Microsoft Azure Architect Design

This course teaches Solutions Architects how to translate business requirements into secure, scalable, and reliable solutions. Lessons include design considerations related to logging, cost analysis, authentication and authorization, governance, security, storage, high availability, and migration. This role requires decisions in multiple areas that affect an overall design solution.

Duration: 5 days

Audience

This course is for IT Professionals with expertise in designing and implementing solutions running on Microsoft Azure. They should have broad knowledge of IT operations, including networking, virtualization, identity, security, business continuity, disaster recovery, data platform, budgeting, and governance. Azure Solution Architects use the Azure Portal and as they become more adept they use the Command Line Interface. Candidates must have expert-level skills in Azure administration and have experience with Azure development processes and DevOps processes.

Prerequisites

Successful Azure Architects begin this role with experience on operating systems, virtualization, cloud infrastructure, storage structures, networking, applications and databases.

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- Understanding of on-premises virtualization technologies, including: VMs, virtual networking, and virtual hard disks.
- Understanding of network configuration, including TCP/IP, Domain Name System (DNS), virtual private networks (VPNs), firewalls, and encryption technologies.
- Understanding of Active Directory concepts, including domains, forests, domain controllers, replication, Kerberos protocol, and Lightweight Directory Access Protocol (LDAP).
- Understanding of resilience and disaster recovery, including backup and restore operations.
- Understanding of Applications development and APIs.
- Understanding of Databases, both SQL such as MS SQL, MySQL or Postgres, and Non-SQL databases like MongoDB.
- Understanding of decoupling Applications and services, for example, Queues, tables, Cache.
- Understanding of Security concepts to protect your environment, like encryption at rest, encryption in transit, SSL, TLS.

Prerequisite Courses (or equivalent knowledge):

- Free online: Azure Fundamentals
  (https://docs.microsoft.com/learn/paths/azure-fundamentals/)
- Instructor-led course: AZ-900: Azure Fundamentals
  (https://docs.microsoft.com/learn/certifications/courses/az-900t01)
- Prerequisites for Azure administrators
  (https://docs.microsoft.com/learn/paths/az-104-administrator-prerequisites/

Objectives

- Recommend solutions to minimize costs
- Recommend a solution for Conditional Access, including multi-factor authentication
- Recommend a solution for a hybrid identity including Azure AD Connect and Azure AD Connect
- Recommend a solution for using Azure Policy
- Recommend a solution that includes KeyVault

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- Recommend a solution that includes Azure AD Managed Identities
- Recommend a storage access solution
- Design an Azure Site Recovery solution
- Recommend a solution for autoscaling
- Recommend a solution for containers
- Recommend a solution for network security
- Recommend a solution for migrating applications and VMs
- Recommend a solution for migration of databases

Topics

Module 1: Design a Compute Solution

- Recommend a Solution for Compute Provisioning
- Determine Appropriate Compute Technologies
- Recommend a Solution for Containers
- Recommend a Solution for Automating Compute Management

Module 2: Design a Network Solution

- Recommend a Solution for Network Addressing and Name Resolution
- Recommend a Solution for Network Provisioning
- Recommend a Solution for Network Security
- Recommend a Solution for iInternete Connectivity and On-Premises Networks
- Recommend a Solution for Automating Network Management
- Recommend a Solution for Load Balancing and Rraffic Routing

Module 3: Design for Migration

- Assess and On-Premises Servers and Applications for Migration
- Recommend a Solution for Migrating Applications and VMs
- Recommend a Solution for Migration of Databases

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Module 4: Design Authentication and Authorization

- Tips for Identity and Access Management
- Recommend a Solution for Multi-Factor Authentication
- Five Steps for Securing Identity Infrastructure
- Recommend a Solution for Single-Sign On (SSO)
- Recommend a Solution for a Hybrid Identity
- Recommend a Solution for B2B Integration
- Recommend a Hierarchical Structure for Management Groups

Module 5: Design Governance

- Recommend a Solution for using Azure Policy
- Recommend a Solution for using Azure Blueprint

Module 6: Design a Solution for Databases

- Select an Appropriate Data Platform Based on Requirements
- Overview of Azure Data Storage
- Recommend Database Service Tier Sizing
- Dynamically Scale Azure SQL Database and Azure SQL Managed Instances
- Recommend a Solution for Encrypting Data at Rest, Transmission, and In Use

Module 7: Select an Appropriate Storage Account

- Understanding Storage Tiers
- Recommend a Storage Access Solution
- Recommend Storage Management Tools

Module 8: Design Data Integration

- Recommend a Data Flow
- Recommend a Solution for Data Integration

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Module 9: Design a Solution for Logging and Monitoring

- Azure Monitoring Services
- Azure Monitor

Module 10: Design a Solution for Backup and Recovery

- Recommend a Recovery Solution for Hybrid and On-Premises Workloads
- Design and Azure Site Recovery Solution
- Recommend a Solution for Recovery in Different Regions
- Recommend a Solution for Azure Backup Management
- Design a Solution for Data Archiving and Retention

Module 11: Design for High Availability

- Recommend a Solution for Application and Workload Redundancy
- Recommend a Solution for Autoscaling
- Identify Resources that Require High Availability
- Identify Storage Tpes for High Availability
- Recommend a Solution for Geo-Redundancy of Workloads

Module 12: Design for Cost Optimization

- Recommend Solutions for Cost Management
- Recommended Viewpoints for Minimizing Costs

Module 13: Design an Application Architecture

- Recommend a Microservices Architecture
- Recommend an Orchestration Solution for Deployment of Applications
- Recommend a Solution for API Integration

Module 14: Design Security for Applications

- Security for Applications and Services
- Recommend a Solution using Key Vault

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- Recommend Solutions using Azure AD Managed Identities

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