Design Microsoft Azure Infrastructure Solutions (AZ-305) Training

Duration: **4 Day**

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Overview

The **Design Microsoft Azure Infrastructure Solutions (AZ-305)** course is designed for Azure Solution Architects who need to create secure, scalable, resilient, and manageable infrastructure solutions on Microsoft Azure.

The programme covers the major architectural areas required when designing Azure environments, including governance, compute, application architecture, storage, data integration, authentication, networking, monitoring, business continuity, disaster recovery, and migration.

Rather than concentrating on the day-to-day configuration of individual Azure services, the course focuses on architectural decision-making. Participants learn how to select appropriate services based on workload requirements and how to balance performance, cost, security, scalability, availability, and operational management.

Instructor-led learning is supported by case studies and architecture-focused design exercises. These activities help learners understand not only what Azure services are available, but also when and why particular services should be selected.

Job Role: Solution Architect
Exam Preparation: AZ-305

Important Information About the Labs

The exercises in this course are not traditional hands-on labs performed in the Azure Portal.

Instead, the programme uses **discussion-based architecture and design exercises** in which participants:

- Examine design scenarios
- Compare architectural alternatives
- Discuss Azure best practices
- Evaluate solutions against business and technical requirements
- Consider the advantages and trade-offs of different Azure services

Learners who require practical experience configuring and administering Azure services in the portal should consider administrator-focused Azure training.

Prerequisites

Before attending this course, learners should have previous experience deploying or administering Azure resources and conceptual knowledge of:

- Microsoft Entra ID / Azure Active Directory

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- Azure Virtual Machines
- Containers
- Serverless solutions
- Azure Virtual Networks
- Load balancers
- Azure Storage
- Unstructured data storage
- Database technologies
- Messaging
- High availability
- General application architecture principles

Learners planning to sit the AZ-305 examination should also review the requirements of the relevant Microsoft certification pathway.

Who Should Attend

This programme is intended for professionals responsible for designing Azure solutions.

Typical roles include:

- Azure Solution Architects
- Cloud Architects
- Infrastructure Architects
- Senior Azure Administrators
- Cloud Engineers
- Technical Leads
- Enterprise Architects
- Senior IT professionals involved in Azure solution design

Successful learners typically have experience across networking, virtualisation, identity, security, business continuity, disaster recovery, data platforms, and governance.

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What You Will Learn

By the end of the course, participants will be able to:

- Design Azure governance solutions
- Design suitable compute architectures
- Design Azure application architectures
- Design relational and non-relational storage solutions
- Design data integration solutions
- Design authentication, authorisation, and identity solutions
- Design Azure network solutions
- Design logging and monitoring solutions
- Design backup and disaster recovery strategies
- Design migration solutions
- Apply Microsoft Azure Well-Architected Framework principles
- Use the Microsoft Cloud Adoption Framework to support cloud adoption planning

Outline

Module 1: Design Governance

This module examines how Azure environments can be organised and governed effectively.

Topics include:

- Governance design
- Management Groups
- Azure Subscriptions
- Resource Groups
- Resource Tags
- Azure Policy
- Role-Based Access Control
- Azure Landing Zones

Participants explore how governance structures can support consistency, control, compliance, and scale.

Module 2: Design an Azure Compute Solution

This module focuses on selecting the most appropriate compute platform for different workload requirements.

Topics include:

- Choosing an Azure compute service
- Azure Virtual Machines
- Azure Batch
- Azure App Service
- Azure Container Instances
- Azure Kubernetes Service

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- Azure Functions
- Azure Logic Apps

Participants compare IaaS, PaaS, container, and serverless approaches.

Module 3: Design a Data Storage Solution for Non-Relational Data

Topics include:

- Data storage design
- Azure Storage Accounts
- Azure Blob Storage
- Data redundancy
- Azure Files
- Azure Managed Disks
- Storage security

Module 4: Design a Data Storage Solution for Relational Data

This module examines relational data platforms and database architecture options.

Topics include:

- Azure SQL Database
- Azure SQL Managed Instance
- SQL Server on Azure Virtual Machines
- Database scalability
- Database availability
- Protecting data at rest
- Protecting data in motion
- Protecting data in use
- Azure SQL Edge
- Azure Cosmos DB
- Azure Table Storage

Participants compare platforms according to scalability, availability, management requirements, and security.

Module 5: Design Data Integration

This module covers modern Azure data integration and analytics services.

Topics include:

- Azure Data Factory
- Azure Data Lake
- Azure Databricks
- Azure Synapse Analytics
- Hot, warm, and cold data paths
- Azure Stream Analytics

Participants consider suitable architectures for batch, analytical, and streaming workloads.

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Module 6: Design an Application Architecture

This module explores components used to build modern cloud applications.

Topics include:

- Messaging and event scenarios
- Messaging solutions
- Azure Event Hubs
- Event-driven solutions
- Caching
- API integration
- Automated application deployment
- Application configuration management

Learners compare architecture patterns for loosely coupled, event-driven, and scalable applications.

Module 7: Design Authentication and Authorisation Solutions

This module focuses on identity and access design.

Topics include:

- Identity and Access Management
- Microsoft Entra ID
- Microsoft Entra B2B
- Azure Active Directory B2C
- Conditional Access
- Identity Protection
- Access Reviews
- Service Principals
- Managed Identities
- Azure Key Vault

Participants design secure access models for users, applications, and services.

Module 8: Design a Solution to Log and Monitor Azure Resources

This module focuses on observability and monitoring architecture.

Topics include:

- Azure Monitor data sources
- Azure Monitor Logs
- Log Analytics workspaces
- Azure Workbooks
- Azure Insights
- Azure Data Explorer

Participants consider how to centralise operational visibility across Azure solutions.

Module 9: Design Network Solutions

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This module examines Azure networking architecture.

Topics include:

- Selecting network architecture based on workload requirements
- Azure network connectivity services
- Outbound connectivity
- Routing
- On-premises connectivity
- Azure Virtual Network connectivity
- Application delivery services
- Application protection services

Learners design network solutions that balance connectivity, performance, security, and resilience.

Module 10: Design a Solution for Backup and Disaster Recovery

This module focuses on protecting Azure workloads and maintaining business continuity.

Topics include:

- Backup and recovery design
- Azure Backup
- Azure Blob backup and recovery
- Azure Files backup and recovery
- Azure Virtual Machine backup and recovery
- Azure SQL backup and recovery
- Azure Site Recovery

Participants evaluate appropriate recovery objectives and continuity strategies for different workload types.

Module 11: Design Migrations

This module examines how workloads can be assessed and moved to Azure.

Topics include:

- Migration assessment using the Microsoft Cloud Adoption Framework
- Azure Migration and Modernization approaches
- On-premises workload assessment
- Selecting migration tools
- Database migration
- Online storage migration
- Offline data migration

Participants consider migration planning, tool selection, and modernization options.

Learning Path: Build Great Solutions with the Microsoft Azure Well-Architected Framework

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This learning path introduces the Microsoft Azure Well-Architected Framework and its role in evaluating architectural quality.

Well-Architected Framework Pillars

- Cost Optimization
- Operational Excellence
- Performance Efficiency
- Reliability
- Security

Cost Optimization

Topics include:

- Planning Azure costs
- Cost estimation
- Provisioning with optimisation
- Monitoring and analytics for cost insight
- Improving cloud-spend efficiency

Operational Excellence

Topics include:

- Modern design and deployment practices
- Operational monitoring
- Automation
- Reducing manual effort and error
- Application testing strategies

Performance Efficiency

Topics include:

- Scale up
- Scale out
- Network performance optimisation
- Storage performance optimisation
- Identifying application bottlenecks

Reliability

Topics include:

- High availability
- Disaster recovery
- Backup
- Restore processes

Security

Topics include:

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- Defense in depth
- Identity management
- Infrastructure protection
- Encryption
- Network security
- Application security

Learning Path: Accelerate Cloud Adoption with the Microsoft Cloud Adoption Framework for Azure

This learning path explores how organisations can structure and govern Azure adoption.

Getting Started with the Cloud Adoption Framework

Topics include:

- Customer narratives
- Common blockers
- Core cloud adoption concepts

Prepare a Cloud Adoption Strategy

Topics include:

- Strategic motivation
- Objectives and Key Results
- Financial considerations
- Technical considerations
- Building a business case

Create a Data-Driven Cloud Adoption Plan

Topics include:

- Creating a cloud adoption plan
- Assessing the digital estate
- Customising the cloud adoption plan

Choose an Azure Landing Zone

Topics include:

- Common operating models
- Landing zone design areas
- Landing zone design principles
- Target architecture
- Azure Landing Zone options
- Landing Zone Accelerator
- Enhancing the landing zone

Migrate to Azure

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Topics include:

- Migration process
- Migration tools
- Common technology platforms
- Migration and modernization

Apply the Govern Methodology

Topics include:

- Corporate policies
- Governance disciplines
- Cloud governance foundations
- Cost Management discipline

Establish Stable Cloud Operations

Topics include:

- Business commitments
- Operations baseline
- Protect and recover
- Improving the operations baseline
- Platform specialisation
- Workload specialisation

Innovate with Azure

Topics include:

- Innovation lifecycle
- Azure development technologies
- Adding AI capabilities to applications
- Measuring business impact
- Learning and iteration

Prepare for Cloud Security

Topics include:

- Security methodology
- Security roles and responsibilities
- Compliance
- Simplifying security implementation
- Azure security tools
- Security policies

Learning Approach

The course is focused on **architecture and design decisions rather than portal configuration**.

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Through case studies and discussion-based exercises, participants:

- Analyse architectural requirements
- Compare Azure service options
- Evaluate cost and performance trade-offs
- Integrate security and governance requirements
- Design for high availability and disaster recovery
- Compare migration and modernization approaches

This approach helps learners develop the design and decision-making skills required for the Azure Solution Architect role.