

Microsoft Azure Administrator: Manage Storage Accounts

CREATING AND CONFIGURING AZURE STORAGE ACCOUNTS



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Course Coverage of Certification Objectives



Manage Storage Accounts

- Create and configure storage accounts
- Implement Azure storage replication
- Generate shared access signature
- Manage access keys
- Configure Azure AD Authentication for a storage account
- Configure network access to storage accounts



Exercise Files

Slides

Code

Links to Resources

The screenshot shows the course page for "PowerShell: Getting Started" by Michael Bender. The page has a dark theme. At the top, there's a search bar and the author's name "Michael Bender" with his email "mbender@bentech.net". The main title "PowerShell: Getting Started" is prominently displayed, followed by "by Michael Bender". Below this, a description states: "This is an introductory course on PowerShell and how to use it for basic IT Operations support." There are four buttons: "Resume Course" (orange), "Bookmark", "Add to Channel", and "Download Course". To the right, a "Course Breakdown" section lists topics like "Introduction to PowerShell", "PowerShell Basics", "Gathering Information with PowerShell", "Working with PowerShell", and "Managing PowerShell". Below the main content, there's a tabbed interface with "Table of contents", "Description", "Exercise files" (highlighted with a yellow box), "Discussion", "Learning Check", and "Recommended". The "Exercise files" tab shows a paragraph: "These exercise files are intended to provide you with the assets you need to create a video-based hands-on experience. With the exercise files, you can follow along with the author and re-create the same solution on your computer. We find this to be even more effective than written lab exercises." Below this text is a button "Download exercise files" (highlighted with a yellow box). On the right side, there's a "Course author" section with Michael Bender's profile and a bio. Below that is "Course info" showing "Level: Beginner", "Rating: ★★★★★ (602)", "My rating: ★★★★★", "Duration: 3h 5m", and "Updated: 22 May 2019". At the bottom right, there's a "Share course" section with social media icons for Facebook, Twitter, and LinkedIn.



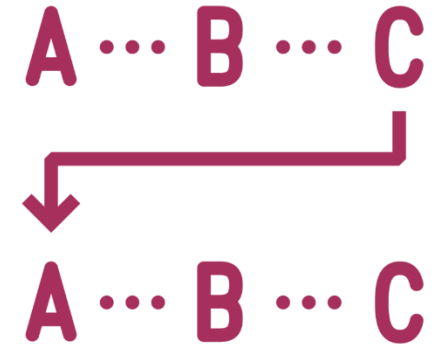
Azure Storage Data Objects



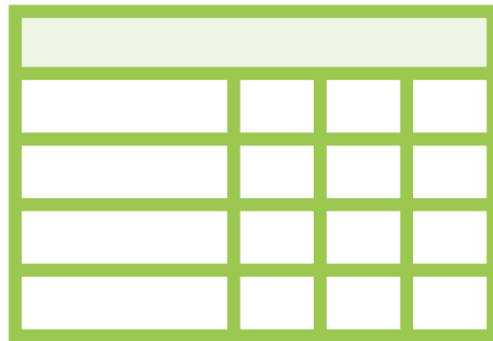
Blob



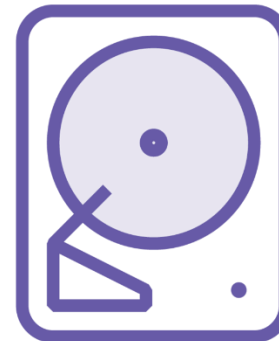
File



Queue



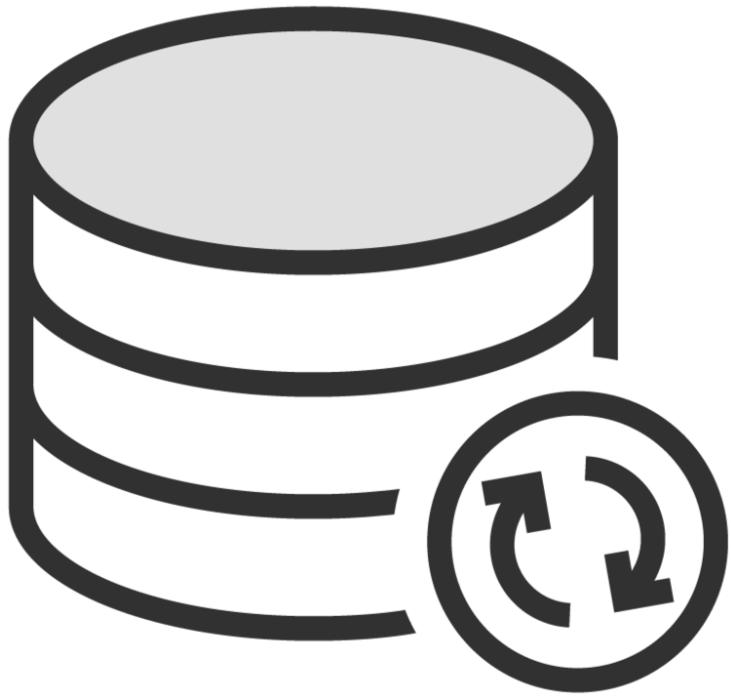
Table



Disk



Azure Storage Accounts



Contains all Azure storage objects

Unique namespace access to storage resources

- <https://stblobstorage001.blob.core.windows.net/demo/az-104-outline.pdf>

Highly Available

Secure and Scalable

Type of Storage Accounts

General-purpose
v2

General-purpose
v1

BlockBlobStorage

FileStorage

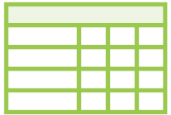
BlobStorage



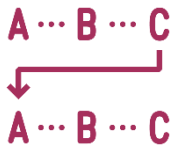
Storage Account Endpoints



Azure Blob - <https://saprodstorage001.blob.core.windows.net>



Azure Table - <https://saprodstorage001.table.core.windows.net>



Azure Queue - <https://saprodstorage001.queue.core.windows.net>



Azure File - <https://saprodstorage001.file.core.windows.net>



`https://sa-blobstore-eastus-001.blob.core.windows.net/demo/az-104-outline.pdf`



Storage
Account
Name

Storage
Service
Endpoint

Container
Name

Object
Name

Azure Storage Endpoint for BlobStorage



Storage Account Performance and Access Tiers



Performance Tiers

Standard

- All storage account types
- Backup and disaster recovery data
- Media

Premium

- Available for
 - BlockBlob Storage
 - FileStorage
 - GPv1 & GPv2 (unmanaged VHDs only)
- Interactive
- Analytics
- AI/ML

No conversion after Deployment!



Access Tiers



Hot

Highest storage cost
Lower access cost



Cool

Lower storage cost
Higher access cost
30 day minimum



Archive

Lowest storage cost
Highest access cost
180 day minimum



Replication Options

**Local-Redundant
storage (LRS)**

**Zone-Redundant
storage (ZRS)**

**Geo-Redundant
storage (GRS)**

**Geo-Zone-
Redundant
Storage (GZRS)**

**Read-Access Geo-
Redundant
Storage (RA-GRS)**

**Read-Access Geo-
Zone-Redundant
Storage (RA-GZRS)**



Replication



What if an Azure datacenter fails?

What if an Azure region fails?

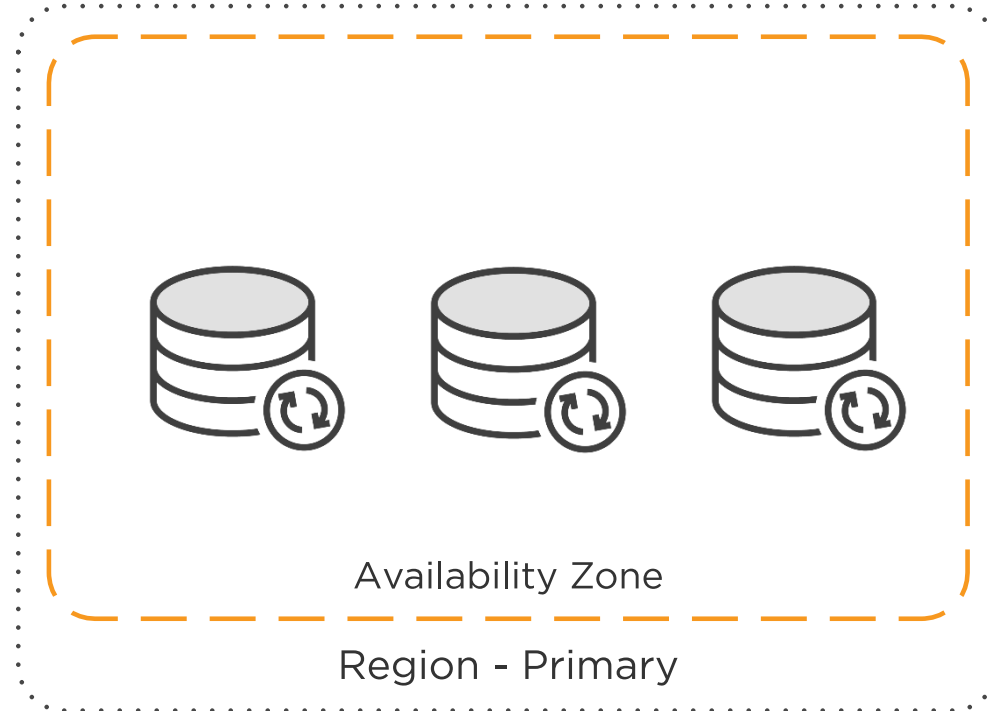
Do you need Read access?



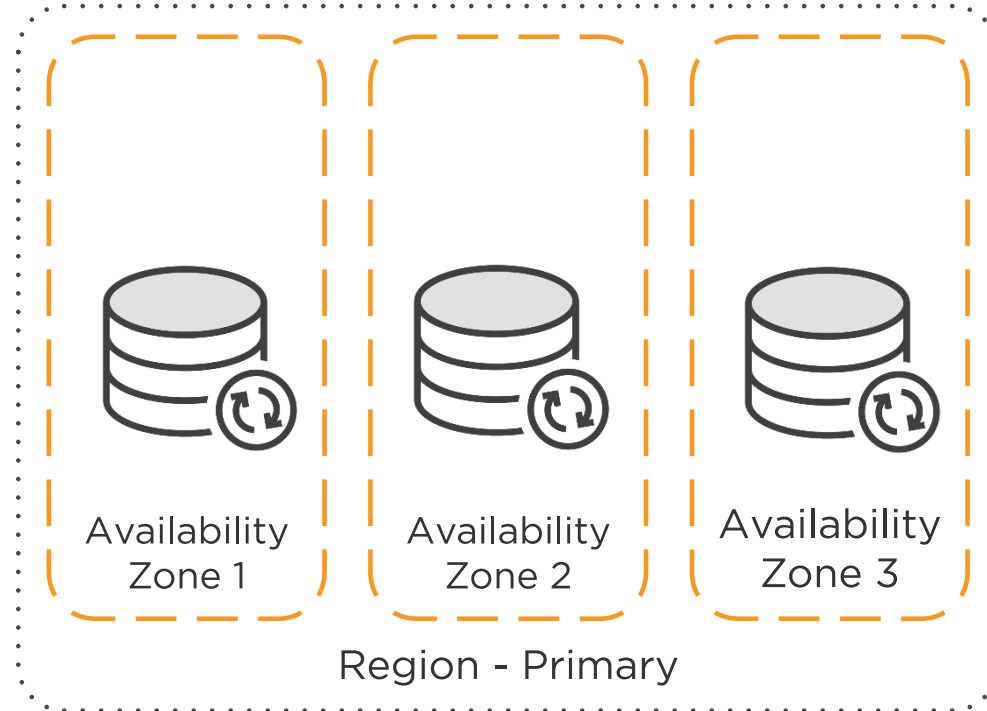
Redundancy in a Primary Region



Local-Redundant Storage (LRS)



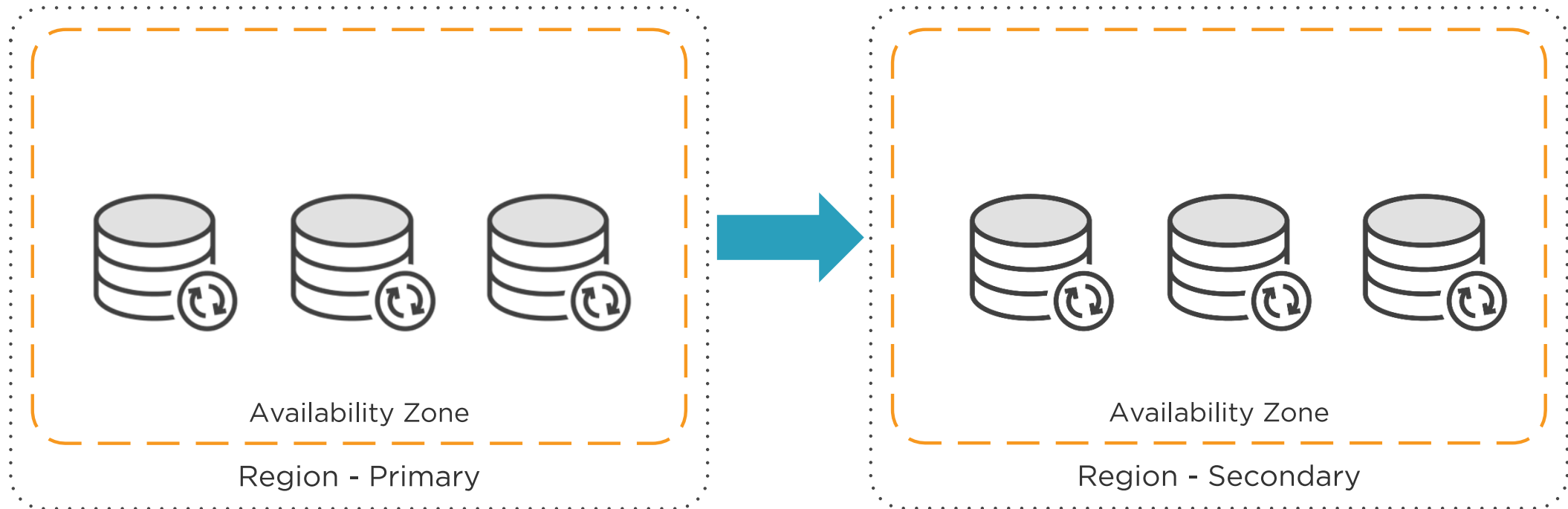
Zone-Redundant storage (ZRS)



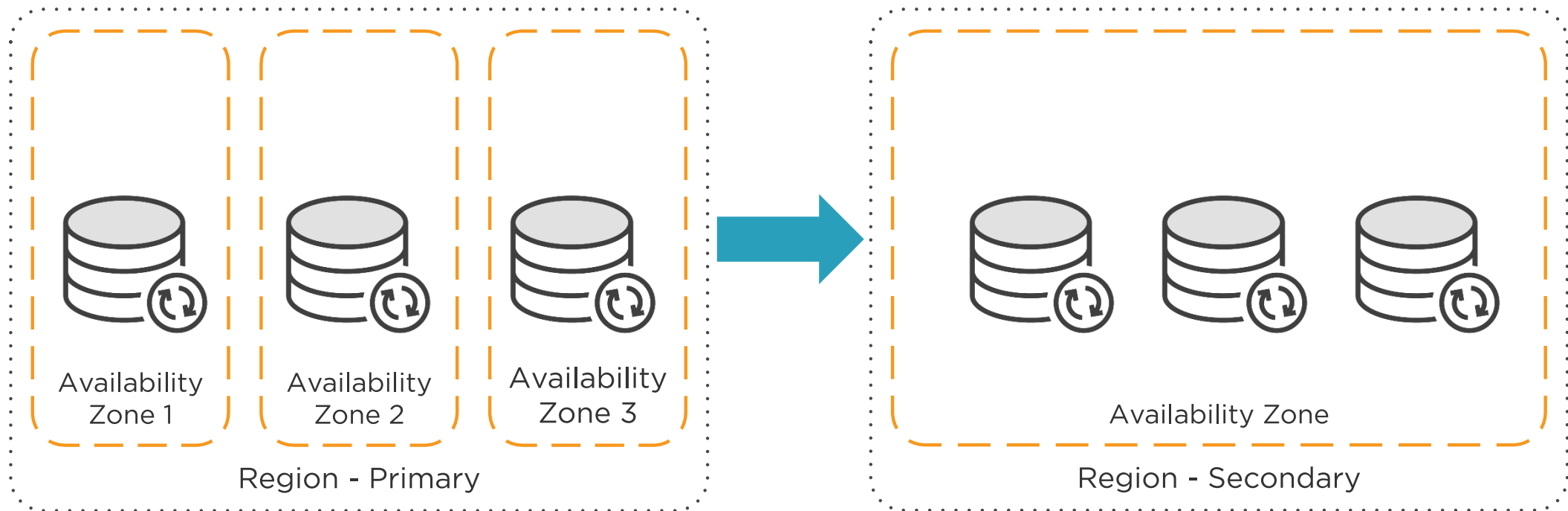
Redundancy in a Secondary Region



Geo-Redundant Storage (GRS)



Geo-Zone-Redundant Storage (GZRS)



Read Access in a Secondary Region



Read-Only without failover

Applications can use secondary storage

Available in Geo-redundant storage

Read-Access Geo-Redundant Storage (RA-GRS)

Read-Access Geo-Zone-Redundant Storage (RA-GZRS)

Append *-secondary* to storage account name

<https://<StorageAcctName>-secondary.blob.core.windows.net>



Azure Storage Durability and Availability Scenarios

Outage scenario	LRS	ZRS	GRS/ RA-GRS	GZRS/ RA-GZRS
Data center node becomes unavailable	Yes	Yes	Yes	Yes
Entire datacenter becomes unavailable	No	Yes	Yes	Yes
Primary region-wide outage	No	No	Yes	Yes
Read access in secondary region when primary is unavailable	No	No	Yes (with RA-GRS)	Yes (with RA-GZRS)

Referenced from Microsoft at <https://bit.ly/2FeFav5>



Storage Account Supported Capabilities

	Data Objects	Performance Tiers	Access Tiers	Replication Options
General Purpose v2	Blob, File, Table, Disk, Queue, & Data Lake Gen2	Standard Premium (Disk Only)	Hot, Cool, Archive	LRS, GRS, RA-GRS, ZRS, GZRS (preview), RA-GZRS (preview)
General Purpose v1	Blob, File, Queue, Table, and Disk	Standard Premium (Disk Only)	N/A	LRS, GRS, RA-GRS
BlockBlobStorage	Blob (block blobs and append blobs)	Premium	N/A	LRS, ZRS
FileStorage	File Only	Premium	N/A	LRS, ZRS
BlobStorage	Blob (block blobs and append blobs)	Standard	Hot, Cool, Archive	LRS, GRS, RA-GRS

Referenced from Microsoft at <http://bit.ly/azstraccts>



Demo



Creating a Storage Accounts



Demo



Configuring a Storage Account



Be sure you can do all the
tasks in all the tools for the
Exam



Next Up

Configuring Access Control to Azure
Storage Accounts



Configuring Access Control to Azure Storage Accounts



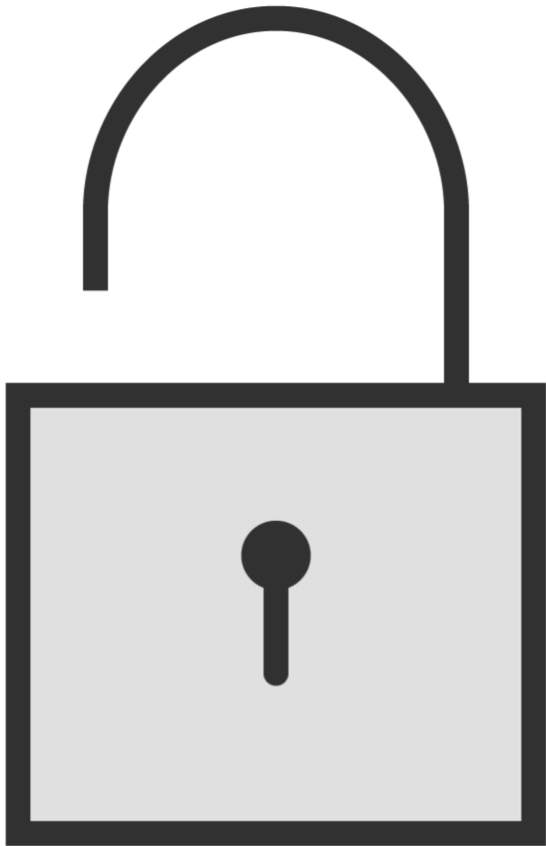
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Data Storage Authorization



Anonymous

- Azure blobs only

Authenticated

- Shared Key authorization
- Shared Access Signatures (SAS)
- Azure AD



Authorizing Access to Azure Storage Data

	Shared Key (storage account Key)	Shared access signature (SAS)	Azure Active Directory (Azure AD)	Anonymous public read access
Azure Blobs	Supported	Supported	Supported	Supported
Azure Files (SMB)	Supported	Not Supported	*Supported using Azure AD Domain Services only	Not Supported
Azure Files (REST)	Supported	Supported	Not Supported	Not Supported
Azure Queues	Supported	Supported	Supported	Not Supported
Azure Tables	Supported	Supported	Not Supported	Not Supported

More information at <https://bit.ly/2DHOGXa>



Shared Access Key Authorization



Access to entire storage account

Protect from view

Regenerate keys

Consider Azure AD instead

Use Azure Key Vault



Demo



Working with Shared Access Keys



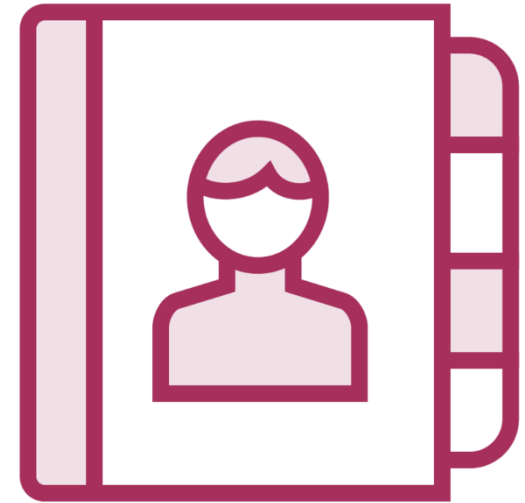
Shared Access Signatures (SAS)



User Delegation

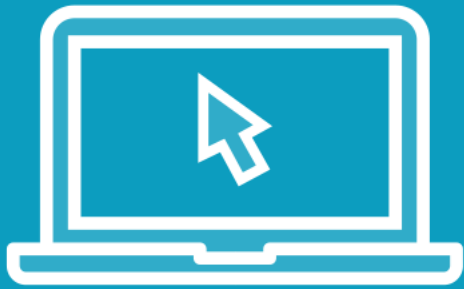


Service



Account

Demo



Accessing Azure Storage with Shared Access Signatures



Demo



Applying a Shared Access Policy



Azure AD Authorization



Supported for Blob and Queue storage

Uses role-based access control (RBAC)

Microsoft recommended approach



Accessing Resources using Azure AD

Data layer permissions

Management permissions



Demo



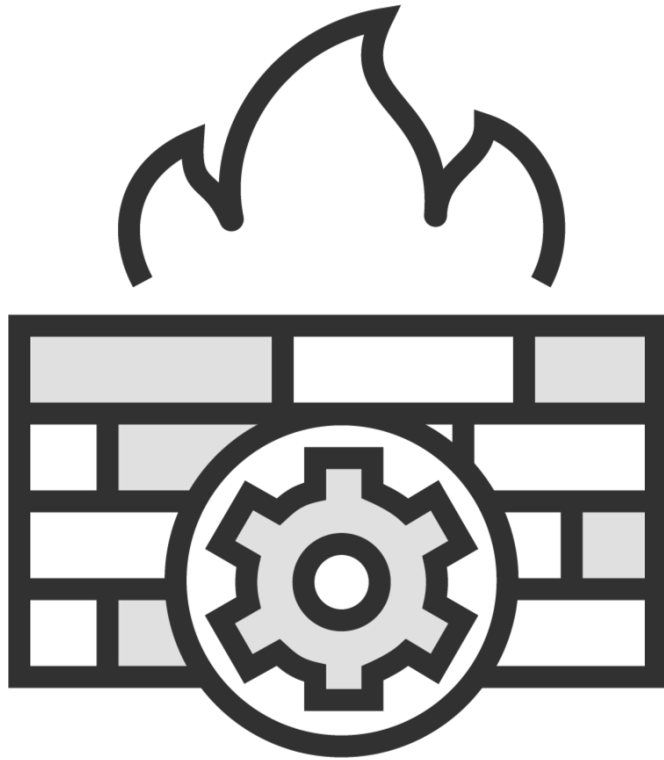
Configure Azure AD Authentication for a Storage Account



Network Access Control



Azure Storage Firewalls and Virtual Networks



Layered security model

Limit access by rules

- IP addresses
- IP ranges
- Subnets in Azure vNets

Requires Authorization



Demo



Configure Network Access to Storage Accounts

- Remove Public Access
- Allow vNet Access
- Allow Access from Public IP address



Summary



- Know all the storage account options
- Learn your replication options
- Understand all your access and authorization options
- Get some hands-on experience



For Further Learning

Azure Storage Accounts documentation at [docs.microsoft.com](https://docs.microsoft.com/en-us/azure/storage/common/storage-account-overview)
<https://docs.microsoft.com/en-us/azure/storage/common/storage-account-overview>

Creating and Configuring Microsoft Azure Storage Accounts by Neil Morrissey
<https://www.pluralsight.com/courses/microsoft-azure-creating-configuring-storage-accounts>

Remember the module exercise files

Questions? Join on the conversation at [pluralsight.com](https://www.pluralsight.com)

