need to implement network connectivity between on-premises environments and services that Azure or Microsoft Office 365 hosts.
- IT professionals who want to use Azure to increase the resiliency and agility of their on-premises environments.
- DevOps personnel who are considering deploying hybrid solutions that consist of both cloud-based and on-premises components.
- IT professionals and DevOps personnel who are experienced in other non-Microsoft cloud technologies, who meet the course prerequisites, and how are looking to cross-train on Azure.

Prerequisites

Before attending this course, students must have:

- An understanding of on-premises virtualization technologies, including virtual machines, virtual networking, and virtual hard disks.
- An understanding of network configuration, including TCP/IP, Domain Name System (DNS), VPNs, firewalls, and encryption technologies.
- An understanding of web applications, including creating, configuring, monitoring, and deploying web applications on Internet Information Services (IIS).
- An understanding of Active Directory concepts, including domains, forests, domain controllers, replication, the Kerberos protocol, and Lightweight Directory Access Protocol (LDAP).
- Knowledge of Windows Server 2012 and Windows Server 2016 fundamentals.
- Knowledge of Windows PowerShell command-line interface basics.
- Knowledge of cloud computing basics.

Duration

Three days

MOC 10992 A: Integrating On-Premises Core Infrastructure with Microsoft Azure

Course Outline

I. Introduction to Microsoft Azure

This module starts with a general overview of cloud computing, and then focuses on Microsoft Azure and its technologies that offer integration opportunities. It also introduces the most common methods of interacting with Azure, including the Azure portals, Azure PowerShell, Azure Command-Line Interface (CLI), and Microsoft Visual Studio. The module concludes by covering Azure deployment models, which dictate how you provision and manage Azure services.

A. Overview of cloud computing and Azure
B. Overview of the Azure deployment models

Lab : Use Azure portal, Azure PowerShell, and Microsoft Visual Studio to deploy and manage Azure resources

- Deploying Microsoft Azure VMs by using the Azure portal
- Deploying Azure VMs by using Azure PowerShell
- Creating and deploying an Azure Resource Manager deployment template
- Identify and delete newly deployed resources

II. Integrating with Azure Compute services

This module explores the different compute resources available in Azure in the context of hybrid scenarios. It first explains the differences between Azure Virtual Machines and Azure Cloud Services and how you can use each of them to migrate on-premises workloads. Next, it describes the process of migrating on-premises virtual machines to Azure by using virtual machine images and disks. It also explains the process of extending Big Compute workloads to Azure by integrating them with on-premises high performance computing (HPC) deployments and by using Azure Batch. The module concludes with an explanation on containers and Azure Service Fabric.

A. Overview of Azure virtual machines and Azure cloud services
B. Migrating workloads to Azure virtual machines by using virtual machine images and disks
C. Extending HPC workloads to Azure
D. Integrating compute workloads by using containers and Azure Service Fabric

Lab : Uploading an on-premises virtual disk file to Azure

- Preparing for an upload of a virtual disk file to Azure
- Uploading a virtual disk file to Azure

Lab : Moving containers between on-premises Hyper V virtual machines and Azure virtual machines

- Creating a Docker host by using Docker Machine
- Deploying a private Docker Registry in Azure

III. Integrating with Microsoft Azure virtual networks

This module introduces the Azure Virtual Network service and its components. It also describes how to implement Azure virtual networks and integrate them with your on-premises computing resources by establishing direct network connectivity between the two environments.

A. Overview of Azure Virtual Network Service
B. Extending on-premises networks to Azure

Lab : Implementing a point-to-site VPN by using Azure Resource Manager

- Preparing a Microsoft Azure subscription for implementing a point-to-site VPN
- Completing the point-to-site VPN setup
- Testing a point-to-site VPN from an on-premises virtual machine

IV. Integrating with Azure Storage and data services

This module starts with a description of Azure Storage types and their capabilities. It then describes Azure Backup, StorSimple hybrid storage solution, Microsoft SQL Server Stretch Database, Azure Data Factory with Data Management Gateway, and Azure Content Delivery Network. It concludes with a detailed walkthrough of the implementation of Azure Recovery Services agent-based and Microsoft Azure Backup Server-based backups.

A. Overview of Azure Storage and data services
B. Implementing Azure Backup for on-premises workloads

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Course Outline (cont'd)

Lab : Implementing the Azure Recovery Services agent-based backups

- Preparing your Microsoft Azure subscription for the implementation
- Configuring a virtual machine for Azure Recovery Services agent-based backups
- Testing the backup of the virtual machine files and folders
- Testing the restore of the virtual machine files and folders

V. Designing and implementing Azure Site Recovery solutions

This module presents the main features of Azure Site Recovery and the scenarios it supports. It also describes the planning considerations for Azure Site Recovery, the different types of implementations of Azure as a disaster recovery site for on-premises workloads, and the disaster recovery capabilities that StorSimple offers. You will become familiar with the process of planning Site Recovery deployment and will step through a sample deployment.

A. Overview of Site Recovery
B. Planning for Site Recovery
C. Implementing Site Recovery with Azure as the disaster recovery site

Lab : Implementing protection of on-premises Hyper-V virtual machines in Azure by using Site Recovery

- Preparing your Microsoft Azure subscription for implementing Site Recovery
- Preparing your Hyper-V host for the implementation
- Configuring Site Recovery protection of a Hyper-V virtual machine

VI. Designing and implementing cross-premises applications

This module presents the most common solutions that facilitate implementation of cross-premises applications, including Azure RemoteApp, Traffic Manager, and Hybrid Connections with the Web Apps feature of Azure App Service. It also describes the process of implementing cross-premises solutions for desktop, web, and mobile apps.

A. Overview of cross-premises application capabilities and their design considerations
B. Implementing cross-premises solutions for desktop, web, and mobile apps

Lab : Implementing Traffic Manager

- Creating two instances of an organizational website using the Web Apps feature of Azure App Service
- Creating and configuring an Azure Traffic Manager profile
- Testing the distribution of traffic targeting the Azure Traffic Manager profile

VII. Integrating operations and application monitoring and management

This module presents Azure-based services that deliver monitoring and management functionality for on-premises workloads. These services include Microsoft Operations Management Suite with its Log Analytics, Microsoft Azure Automation with its support for on-premises systems based on Hybrid Runbook Worker functionality, and Visual Studio Application Insights. This module also describes the process of implementing cross-premises Azure monitoring and management solutions.

A. Overview of the cross-premises monitoring and management capabilities of Microsoft Azure
B. Implementing cross-premises Azure monitoring and management solutions

Lab : Implementing Azure Automation

- Creating and configuring an Operations Management Suite workspace
- Creating and configuring an Azure Automation account
- Configuring an on-premises computer as a Hybrid Runbook Worker
- Running a runbook on a Hybrid Runbook Worker and examining the outcome