

## **Azure Services Training (Developer)**

**Program Duration - 40 Hours (4 Hours Per Day)**

### **Course Outline**

#### **Day 1 & Day 2**

##### **1) Starting with Azure**

- Tour of the Azure Portal
- Resources and Resource Groups
- Creating resources
- Monitoring your costs in Azure
- The Azure command line interface
- Setting up PowerShell

##### **2) Connect to and consume Azure and third-party services**

- What is the Azure Service Bus
- Azure Service Bus
- Azure Service Bus - Queue - .Net
- Azure Service Bus - Queue Properties
- Azure Service Bus - Message Properties
- Azure Service Bus - Message properties - .Net
- Azure Service Bus Queue - Receive and Delete Mode
- Azure Service Bus - Topics
- Azure Service Bus topic - filters
- Azure Service Bus - Dead letter queues
- Azure Service Bus - Duplicate Detection
- Azure Service Bus - Correlation Id
- Azure Service Bus - Best Practices
- Azure Service Bus - Creating a queue - .Net
- Azure Service Bus - Azure CLI
- What is the Azure Event Grid Service
- Azure Event Grid - Azure Functions
- Azure Event Grid Schema
- Azure Event Grid - Service Bus Handler
- Azure Event Grid - Webhook
- What are Azure Event Hubs?
- Azure Event Hubs Architecture

- Azure Event Hubs
- Azure Event Hub Components
- Azure Event Hub - Working with Partitions - .Net
- Azure Event Hub - Reading from an Offset
- Azure Event Hub - Event Processor
- Azure API Management - The purpose of the service
- Azure API Management - Setting up the API
- Azure API Management - Deployment
- Azure API Management - Policies
- Azure API Management - Policy - Rewrite URL's
- Azure API Management - Policies - Conditions
- Azure API Management - Policy - Outbound Rule
- Azure API Management - OpenAPI Specification
- Azure API Management Overview
- Azure Logic Apps
- Azure Logic Apps - Azure Functions
- Azure Logic Apps - Azure Blob Storage
- Azure Notification Hubs

## **Day 3 & Day 4**

### **3) Develop Azure compute solutions**

- Azure Web App Service
- Azure App Service Plan
- Azure Web App - Linux App Service Plan
- Azure Web App - Docker container
- Azure Web Apps - App Service Logs
- Azure Web App - Publishing from GitHub
- Azure Web App - Custom domains
- Azure Web App - SSL
- Azure Web App - CORS
- Azure Web Apps - Deployment Slots
- Azure App Service Plan - Linux
- What are Azure Functions?
- Creating a Function App
- Understanding the Azure Function code
- The use of Azure Functions
- Azure Functions - Using normal classes
- Azure Functions - Timer trigger
- Azure Durable Functions

#### **4) Develop for Azure Storage**

- What are storage accounts
- Azure storage accounts - service types
- Creating a storage account
- Working with the BLOB service
- Using Azure Storage Explorer
- Using Access Keys
- Azure Storage Accounts - Azure CLI
- AzCopy tool
- Azure Blob storage - .Net
- Azure Blob properties and metadata
- Shared Access Signatures
- Storage Accounts - Access tiers
- Storage Accounts - Blob snapshots
- Blob lease
- Storage Accounts - Soft Delete

### **Day 5 & Day 6**

#### **5) Implement Azure Security**

- What is Azure AD
- Quick look at Azure AD users
- Role Based Access Control
- Primer to OAuth and OpenID Connect - History of Authentication
- Primer to OAuth and OpenID Connect - Identity Provider
- What is OAuth?
- OAuth 2.0 Authorization Code Flow
- OAuth 2.0 Implicit Flow
- OAuth 2.0 - Overview
- OAuth with Azure AD - Overview
- Quick Look into OAuth when logging into Azure
- OAuth 2.0 for ASP.Net Core
- The Access Tokens
- OAuth 2.0 - Accessing Blob storage
- Azure AD - Multi-Factor Authentication
- OpenID Connect
- Getting group claims
- Azure Web Apps - Azure AD Authentication
- What is the Azure Key Vault Service
- Azure Key Vault

- What is a service principal
- Azure Key vault - Secrets
- Azure Key vault - Encryption keys
- Azure VM Disk Encryption
- Managed Service Identity

## **6) Monitor, troubleshoot, and optimize solutions**

- Azure Monitor
- Azure Monitor - Azure CLI
- Auto-scaling Azure Web Apps
- Auto scaling a web app
- Auto scaling a web app based on Queue storage
- What is Application Insights
- Application Setup for Application Insights
- Application Insights - Metrics and Performance
- Application Insights - Other features
- Application Insights - Availability Tests
- Application Insights - Tracking User Id
- What is Azure Cache for Redis
- Azure Cache for Redis
- Azure Cache for Redis - ASP.Net Core
- Azure Redis Cache - Data Invalidation
- Azure Redis Cache - StackExchange package
- Azure Content Delivery Network - Introduction
- Azure Content Delivery Network Cache
- Azure Content Delivery Network caching - Query strings
- Azure Front Door Service
- Transient faults

## **Day 7 & Day 8**

### **7) Azure Service Fabric**

- Overview
- Service Fabric managed clusters
- Deploy a Service Fabric managed cluster
- Scale out a Service Fabric managed cluster
- Add and remove node types from a Service Fabric managed cluster

- Deploy an app to a Service Fabric managed cluster

## **8) Azure CDN**

- What is a content delivery network on Azure?
- Create an Azure CDN profile and endpoint
- Add Azure CDN to an Azure App Service web app
- Add a custom domain to your endpoint
- Set Azure CDN caching rules

## **Day 9 & Day 10**

### **9) Develop Azure compute solutions**

- The Virtual Machine Service
- Deploying a virtual machine
- Connecting to the Virtual Machine
- Azure Resource Manager Templates
- Primer on Docker Containers
- Understanding on how we deployed the Docker container
- Deploying a .Net core application onto a Linux VM
- Containerizing a .Net app
- Azure Container Registry
- Azure Container Instances
- What is Kubernetes and Azure Kubernetes?
- Creating a Kubernetes cluster
- Understanding of application deployment to a Kubernetes cluster
- Deploying nginx on the Kubernetes cluster
- What is a service principal
- Azure Kubernetes and Azure Container registry

### **10) Miscellaneous**

- ARM Templates - Storage Accounts
- Azure Table Storage
- Azure Table Storage - Partition and Row Key
- Azure Storage queue
- Azure Functions - Queue binding
- Azure Functions - Queue and Table binding
- Azure Functions - Multiple Output bindings

- Introduction to Azure SQL Database
- Azure Web App - Azure SQL Database
- Using Azure Web App - Connecting strings
- Azure Functions - Azure SQL Database
- Azure Container Instances - Container Groups
- Azure Container Instances - Container Groups - Container Registry
- Azure Container Instances - Working with secrets
- Quick primer on NoSQL Databases
- Introduction to Cosmos DB
- Azure Cosmos DB - SQL API
- Partitioning in Azure Cosmos DB
- Understanding the Item id property
- More on querying data in Cosmos DB
- Azure Cosmos DB - Embedding data
- Azure Cosmos DB - Referencing data
- Introduction to Change Feed, Stored Procedures, Triggers
- Azure Cosmos DB - Change Feed
- Azure Cosmos DB - Stored Procedures
- Azure Cosmos DB - Triggers
- Azure Cosmos DB - Local Emulator
- Azure Cosmos DB - Synthetic Partition Key
- Azure Cosmos DB - Time to Live
- Azure Cosmos DB - Indexing
- Use case scenario - Sending data to Cosmos DB
- Diagnostics Data
- Replicating data globally
- Consistency Levels
- Consistency Level - Setting the level
- Azure CLI commands for Azure Cosmos DB
- Azure Cosmos DB - Table API

#### **Methodology:**

- Instructor Led **Online (Virtual)** Training
- Complete Hands-on Practical Session, Exercises and Assignments
- Q&A, Live Problem Solutions (If any) and Case Discussions