

Azure Solution Architect Bootcamp (AZ-303 and AZ-304)

Course Summary

Description

In an intensive and immersive hands-on learning environment, you will build the skills needed for Azure Architect-Technologies contains courseware that helps prepare students for Exams AZ-303 and AZ-304. Passing this exam is required to earn the Azure Architect-Technologies certification. This boot camp includes all the exam vouchers required for certification.

You will prepare for these exams:

Exam AZ-303: Microsoft Azure Architect Technologies

Exam AZ-304: Microsoft Azure Architect Design

Objectives

At the end of this course, students will be able to:

- Secure identities with Azure Active Directory and users and groups.
- Implement identity solutions spanning on-premises and cloud-based capabilities
- Apply monitoring solutions for collecting, combining, and analyzing data from different sources.
- Manage subscriptions, accounts, Azure policies, and Role-Based Access Control.
- Administer Azure using the Resource Manager, Azure portal, Cloud Shell, and CLI.
- Configure intersite connectivity solutions like VNet Peering, and virtual network gateways.
- Administer Azure App Service, Azure Container Instances, and Kubernetes.
- 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
- Recommend a solution that includes Azure AD Managed Identities
- Recommend a storage access solution
- Design and 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

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| • Implement VMs for Windows and Linux | • Design for Cost Optimization |
| • Automate Deployment and Configuration of Resources | • Design a Solution for Logging and Monitoring |
| • Implement Virtual Networking | • Design Authentication |
| • Implement Load Balancing and Network Security | • Design Authorization |
| • Implement Storage Accounts | • Design Governance |
| • Implement Azure Active Directory | • Design Security for Applications |
| • Implement and Manage Azure Governance | • Design a Solution for Databases |
| • Implement and Manage Hybrid Identities | • Design Data Integration |
| • Manage Workloads in Azure | • Select an Appropriate Storage Account |
| • Implement Cloud Infrastructure Monitoring | • Design a Solution for Backup and Recovery |
| • Manage Security for Applications | • Design for High Availability |
| • Implement an Application Infrastructure | • Design a Compute Solution |
| • Implement Container-Based Applications | • Design a Network Solution |
| • Implement NoSQL Databases | • Design an Application Architecture |
| • Implement Azure SQL Databases | • Design Migrations |

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Course Summary (cont'd)

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 Solution Architects start this role with experience on operating systems, virtualization, cloud infrastructure, storage structures, and networking.

- 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.

Duration

Five days

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Course Outline

I. Implement VMs for Windows and Linux

In this module, you will learn about Azure virtual machines including planning, creating, availability and extensions. This module includes:

- A. Select Virtual Machine Size
- B. Configure High Availability
- C. Implement Azure Dedicated Hosts
- D. Deploy and Configure Scale Sets
- E. Configure Azure Disk Encryption

II. Automate Deployment and Configuration of Resources

In this module, you will learn about the tools an Azure Administrator uses to manage their infrastructure. This includes the Azure Portal, Cloud Shell, Azure PowerShell, CLI, and Resource Manager Templates. This module includes:

- A. Azure Resource Manager Templates
- B. Save a Template for a VM
- C. Evaluate Location of New Resources
- D. Configure a Virtual Hard Disk Template
- E. Deploy from a Template
- F. Create and Execute an Automation Runbook

III. Implement Virtual Networking

In this module, you will learn about basic virtual networking concepts like virtual networks and subnetting, IP addressing, network security groups, Azure Firewall, and Azure DNS.

- A. Virtual Network Peering
- B. Implement VNet Peering

IV. Implement Load Balancing and Network Security

In this module, you will learn about network traffic strategies including network routing and service endpoints, Azure Load Balancer, Azure Application Gateway, and Traffic Manager.

- A. Implement Azure Load Balancer
- B. Implement an Application Gateway
- C. Understand Web Application Firewall
- D. Implement Azure Firewall
- E. Implement Azure Front Door
- F. Implementing Azure Traffic Manager
- G.
- H. Implement Network Security Groups and Application Security Groups
- I. Implement Azure Bastion

V. Implement Storage Accounts

In this module, you will learn about basic storage features including storage accounts, blob storage, Azure files and File Sync, storage security, and storage tools.

- A. Storage Accounts
- B. Blob Storage
- C. Storage Security
- D. Managing Storage
- E. Accessing Blobs and Queues using AAD
- F. Configure Azure Storage Firewalls and Virtual Networks

VI. Implement Azure Active Directory

In this module, you will learn how to secure identities with Azure Active Directory, and implement users and groups.

- A. Overview of Azure Active Directory
- B. Users and Groups
- C. Domains and Custom Domains
- D. Azure AD Identity Protection
- E. Implement Conditional Access
- F. Configure Fraud Alerts for MFA
- G. Implement Bypass Options
- H. Configure Trusted IPs
- I. Configure Guest Users in Azure AD
- J. Manage Multiple Directories

VII. Implement and Manage Azure Governance

In this module, you will learn about managing your subscriptions and accounts, implementing Azure policies, and using Role-Based Access Control.

- A. Create Management Groups, Subscriptions, and Resource Groups
- B. Overview of Role-Based Access Control (RBAC)
- C. Role-Based Access Control (RBAC) Roles
- D. Azure AD Access Reviews
- E. Implement and Configure an Azure Policy
- F. Azure Blueprints

VIII. Implement and Manage Hybrid Identities

In this module, you will learn how to install and configure Azure AD Connect and implement Azure AD Connect Health.

- A. Install and Configure Azure AD Connect
- B. Configure Password Sync and Password Writeback
- C. Configure Azure AD Connect Health

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Course Outline (cont'd)

IX. Manage Workloads in Azure

In this module, you will learn how to migrate workloads using Azure Migrate, perform VMware agent-based and agent-less migrations, and perform Azure Backup and Azure Site Recovery.

- A. Migrate Workloads using Azure Migrate
- B. VMware - Agentless Migration
- C. VMware - Agent-Based Migration
- D. Implement Azure Backup
- E. Azure to Azure Site Recovery
- F. Implement Azure Update Management

X. Implement Cloud Infrastructure Monitoring

In this module, you will learn about Azure Monitor, Azure Workbooks, Azure Alerts, Network Watcher, Azure Service Health, Azure Application Insights.

- A. Azure Infrastructure Security Monitoring
- B. Azure Monitor
- C. Azure Workbooks
- D. Azure Alerts
- E. Log Analytics
- F. Network Watcher
- G. Azure Service Health
- H. Monitor Azure Costs
- I. Azure Application Insights
- J. Unified Monitoring in Azure

XI. Manage Security for Applications

In this module, you will learn about Azure Key Vault and implementing authentication using Azure Managed Identities.

- A. Azure Key Vault
- B. Azure Managed Identity

XII. Implement an Application Infrastructure

In this module, you will learn how to create an App Service web App for Containers, create and configure an App Service Plan, and create and manage Deployment Slots.

- A. Create and Configure Azure App Service
- B. Create an App Service Web App for Containers
- C. Create and Configure an App Service Plan
- D. Configure Networking for an App Service
- E. Create and Manage Deployment Slots
- F. Implement Logic Apps
- G. Implement Azure Functions

XIII. Implement Container-Based Applications

In this module, you will learn how to run Azure Container instances and how to deploy Kubernetes with AKS.

- A. Azure Container Instances
- B. Configure Azure Kubernetes Service

XIV. Implement NoSQL Databases

In this module, you will learn about Azure Table Storage and recommend options for CosmosDB APIs.

- A. Configure Storage Account Tables
- B. Select Appropriate CosmosDB APIs

XV. Implement Azure SQL Databases

In this module, you will create an Azure SQL Database single database, create an Azure SQL Database Managed Instance, and review high-availability and Azure SQL database.

- A. Configure Azure SQL Database Settings
- B. Implement Azure SQL Database Managed Instances
- C. High-Availability and Azure SQL Database

XVI. Design for Cost Optimization

In this module, you will learn how to optimize costs from recommendations, breakdown costs by Azure Service, and download and review usage details.

01-View

- A. Recommend Solutions for Cost Management
- B. Recommended Viewpoints for Minimizing Costs

XVII. Design a Solution for Logging and Monitoring

In this module, you will learn about Azure Monitor, Azure Application Insights, and Azure Sentinel. You will be able to monitor Azure Resources with Azure Monitor and collect and analyze resource Logs for Azure.

- A. Azure Monitoring Services
- B. Azure Monitor

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Course Outline (cont'd)

XXVIII. Design Authentication

In this module, you will learn to implement Conditional Access and Azure Multi-Factor Authentication and also be able to recommend an Authentication Methodology for Hybrid Identity.

- A. Recommend a Solution for Multi-Factor Authentication
- B. Recommend a Solution for Single-Sign On (SSO)
- C. Five Steps for Securing Identity Infrastructure
- D. Recommend a Solution for a Hybrid Identity
- E. Recommend a Solution for B2B Integration

XXIX. Design Authorization

In this module, you will learn how to provide Identities to services and understand the hierarchy of Management Groups and Subscriptions.

- A. Infrastructure Protection
- B. Recommend a Hierarchical Structure for Management Groups, Subscriptions and Resource Groups

XX. Design Governance

In this module, you will learn apply an Azure Policy, Identify non-compliant resources, and manage tag governance with Azure Policy.

- A. Recommend a Solution for using Azure Policy
- B. Recommend a Solution for using Azure Blueprint

XXI. Design Security for Applications

In this module, you will understand Azure Key Vault availability and redundancy, managed Identities for Azure resources. Also, learn about system-assigned Managed Identity and Azure VMs.

- A. Recommend a Solution using KeyVault
- B. Recommend a Solution using Azure AD Managed Identities

XXII. Design a Solution for Databases

In this module, you will be able to recommend the appropriate data store and recommend Azure SQL Database and Azure SQL Managed Instance Service tiers.

- A. Select an Appropriate Data Platform Based on Requirements

- B. Overview of Azure Data Storage
- C. Recommend Database Service Tier Sizing
- D. Dynamically Scale Azure SQL Database and Azure SQL Managed Instances
- E. Recommend a Solution for Encrypting Data at Rest, Transmission, and In Use

XXIII. Design Data Integration

In this module, you will learn about data flows using Azure Data Factory and Azure Synapse Analytics architecture.

- A. Recommend a Data Flow
- B. Recommend a Solution for Data Integration

XXIV. Select an Appropriate Storage Account

In this module, you will learn about recommend a design a strategy for using tiered storage and manage tiered Storage using Azure tools.

XXV. Design a Solution for Backup and Recovery

In this module, you will learn about solutions for site recovery capacity and site failover and failback. You will be able to recommend solutions for recovery in different regions.

- A. Recommend a Recovery Solution for Hybrid and On-Premises Workloads
- B. Design and Azure Site Recovery Solution
- C. Recommend a Solution for Recovery in Different Regions
- D. Recommend a Solution for Azure Backup Management
- E. Design a Solution for Data Archiving and Retention

XXVI. Design for High Availability

In this module, you will learn about solutions for application and workload redundancy, including compute, database, and storage.

- A. Recommend a Solution for Application and Workload Redundancy
- B. Recommend a Solution for Autoscaling
- C. Identify Resources that Require High Availability
- D. Identify Storage Types for High Availability
- E. Recommend a Solution for Geo-Redundancy of Workloads

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Course Outline (cont'd)

XXVII. Design a Compute Solution

In this module, you will learn about the appropriate compute technologies, including virtual machines, App Services, Service Fabric, Azure Functions, Windows Virtual Desktop, and containers.

- A. Recommend a Solution for Compute Provisioning
- B. Determine Appropriate Compute Technologies
- C. Recommend a Solution for Containers
- D. Recommend a Solution for Automating Compute Management

XXVIII. Design a Network Solution

In this module, you will learn about solutions for network addressing and name resolution, network provisioning, and network security.

- A. Recommend a Solution for Network Addressing and Name Resolution
- B. Recommend a Solution for Network Provisioning
- C. Recommend a Solution for Network Security
- D. Recommend a Solution for Internet Connectivity and On-Premises Networks
- E. Recommend a Solution for Automating Network Management
- F. Recommend a Solution for Load Balancing and Traffic Routing

XXIX. Design an Application Architecture

In this module, you will learn about solution for deployment of applications including ARM templates, Logic Apps, or Azure Functions. You will also learn about microservices architecture including Event Grid, Event Hubs, Service Bus, Storage Queues, Logic Apps, Azure Functions, and webhooks.

- A. Recommend a Microservices Architecture
- B. Recommend an Orchestration Solution for Deployment of Applications
- C. Recommend a Solution for API Integration

XXX. Design Migrations

In this module, you will learn about recommend a solution for migrating applications and VMs and a solution for migration of databases.

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