Course Outline

AZ-300T00 A: Microsoft Azure Architect Technologies

Course Summary

Description

This course teaches IT Professionals how to

- Manage their Azure resources, including deployment and configuration of virtual machines, virtual networks, storage accounts, and Azure AD that includes implementing and managing hybrid identities. You will also learn how cloud resources are managed in Azure through user and group accounts, and how to grant access to Azure AD users, groups, and services using Role-based access control (RBAC). You will learn about the different storage accounts and services as well as basic data replication concepts and available replication schemes. Students are also introduced to Storage Explorer as a convenient way to work with Azure storage data. Students also learn the types of storage and how to work with managed and custom disks.
- Discover, assess, plan and implement a migration of on-premises resources and infrastructure to Azure. Students will learn how to use Azure Migrate to perform the discovery and assessment phase that is critical to a successful migration. Students will also learn how to use Azure Site Recovery for performing the actual migration of workloads to Azure. The course focuses primarily on using ASR on a Hyper-V infrastructure to prepare and complete the migration process. Also, you will learn how to deploy serverless computing features like Azure Functions, Event Grid, and Service Bus. You will learn how Azure Multi-Factor Authentication helps safeguard access to data and applications, helping to meet customer demand for a simple sign-in process. Also, how to use Azure Active Directory Privileged Identity Management to manage, control, and monitor access to Azure resources within your organization.
- Understand how operations are done in parallel and asynchronously. And, how your whole enterprise system must be resilient when failures occur, and just as importantly, how deployments can be automated and predictable. By using the Azure Application Architecture Guide and Azure reference architectures as a basis, you will understand how monitoring and telemetry are critical for gaining insight into the system.
- Build Logic App solutions that integrate apps, data, systems, and services across enterprises or organizations by automating tasks and business processes as workflows. Logic Apps is cloud service in Azure that simplifies how you design and create scalable solutions for app integration, data integration, system integration, enterprise application integration (EAI), and business-to-business (B2B) communication, whether in the cloud, on premises, or both.

Topics

- Managing Azure Subscriptions and Resources
- Implementing and Managing Storage
- Deploying and Managing Virtual Machines (VMs)
- Configuring and Managing Virtual Networks
- Managing Identities
- Evaluating and Performing Server Migration to Azure
- Implementing and Managing Application Services
- Implementing Advanced Virtual Networking
- Securing Identities
- Selecting Compute and Storage Solutions
- Hybrid Networking
- Measuring Throughput and Structure of Data Access
- Creating Web Applications using PaaS
- Creating Apps and Services Running on Service Fabric

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Course Summary (cont'd)

Topics (cont'd)

- Kubernetes Service (AKS) for deploying and managing a Kubernetes cluster in Azure.
- Implementing Authentication
- Implementing Secure Data
- Developing Long-Running Tasks and Distributed Transactions
- Configuring a Message-Based Integration Architecture
- Developing for Asynchronous Processing
- Developing for Autoscaling
- Developing Azure Cognitive Services Solutions

Audience

Successful Azure Solutions Architects start this role with experience on operating systems, virtualization, cloud infrastructure, storage structures, billing, and networking

Duration

Four days

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I. Managing Azure Subscriptions and Resources

In this module you will explore Azure monitoring capabilities using Azure alerts, Azure activity logs, and Log Analytics. You will learn to query, analyze, and interpret the data viewed in Log Analytics.

II. Implementing and Managing Storage

In this module you will learn about Azure storage accounts, data replication, how to use Azure Storage Explorer, and monitor storage.

III. Deploying and Managing Virtual Machines (VMs)

In this module you will learn how to do the following: • Create Virtual Machines (VM)s within the Azure Portal • Create Virtual Machines (VM)s using Azure PowerShell • Create Virtual Machines (VM)s using ARM templates • Deploy Linux Virtual Machines (VM)s • Monitor Virtual Machines (VM)s Additionally, you will learn how to protect data using backups at regular intervals, whether by snapshot, Azure Backup, or Azure Site Recovery.

IV. Configuring and Managing Virtual Networks

In this module you will create and implement virtual networks using the Azure Portal as well as Azure PowerShell and CLI. You will receive and overview on how to assign IP addresses to Azure resources to communicate with other Azure resources, your on-premises network, and the Internet.

A. Network routing using routing tables and algorithms
B. Inter-site connectivity using VNet-to-VNet connections and VPNs
C. Virtual network peering for regional and global considerations
D. Gateway transit

V. Managing Identities

This module covers Azure Active Directory (Azure AD) for IT Admins and Developers with a focus on the Azure AD multi-tenant cloud-based directory and identity management service.

A. Role-Based Access Control (RBAC)
B. built-in roles
C. Self-Service Password Reset (SSPR)
D. authentication methods for password reset

VI. Evaluating and Performing Server Migration to Azure

This module covers migrating workloads to a new environment, whether it be another datacenter, or to a public cloud, and setting clear goals for the migration. Goals include both technology-focused and business-focused goals for migrations and the benefits to an organization's business. Activities include components of the Azure migration process: creating a project, creating a collector, assessing readiness, and estimating costs. Additionally, you will receive and overview of Azure Site Recovery (ASR) that includes and end-to-end scenarios.

VII. Implementing and Managing Application Services

A. Deploying Web Apps
B. Managing Web Apps
C. App Service Security
D. Serverless Computing Concepts
E. Managing Event Grid
F. Managing Service Bus
G. Managing Logic App

VIII. Implementing Advanced Virtual Networking

This module includes the following topics:

A. Azure Load Balancer
B. Azure Application Gateway
C. Site-to-Site VPN Connections As well as an overview of ExpressRoute which allows companies to extend on-premises networks into the Microsoft cloud over a dedicated private connection facilitated by a connectivity provider.

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IX. Securing Identities

This module includes the following topics with an emphasis on identity and roles:

A. Azure AD Identity Protection
B. Azure Domains and Tenants
C. Azure Users and Groups
D. Azure Roles As well as an overview of Azure AD integration options that focuses on Azure AD Connect to integrate on-premises directories with Azure Active Directory

X. Selecting Compute and Storage Solutions

A. Azure Architecture Center
B. Cloud design patterns
C. Competing consumer's pattern
D. Cache-aside pattern As well as sharding patterns to divide a data store into horizontal partitions, or shards. Each shard has the same schema but holds its own distinct subset of the data.

XI. Hybrid Networking

A. Site-to-site connectivity
B. Point-to-site connectivity
C. Combining site-to-site and point-to-site connectivity
D. Virtual network–to–virtual network connectivity As well as connecting across cloud providers for failover, backup, or even migration between providers such as AWS.

XII. Measuring Throughput and Structure of Data Access

A. DTUs – Azure SQL Database
B. RUs – Azure Cosmos DB
C. Structured and unstructured data
D. Using structured data stores

XIII. Creating Web Applications using PaaS

This module provides and overview of Azure App Service Web Apps for hosting web applications, REST APIs, and a mobile back end.

A. Using shell commands to create an App Service Web App
B. Creating Background Tasks
C. Using Swagger to document an API As well as an explanation of how Logic Apps help to build solutions that integrate apps, data, systems, and services across enterprises or organizations by automating tasks and business processes as workflows.

XIV. Creating Apps and Services Running on Service Fabric

This module provides an overview of Azure Service Fabric as a distributed systems platform that makes it easy to package, deploy, and manage scalable and reliable microservices and containers. This module also addresses the challenges in developing and managing cloud native applications. Additional topics include:

A. Creating a reliable service
B. Creating a Reliable Actors app
C. Working with Reliable collections
D. Using Azure Kubernetes Service This module focuses on the Azure

XV. Kubernetes Service (AKS) for deploying and managing a Kubernetes cluster in Azure.

Topics include how to reduce operational overhead of managing Kubernetes by offloading much of that responsibility to Azure, such as health monitoring and maintenance. Additional topics include:

A. Azure Container Registry
B. Azure Container Instances

XVI. Implementing Authentication

A. Implementing authentication in applications (certificates, Azure AD, Azure AD Connect, token-based)
B. Implementing multi-factor authentication
C. Claims-based authorization
D. Role-based access control (RBAC) authorization

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XVII. Implementing Secure Data

A. End-to-end encryption
B. Implementing Azure confidential computing
C. Implementing SSL and TLS communications
D. Managing cryptographic keys in Azure Key Vault

XVIII. Developing Long-Running Tasks and Distributed Transactions

A. Implementing large-scale, parallel, and high-performance apps using batches
B. HPC using Microsoft Azure Virtual Machines
C. Implementing resilient apps by using queues As well as, implementing code to address application events by using webhooks. Implementing a webhook gives an external resource a URL for an application. The external resource then issues an HTTP request to that URL whenever a change is made that requires the application to take an action.

XIX. Configuring a Message-Based Integration Architecture

A. Configure an app or service to send emails
B. Configure an event publish and subscribe model
C. Configure the Azure Relay service
D. Configure apps and services with Microsoft Graph

XX. Developing for Asynchronous Processing

A. Implement parallelism, multithreading, and processing
B. Implement Azure Functions and Azure Logic Apps
C. Implement interfaces for storage or data access
D. Implement appropriate asynchronous computing models
E. Implement autoscaling rules and patterns

XXI. Developing for Autoscaling

A. Implementing autoscaling rules and patterns
B. Implementing code that addresses singleton application instances
C. Implementing code that addresses a transient state

XXII. Developing Azure Cognitive Services Solutions

A. Developing Solutions using Computer Vision
B. Developing solutions using Bing Web Search
C. Developing solutions using Custom Speech Service
D. Developing solutions using QnA Maker