

## AZ-301: Azure Solutions Architect - Design

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### Course Summary

#### Description

In this course, student will learn:

- How to manage security and identity within the context of Azure. Also, you'll be introduced to multiple SaaS services available in Azure that for integration into existing Azure solutions.
- How to compare and contrast various database options on Azure, identify data streaming options for large-scale data ingest, and identify longer-term data storage options.
- How to deploy an ARM template to a resource group, author a complex deployment using the Azure Building Blocks tools, and integrate an API or Logic App with the API Management service.
- How to Describe DNS and IP strategies for VNets in Azure, compare connectivity options for ad-hoc and hybrid connectivity, distribute network traffic across multiple loads using load balancers, and design a hybrid connectivity scenario between cloud and on-premise.

#### Topics

- Managing Security & Identity for Azure Solutions
- Integrating SaaS Services Available on the Azure Platform
- Backing Azure Solutions with Azure Storage
- Comparing Database Options in Azure
- Monitoring & Automating Azure Solutions
- Deploying Resources with Azure Resource Manager
- Creating Managed Server Applications in Azure
- Authoring Serverless Applications in Azure
- Integrating Azure Solution Components Using Messaging Services
- Building Azure IaaS-Based Server Applications (ADSK)
- Networking Azure Application Components
- Application Architecture Patterns in Azure

#### Audience

Successful Cloud Solutions Architects begin this role with practical experience with operating systems, virtualization, cloud infrastructure, storage structures, billing, and networking

#### Duration

Four days

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### Course Outline

#### *I. Managing Security & Identity for Azure Solutions*

This module discusses both security and identity within the context of Azure. For security, this module reviews the various options for monitoring security, the options available for securing data and the options for securing application secrets. For identity, this module focuses specifically on Azure Active Directory (Azure AD) and the various features available such as Multi-Factor Authentication (MFA), Managed Service Identity, Azure AD Connect, ADFS and Azure AD B2B/B2C

**Lab : Securing Secrets in Azure**

#### *II. Integrating SaaS Services Available on the Azure Platform*

This module introduces multiple SaaS services available in Azure that are available for integration into existing Azure solutions. These services include Cognitive Services, Bot Service, Machine Learning and Media Services

**Lab : Deploying Service Instances as Components of Overall Azure Solutions**

#### *III. Backing Azure Solutions with Azure Storage*

This module describes how many Azure services use the Azure Storage service as a backing store for other application solution in Azure. The module dives into critical considerations when using Azure Storage as a supplemental service for an all-up Azure solution.

#### *IV. Comparing Database Options in Azure*

This module compares the various relational and non-relational data storage options available in Azure. Options are explored as groups such as relational databases (Azure SQL Database, MySQL, and PostgreSQL on Azure), non-relational (Azure Cosmos DB, Storage Tables), streaming (Stream Analytics) and storage (Data Factory, Data Warehouse, Data Lake).

**Lab : Deploying Database Instances in Azure**

#### *V. Monitoring & Automating Azure Solutions*

This module covers the monitoring and automation solutions available after an Azure

solution has been architected, designed and possibly deployed. The module reviews services that are used to monitor individual applications, the Azure platform, and networked components. This module also covers automation and backup options to enable business-continuity scenarios for solutions hosted in Azure.

**Lab : Deploying Configuration Management Solutions to Azure**

#### *VI. Deploying Resources with Azure Resource Manager*

This module establishes a basic understanding of Azure Resource Manager and the core concepts of deployments, resources, templates, resource groups, and tags. The module will dive deeply into the automated deployment of resources using ARM templates.

**Lab : Deploying Resources with Azure Resource Manager**

#### *VII. Creating Managed Server Applications in Azure*

This module describes how solutions can leverage serverless application hosting services in Azure to host web applications, REST APIs, integration workflows and HPC workloads without the requirement to manage specific server resources. The module focuses on App Services-related components such as Web Apps, API Apps, Mobile Apps, Logic Apps, and Functions.

**Lab : Deploying Managed Containerized Workloads to Azure**

#### *VIII. Authoring Serverless Applications in Azure*

This module describes how solutions can leverage serverless application hosting services in Azure to host web applications, REST APIs, integration workflows and HPC workloads without the requirement to manage specific server resources. The module focuses on App Services-related components such as Web Apps, API Apps, Mobile Apps, Logic Apps, and Functions.

**Lab : Deploying Serverless Workloads to Azure**

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### Course Outline (cont'd)

#### *IX. Application Architecture Patterns in Azure*

This module introduces, and reviews common Azure patterns and architectures as prescribed by the Microsoft Patterns & Practices team. Each pattern is grouped into performance, resiliency, and scalability categories and described in the context of similar patterns within the category.

#### *X. Building Azure IaaS-Based Server Applications (ADSK)*

This module identifies workloads that are ideally deployed using Infrastructure-as-a-Service services in Azure. The module focuses on the VM Scale Sets and Virtual Machine services in Azure and how to best deploy workloads to these services using best practices and features such as Availability Sets.

#### **Lab : Building Azure IaaS-Based Server Applications.**

#### *XI. Networking Azure Application Components*

This module describes the various networking and connectivity options available for solutions

deployed on Azure. The module explores connectivity options ranging from ad-hoc connections to long-term hybrid connectivity scenarios. The module also discusses some of the performance and security concerns related to balancing workloads across multiple compute instances, connecting on-premise infrastructure to the cloud and creating gateways for on-premise data.

#### **Lab : Deploying Network Infrastructure for Use in Azure Solutions**

#### *XII. Integrating Azure Solution Components Using Messaging Services*

This module describes and compares the integration and messaging services available for solutions hosted on the Azure platform.

Messaging services described include Azure Storage Queues, Service Bus Queues, Service Bus Relay, IoT Hubs, Event Hubs, and Notification Hubs. Integration services include Azure Functions and Logic Apps.

#### **Lab : Integrating Azure Solution Components using Messaging Services**