

Designing Microsoft Azure Infrastructure Solutions

Duration: 4 Days

Course Description:

This course teaches Azure Solution Architects how to design infrastructure solutions. Course topics cover governance, compute, application architecture, storage, data integration, authentication, networks, business continuity, and migrations. The course combines lecture with case studies to demonstrate basic architect design principles.

Intended Audience:

Successful students have experience and knowledge in IT operations, including networking, virtualization, identity, security, business continuity, disaster recovery, data platforms, and governance. Students also have experience designing and architecting solutions. Before attending this course, students must have previous experience deploying or administering Azure resources and strong conceptual knowledge of:

- Azure compute technologies such as VMs, containers and serverless solutions
- Azure virtual networking to include load balancers
- Azure Storage technologies (unstructured and databases)
- General application design concepts such as messaging and high availability

Course Outline:

Design governance

- Introduction
- Design for governance
- Design for management groups
- Design for subscriptions
- Design for resource groups
- Design for resource tags
- Design for Azure Policy
- Design for role-based access control (RBAC)
- Design for Azure landing zones

Design an Azure compute solution

- Introduction
- Choose an Azure compute service
- Design for Azure Virtual Machines solutions
- Design for Azure Batch solutions
- Design for Azure App Service solutions
- Design for Azure Container Instances solutions
- Design for Azure Kubernetes Service solutions
- Design for Azure Functions solutions
- Design for Azure Logic Apps solutions
- Microsoft Azure Well-Architected Framework - Cost Optimization
- Microsoft Azure Well-Architected Framework - Operational excellence
- Microsoft Azure Well-Architected Framework - Performance efficiency
- Microsoft Azure Well-Architected Framework - Reliability
- Microsoft Azure Well-Architected Framework - Security

Accelerate cloud adoption with the Microsoft Cloud Adoption Framework for Azure

- Getting started with the Microsoft Cloud Adoption Framework for Azure
- Prepare for successful cloud adoption with a well-defined strategy
- Prepare for cloud adoption with a data-driven plan
- Choose the best Azure landing zone to support your requirements for cloud operations
- Migrate to Azure through repeatable processes and common tools
- Address tangible risks with the Govern methodology of the Cloud Adoption Framework for Azure
- Ensure stable operations and optimization across all supported workloads deployed to the cloud
- Innovate applications by using Azure cloud technologies
- Prepare for cloud security by using the Microsoft Cloud Adoption Framework for Azure

Design a data storage solution for non-relational data

- Introduction
- Design for data storage
- Design for Azure storage accounts
- Design for data redundancy
- Design for Azure Blob Storage
- Design for Azure Files
- Design for Azure managed disks
- Design for storage security

Design a data storage solution for relational data

- Introduction
- Design for Azure SQL Database
- Design for Azure SQL Managed Instance
- Design for SQL Server on Azure Virtual Machines
- Recommend a solution for database scalability
- Recommend a solution for database availability
- Design security for data at rest, data in motion, and data in use
- Design for Azure SQL Edge
- Design for Azure Cosmos DB and Table Storage

Design data integration

- Introduction
- Design a data integration solution with Azure Data Factory
- Design a data integration solution with Azure Data Lake
- Design a data integration and analytic solution with Azure Databricks
- Design a data integration and analytic solution with Azure Synapse Analytics
- Design strategies for hot, warm, and cold data paths
- Design an Azure Stream Analytics solution for data analysis

Design an application architecture

- Introduction
- Describe message and event scenarios
- Design a messaging solution
- Design an Azure Event Hubs messaging solution
- Design an event-driven solution
- Design a caching solution
- Design API integration
- Design an automated app deployment solution
- Design an app configuration management solution

Design authentication and authorization solutions

- Introduction
- Design for identity and access management (IAM)
- Design for Microsoft Entra ID
- Design for Microsoft Entra business-to-business (B2B)
- Design for Azure Active Directory B2C (business-to-customer)
- Design for conditional access
- Design for identity protection
- Design for access reviews
- Design service principals for applications
- Design managed identities
- Design for Azure Key Vault

Design a solution to log and monitor Azure resources

- Introduction
- Design for Azure Monitor data sources
- Design for Azure Monitor Logs (Log Analytics) workspaces
- Design for Azure Workbooks and Azure insights
- Design for Azure Data Explorer

Design network solutions

- Introduction
- Recommend a network architecture solution based on workload requirements
- Design patterns for Azure network connectivity services
- Design outbound connectivity and routing
- Design for on-premises connectivity to Azure Virtual Network
- Choose an application delivery service
- Design for application delivery services
- Design for application protection services

Design a solution for backup and disaster recovery

- Introduction
- Design for backup and recovery
- Design for Azure Backup
- Design for Azure blob backup and recovery
- Design for Azure files backup and recovery
- Design for Azure virtual machine backup and recovery
- Design for Azure SQL backup and recovery
- Design for Azure Site Recovery

Design migrations

- Introduction
- Evaluate migration with the Cloud Adoption Framework
- Describe the Azure migration framework
- Assess your on-premises workloads
- Select a migration tool
- Migrate your structured data in databases
- Select an online storage migration tool for unstructured data
- Migrate offline data

Build great solutions with the Microsoft Azure Well-Architected Framework

- Introduction to the Microsoft Azure Well-Architected Framework

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