Integrating On-Premises Core Infrastructure with Microsoft Azure (MS-10992)

Modality: Virtual Classroom

Duration: 3 Days

SATV Value: 3

CLC:

NATU:

SUBSCRIPTION: Master

About this course:

This 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.

The average salary for a Microsoft Azure Infrastructure & Integration skills is **$124,000** per year.

Course Objectives:

After completing 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.

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.

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.

Suggested prerequisites courses:

- Implementing Microsoft Azure Infrastructure Solutions (MS-20533)
- Installation, Storage, and Compute with Microsoft Windows Server 2016 (MS-20740)

Career path:

Cloud Computing Career Path…

Course Outline:

Module 1: Introduction to Microsoft Azure

This module provides an overview of cloud computing and Azure, including a brief description of the Azure services that this course presents. It also describes Azure Resource Manager and classic deployment methods, while emphasizing that using Azure Resource Manager is the recommended approach in new deployments.

Lessons

- Overview of cloud computing and Azure
- Overview of the Azure deployment models

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

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

After completing this module, students will be able to:

- Describe cloud computing and Azure.
- Describe the Azure deployment models.

Module 2: Integrating with Azure Compute services

This module provides an overview of Azure IaaS virtual machines, focusing on their differences from on-premises Hyper-V virtual machines. It explains the process of integrating on-premises Hyper-V virtual machine environments with Azure IaaS virtual machine deployments. This module also presents the concepts of Big Compute, containers, and Azure Service Fabric.

Lessons

- Overview of Virtual Machines and Cloud Services
- Extending workloads to Azure Virtual Machines by using virtual machine images and disks
- Extending Big Compute workloads to Azure
- Integrating compute workloads by using containers and Azure Service Fabric

Lab : Moving .vhd files between on-premises virtual machines and Azure-based virtual machines

- Preparing your on premises .vhd file for upload
- Uploading and attaching a .vhd file to an Azure virtual machine
- Detaching a .vhd file and downloading and attaching it to your on-premises virtual machine

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

- Creating a Docker host with Docker Machine
- Deploying Docker Registry in Azure

After completing this module, students will be able to:

- Describe Virtual Machines and Cloud Services.
- Extend workloads to Azure Virtual Machines.
- Extend Big Compute workloads to Azure.
- Integrate compute workloads by using containers and Azure Service Fabric.

Module 3: Integrating with Azure Virtual Network

This module introduces the Azure Virtual Network service and its components. It also describes the methods of connecting to Azure virtual networks by using a Point-to-Site virtual private network (VPN), a Site-to-Site VPN, and Azure ExpressRoute.

Lessons

- Overview of the Azure Virtual Network service
- Extending on-premises networks to Azure

Lab : Implementing a point-to-site VPN (Azure Resource Manager)

- Preparing your Azure subscription for the implementation
- Configuring an on-premises virtual machine
- Testing a point-to-site VPN from an on-premises virtual machine

After completing this module, students will be able to:

- Explain how to use the Azure Virtual Network service.
- Extend on-premises networks to Azure.

Module 4: Integrating with Azure Storage, Data, and Analytics Services

This module introduces Azure Storage, Data Analytics services, Azure Backup, StorSimple, Azure Data Factory with Data Management Gateway, and Azure Content Delivery Network. It also describes the process of implementing Azure Backup for protecting on-premises workloads.

Lessons

- Overview of Azure Storage, Data, and Analytics services
- Implementing Azure Backup for on-premises workloads

Lab : Implementing Azure Backup agent?based backups

- Preparing your Azure subscription for the implementation
- Configuring a virtual machine for Azure Backup agent?based backups
- Testing the backup of the virtual machine files and folders
- Testing the restore operation of the virtual machine files and folders

After completing this module, students will be able to:

- Describe the Azure Storage, Data, and Analytics services.
- Implement Azure Backup for on-premises workloads.

Module 5: Designing and implementing Azure-based disaster 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.

Lessons

- Overview of Azure Site Recovery
- Planning for Azure Site Recovery
- Azure Site Recovery with Azure as the disaster recovery site
- Using StorSimple to enhance disaster recovery capabilities

Lab : Implementing protection of Hyper-V workloads in Azure

- Preparing your Azure subscription for the implementation
- Preparing your Hyper-V host for the implementation
- Configuring the target environment

After completing this module, students will be able to:

- Describe Azure Site Recovery.
- Plan for Azure Site Recovery.
- Explain how to use Azure Site Recovery with Azure as the disaster recovery site.
- Use StorSimple to enhance disaster recovery capabilities

Module 6: Designing and implementing cross-premises applications

This module presents the most common solutions that facilitate implementation of cross-premises applications, including Azure RemoteApp, hybrid connection and Azure Service Bus relay, and Azure Traffic Manager. It also describes the process of implementing cross-premises solutions for desktop, web, and mobile apps.

Lessons

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

Lab : Implementing Azure 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

After completing this module, students will be able to:

- Describe cross-premises application capabilities and design considerations.
- Implement cross-premises solutions for desktop, web, and mobile apps.

Module 7: 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 the Microsoft Operations Management Suite (Log Analytics), Azure Automation (focusing on Hybrid Runbook Worker capabilities), and Visual Studio Application Insights. This module also describes the process of implementing cross-premises Azure monitoring and management solutions.

Lessons

- Overview of cross-premises Azure monitoring and management capabilities
- Implementing cross-premises Azure monitoring and management solutions

Lab : Implementing Azure Automation

- Creating and configuring an Automation account
- Creating and configuring an Operations Management Suite account
- Configuring a target computer
- Starting the runbook on the on-premises system and examining the outcome

After completing this module, students will be able to:

- Describe cross-premises Azure monitoring and management capabilities.
- Implement cross-premises Azure monitoring and management solutions.