

# AZURE



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# MODULE 01 - INTRODUCTION TO AZURE FUNDAMENTALS

## BENEFITS OF CLOUD SERVICES

### CLOUD SERVICE TYPES

- Introduction to Microsoft Azure
- Introduction to Cloud computing
- The shared responsibility model
- Cloud models
- Consumption based pricing
- High availability
- Scalability
- Reliability
- Predictability
- Security
- Governance
- Manageability
- Infrastructure as a Service
- Platform as a Service
- Software as a Service
- Review questions
- Summary



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## MODULE 02 - CORE AZURE ARCHITECTURAL COMPONENTS

### AZURE COMPUTE AND NETWORKING SERVICES

### AZURE STORAGE SERVICES

### AZURE IDENTITY, ACCESS, AND SECURITY

- What is Microsoft Azure?
- Azure accounts
- Azure physical infrastructure
- Azure management infrastructure
- Overview of Azure compute services
- Azure virtual machines
- Azure virtual desktop
- Azure containers
- Azure functions
- Application hosting options
- Virtual networking
- Virtual private networks
- Azure Express Route
- Azure DNS
- Azure storage accounts
- Redundancy options
- Storage services
- Migration options
- File management



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- Azure directory services
- Authentication methods
- External identities
- Conditional access
- Role-based access control
- Zero Trust security model
- Defense-in-depth
- Microsoft defender for cloud
- Review questions
- Summary

## **MODULE 03 - GOVERNANCE AND COMPLIANCE MANAGING AND DEPLOYING RESOURCES COST MANAGEMENT**

- Azure blueprints
- Azure policy
- Resource locks
- Service Trust portal
- Azure portal, command line interface, and Cloud Shell
- Azure Arc
- Azure resource manager
- ARM templates
- Azure advisor
- Azure service health



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- Azure monitor
- Review questions
- Factors that affect cost
- Azure pricing calculator
- Azure Total Cost of Ownership calculator
- Azure cost management tool
- Tags
- Summary

## **MODULE 04 - INTRODUCES YOU TO AZURE ACTIVE DIRECTORY, AND USERS AND GROUPS.**

### **INTRODUCTION TO ACTIVE DIRECTORY**

### **INTRODUCTION TO AZURE ACTIVE DIRECTORY**

- Describe Azure Active Directory Benefits and Features
- Describe Azure AD Concepts
- Compare AD DS to Azure Active Directory
- Select Azure Active Directory Editions
- Implement Azure AD Device Identities
- Implement Self Service Password Reset
- Knowledge Check
- Summary
- Create User Accounts
- Manage User Accounts
- Create Bulk Accounts



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- Create Group Accounts
- Assign Licenses to Users and Groups
- Create Administrative Units
- Demonstration - Users and Groups
- Knowledge Check
- Summary

## MODULE 05 - INTRODUCTION TO GOVERNANCE AND COMPLIANCE

- Identify Regions
- Implement Azure Subscriptions
- Obtain a Subscription
- Create Resource Groups
- Determine Resource Limits
- Create an Azure Resource Hierarchy
- Apply Resource Tagging
- Manage Costs
- Knowledge Check
- Summary
- Introduction to Azure policy
- Implement Azure Policy
- Create Azure Policies
- Create Policy Definitions
- Create Initiative Definitions



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- Scope the Initiative Definition
- Determine Compliance
- Demonstration -Azure Policy
- Knowledge Check
- Summary
- Introduction to Role based access control
- Compare Azure RBAC Roles to Azure AD Roles
- Create a Role Definition
- Create a Role Assignment
- Apply RBAC Authentication
- Determine Azure RBAC Roles
- Demonstration - Azure RBAC
- Knowledge check
- Summary

## **MODULE 06 -ADMINISTRATOR TOOLS, AZURE RESOURCE MANAGER, AND AZURE RESOURCES MANAGER TEMPLATES INTRODUCTION TO ADMINISTRATIVE TOOLS**

### **INTRODUCTION TO ARM TEMPLATES**

- Use the Azure Portal
- Demonstration Azure Portal
- Use Azure Cloud Shell
- Demonstration Cloud Shell



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- Use Azure PowerShell
- Demonstration - Working with PowerShell (optional)
- Use Azure CLI
- Demonstration Working with Azure CLI (optional)
- Knowledge Check
- Summary
- Review ARM Template Advantages
- Explore the ARM Template Schema
- Explore the ARM Template Parameters
- Consider Azure Bicep Templates
- Demonstration - Quick Start Templates
- Demonstration - Run Templates with PowerShell (optional)
- Knowledge Check
- Summary

## **MODULE 07 - VIRTUAL NETWORKING**

### **INTRODUCTION TO NETWORK SECURITY GROUPS**

### **INTRODUCTION TO FIREWALL**

### **INTRODUCTION TO DOMAIN NAMES**

- Introduction to virtual networking
- Plan Virtual Networks
- Create Subnets
- Create Virtual Networks
- Plan IP Addressing



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- Create Public IP Addresses
- Associate Public IP Addresses
- Associate Private IP Addresses
- Demonstration - Create Virtual Networks
- Knowledge Check
- Summary
- Implement Network Security Groups
- Determine NSG Rules
- Determine NSG Effective Rules
- Create NSG Rules
- Implement Application Security Groups (ASGs)
- Demonstration - NSGs
- Knowledge Check
- Summary
- Determine Azure Firewall Uses
- Create Azure Firewalls
- Create Azure Firewall Rules
- Knowledge Check
- Summary
- Identify Domains and Custom Domains



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- Verify Custom Domain Names (optional)
- Create Azure DNS Zones
- Delegate DNS Domains
- Add DNS Record Sets
- Plan for Private DNS Zones
- Determine Private Zone Scenarios
- Demonstration - DNS Name Resolution
- Knowledge check
- Summary

## **MODULE 08 - INTERSITE CONNECTIVITY**

### **INTRODUCTION TO EXPRESS ROUTE**

- Introduction to Intersite Connectivity
- Determine V Net Peering Uses
- Determine Gateway Transit and Connectivity Needs
- Create V Net Peering
- Determine Service Chaining Uses
- Demonstration – V Net Peering
- Knowledge Check
- Summary
- Introduction
- Determine VPN Gateway Uses
- Create Site to Site Connections
- Create the Gateway Subnet
- Create the VPN Gateway



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- Determine Gateway SKU and Generation
- Create the Local Network Gateway
- Setup the On Premises VPN Device
- Create the VPN Connection
- Determine High Availability Scenarios
- Demonstration - VPN Gateways
- Knowledge Check
- Summary
- Determine Express Route Uses
- Determine Express Route Capabilities
- Coexist Site to Site and Express Route
- Compare Intersite Connection Options
- Determine Virtual WAN Uses
- Knowledge check
- Summary

## **MODULE 09 -ADMINISTER NETWORK TRAFFIC KNOWLEDGE CHECK**

### **INTRODUCTION TO APPLICATION GATEWAY**

### **INTRODUCTION TO NETWORK WATCHER**

- Introduction to network traffic
- Review System Routes
- Identify User Defined Routes
- Examine a Routing Example
- Demonstration - Custom Routing Tables



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- Determine Service Endpoint Uses and Services
- Identify Private Link Uses
- Summary
- Introduction to Load balancers
- Choose a Load Balancer Solution
- Implement a Public Load Balancer
- Implement an Internal Load Balancer
- Determine Load Balancer SKUs
- Create Backend Pools
- Create Load Balancer Rules
- Configure Session Persistence
- Create Health Probes
- Knowledge check
- Summary
- Implement Application Gateway
- Determine Application Gateway Routing
- Setup Application Gateway Components
- Knowledge Check
- Summary
- Describe Network Watcher Features
- Review IP Flow Verify Diagnostics
- Review Next Hop Diagnostics
- Visualize the Network Topology
- Knowledge Check
- Summary



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# MODULE 10 -ADMINISTER AZURE STORAGE

## INTRODUCTION TO STORAGE SECURITY

### INTRODUCTION TO BLOBS

- Introduction to Azure storage
- Implement Azure Storage
- Explore Azure Storage Services
- Determine Storage Account Kinds
- Determine Replication Strategies
- Access Storage
- Secure Storage Endpoints
- Demonstration Secure Storage Endpoints
- Knowledge Check
- Summary
- Introduction
- Implement Blob Storage
- Create Blob Containers
- Create Blob Access Tiers
- Add Blob Lifecycle Management Rules
- Determine Blob Object Replication
- Demonstration - Blob Storage
- Knowledge Check
- Summary
- Review Storage-Security Strategies
- Create Shared Access Signatures
- Identify URI and SAS Parameters



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- Demonstration - SAS in the Portal
- Determine Storage Service Encryption
- Create Customer Managed Keys
- Apply Storage Security Best Practices
- Knowledge Check
- Summary
- Compare Files to Blobs
- Manage File Shares
- Create File Share Snapshots
- Demonstration - File Shares
- Implement File Sync
- Identify File Sync Components
- Setup File Sync
- Configure Storage with Tools
- Knowledge Check
- Summary

## **MODULE 11 - ADMINISTER AZURE VIRTUAL MACHINES**

### **INTRODUCTION TO RELIABILITY (THROUGH AVAILABILITY SETS AND AVAILABILITY ZONES)**

### **KNOWLEDGE CHECK**

### **ADMINISTER PAAS COMPUTE OPTIONS**

### **INTRODUCTION TO APP SERVICES**



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- Introduction to PaaS services
- Implement Azure App Service Plans
- Determine App Service Plan Pricing
- Scale Up and Scale Out the App Service
- Configure App Service Plan Scaling
- Demonstration -Create an App Service Plan
- Knowledge Check
- Summary
- Implement Azure App Services
- Create an App Service
- Create Deployment Slots
- Add Deployment-Slots
- Secure an App Service
- Create Custom Domain Names
- Backup an App Service
- Use Application Insights
- Demonstration – Create an App Service
- Knowledge Check
- Summary

## MODULE 12 - ADMINISTER DATA PROTECTION

- Introduction to data protection
- Describe Azure Backup Benefits
- Implement Azure Backup Center
- Setup Recovery Service Vault Backup Options



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- Demonstration – Backup Azure File Shares
- Configure On-Premises File and Folder Backups
- Manage the Azure Recovery Services Agent
- Demonstration – Backup Files and Folders
- Knowledge Check
- Summary
- Protect Virtual Machine Data
- Create Virtual Machine Snapshots
- Setup Recovery Services Vault Backup Options
- Backup Virtual Machines
- Restore Virtual Machines
- Implement Azure Backup Server
- Compare Backup Options
- Manage Soft Delete
- Implement Azure Site Recovery
- Demonstration – Virtual Machine Backups
- Knowledge Check
- Summary

## **MODULE 13 - ADMINISTER MONITORING**

### **INTRODUCTION TO MONITOR ALERTS**

### **INTRODUCTION TO LOG ANALYTICS**

- Introduction to monitor
- Describe Azure Monitor Key Capabilities
- Describe Azure Monitor Components
- Define Metrics and Logs
- Identify Data Types



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- Describe Activity Log Events
- Query the Activity Log
- Knowledge Check
- Summary
- Manage Azure Monitor Alerts
- Create Alert Rules
- Create Action Groups
- Demonstration - Alerts
- Knowledge Check
- Summary
- Determine Log Analytics Uses
- Create a Workspace
- Visualize Log Analytics Data
- Structure Log Analytics Queries
- Demonstration – Log Analytics
- Knowledge Check
- Summary



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