M55609A - Designing, Architecting and Deploying Azure Enterprise Solutions - (In Development

This course is multi faceted for all audiences including Architects who design and those who actually implement. Each module has a design phase and/or an implementation of the solutions designed in each module

Course Outline

Duration: 5 days

Module 1: Building resilient IaaS infrastructures

In this module, you will look at how to design for converting/extending an existing IaaS deployment to account for resiliency and in general high availability. Throughout the whiteboard design session, you will look at the various configuration options and services to help build resilient architectures.

At the end of the module, you will be better able to design and use resiliency concepts including High Availability with protection from hardware/rack and datacenter failures with Availability Zones, High Availability and Disaster Recovery for database tiers using SQL Always ON, Disaster Recovery for virtual machines to another region using Azure Site Recovery, and data protection using Azure Backup.

Module 2: Building the business migration case with Windows Server and SQL Server

In this module, you will gain experience designing and implementing a strategy for migrating Windows Server and SQL Server workloads to Azure, and enabling on-premises virtual machines management by using Azure Arc.

At the end of the module, you will be better able to design and implement an Azure migration strategy for Windows Server and SQL Server workloads using Azure Virtual Machines, Azure SQL Managed Instance (SQL MI), and Azure Arc.

Module 3: Building Enterprise-class networks in Azure

In this module, you will learn to setup and configure a virtual network with subnets in Azure. You will learn how to secure the virtual network by deploying a network virtual appliance and configure firewall rules and route tables. Additionally, you will set up access to the virtual network with a jump box and a site-to-site VPN connection.

At the end of the module, you will be better able to plan and design virtual networks in Azure with multiple subnets to filter and control network traffic. In addition, you will learn to create a virtual network and provision subnets, create route tables with required routes, build a management jump box, configure firewalls to control traffic flow, and configure site-to-site connectivity.

Module 4: Migrating Line-of-business applications to Azure

In this module, you will learn how to design a migration strategy for on-premises environments to Azure, including the migration of virtual and physical services as well as databases.

At the end of this module you will be better able to rationalize the migration of various workloads to Microsoft Azure as well as understanding how to determine the cost of hosting migrated workloads in Azure.

Module 5: Building a Serverless Infrastructure in Azure

In this module, you learn about setting up and configuring a serverless architecture within Azure using a combination of Azure Functions, Azure Logic Apps, Azure Event Grid, Azure Cosmos DB, and Azure Data Lake Storage. The focus is on removing server management from the equation, breaking down the solution into smaller components that are individually scalable, and allowing the customer to only pay for what they use.

At the end of this lesson, you will be able to break business logic down into discrete components that can independently scale and leverage vision algorithms to detect objects and extract text. You'll know how to utilize Cosmos DB as a highly available NoSQL data store, build workflows using Azure Logic Apps, and conditionally send alerts based on operations. Finally, you'll have the knowledge to monitor a serverless topology and implement a Continuous Deployment DevOps process to publish changes automatically.

Module 6: Implement an AI-led business process and application

In this module, you will learn to automate a business process end-to-end using a variety of Azure Cognitive Services.

At the end of this module, you will be better able to architect and implement a business process automation solution that leverages Azure Cognitive Services.

Module 7: Design and Implement an IOT solution

In this module you will use the unique benefits of the Internet of Things (IoT) to build a smart city solution to help improve traffic and public transportation in Fabrikam City. Use a combination of the power of the cloud, along with IoT Edge devices to provide anomaly detection from city buses, including engine anomaly alerts and aggressive driving detection, as well as location broadcasting to update bus route status. Traffic lights will also receive new IoT devices that can help detect maintenance and performance issues, such as voltage irregularities. Easily view all of this information through a centralized reporting dashboard provided by the Azure Remote Monitoring Accelerator web application. Use the IoT Remote Monitoring accelerator to manage and simulate IoT devices, set alerts, and view data on a map.

By the end of this module, you will learn to use IoT Hub to manage IoT devices, configure and run the IoT Remote Monitoring accelerator to provision, manage, and simulate telemetry for IoT devices, use Azure IoT Edge to collect vehicle telemetry data, detect anomalies, and send the summarized data to Azure IoT Hub as needed. In addition, you'll route critical alerts to a Service Bus Queue, create an Azure function that extracts critical alerts from the Service Bus Queue and stores them in Cosmos DB, as well as use Azure Time Series Insights to store, visualize, and query the large amounts of time series data generated by various IoT devices.

Module 8: Design and implement a Business-continuity and disaster recovery solution

In this module, you will gain experience designing solutions using Azure business continuity and disaster recovery (BCDR) technologies.

Three different types of environments will be examined. The first will consist of on-premises VMs running applications that will be migrated to Azure IaaS. Next, Azure IaaS applications that need to be failed over from either on-premises to Azure, or between two Azure Regions. Finally, the use of automated failover technologies built into Azure PaaS services, App Service and SQL Database will be used for PaaS applications.

At the end of this module, you will be better able to leverage various Azure technologies together to build a complex and robust IaaS BCDR plan.