Exam Alert: Manage Azure Storage

AZURE STORAGE ACCOUNTS “NEED TO KNOW” EXAM INFORMATION

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Exam Breakdown of Objective Domain

Implement and manage storage(10-15%)

- Manage storage accounts
- Manage data in Azure Storage
- Configure Azure files and Azure blob storage

Manage storage accounts

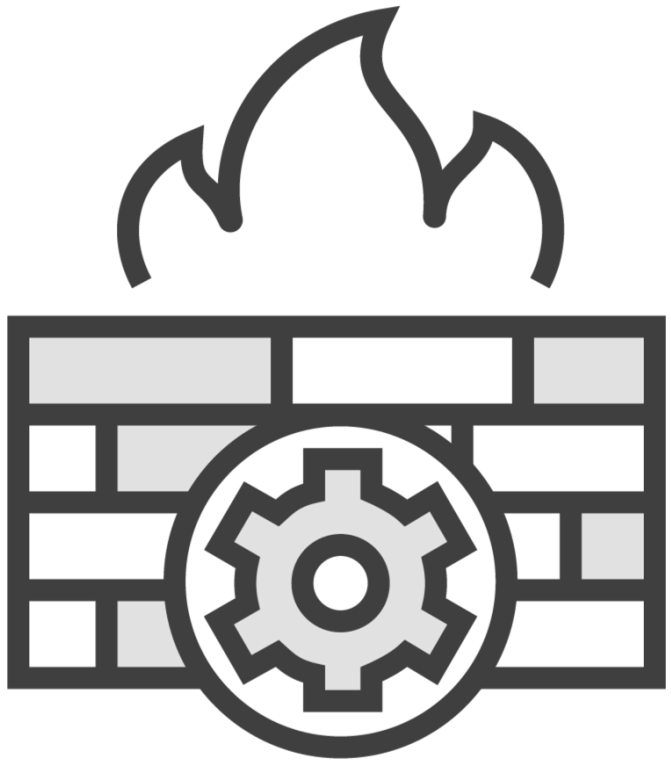
Manage Storage Account

Objectives

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

Configure Network Access to Storage Accounts

Azure Storage Firewalls and Virtual Networks



Layered security model

Limit access by rules

- IP addresses
- IP ranges
- Subnets in Azure vNets

Configure through Firewall and Virtual Networks blade

Service Endpoints in vNets

Requires Authorization

Create and Configure Storage Accounts

Create Storage Accounts

Contains all Azure storage objects

Unique namespace access to storage resources

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

Be able to create a storage account in the Azure Portal and through the CLI

Type of Storage Accounts

General-purpose v2

General-purpose v1

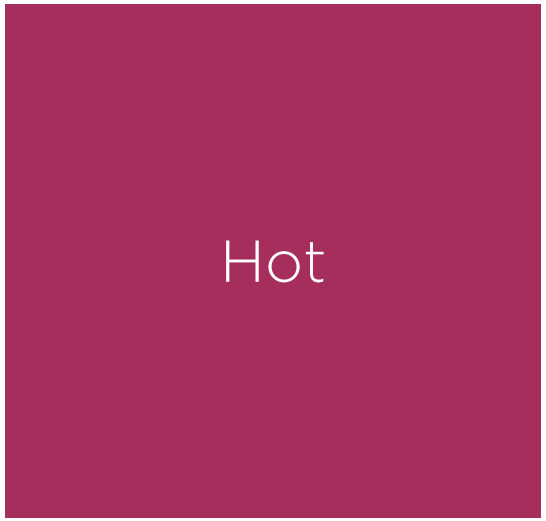
BlockBlobStorage

FileStorage

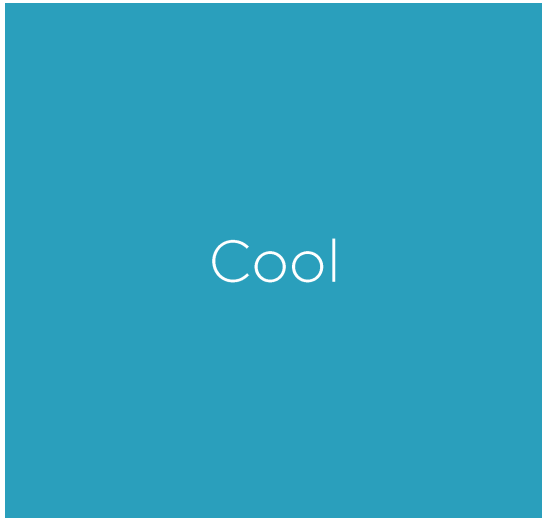
BlobStorage

https://bit.ly/2EKQtLQ

Access Tiers



Highest storage cost
Lower access cost



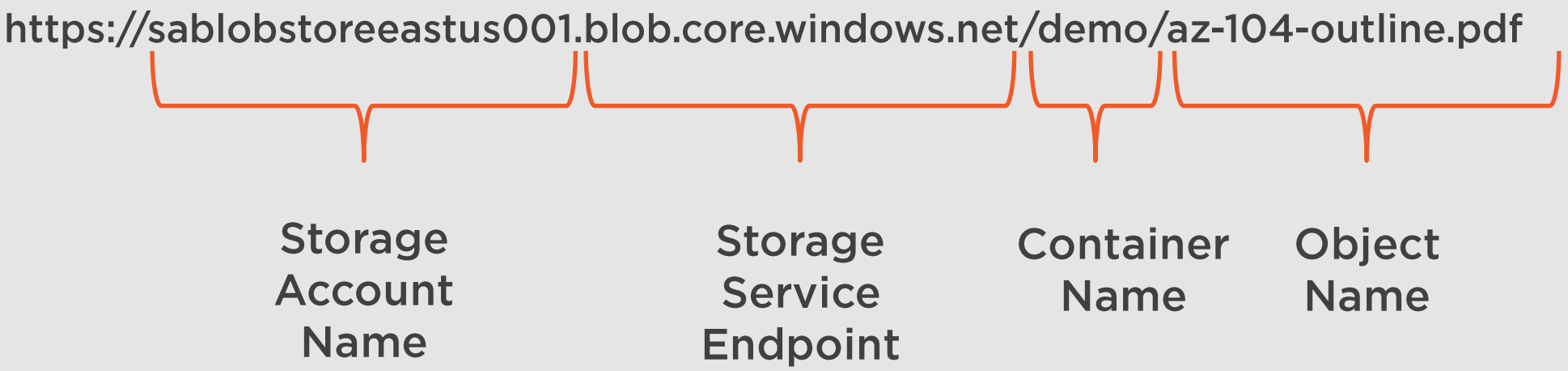
Lower storage cost
Higher access cost
30 day minimum

Lowest storage cost
Highest access cost
180 day minumum

Azure Storage Account Capabilities

	Supported Services	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



Azure Storage Endpoint for BlobStorage

Implement Azure Storage Replication

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 Options in a Nutshell

LRS and ZRS are single region replication only

ZRS provides replication across datacenters

GRS and GZRS provide cross-region replication

RA-GRS and RA-GZRS provide read-only access

Replication can be re-configured on Storage Account

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

Manage Access Keys

Managing Shared Access Keys

- Access to entire storage account
- Used in scenarios needed limited number of secrets
- Protect your keys
- Consider Azure AD instead
- Use Azure Key Vault
- Be familiar with retrieving and applying keys

Generate Shared Access Signatures

Generate Shared Access Signatures

- Provide time-limited access to resources in a storage account.
- Allow granular permissions
- Can be applied at storage account or data object level
- Generate SAS keys in multiple tools
- Be familiar with generating and applying SAS keys

Configure Azure AD Authentication for a Storage Account

Azure AD Authorization

Supported for Blob and Queue storage

Uses role-based access control (RBAC)

Understand permissions are applied

Microsoft recommended approach

Be sure you can apply permissions properly

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

Manage Data in Azure Storage “Need to Know” Exam Information

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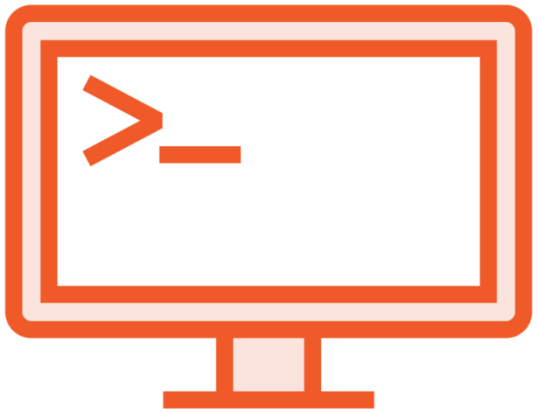
Manage data in Azure Storage

Objectives

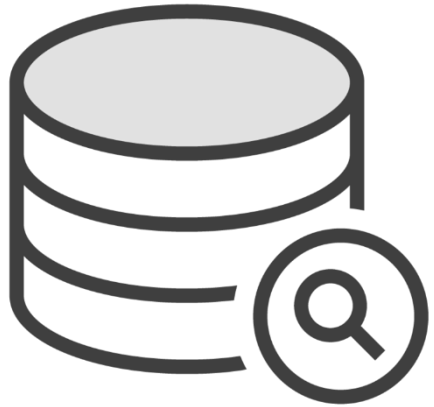
- Export from Azure job
- Import into Azure job
- Install and use Azure Storage Explorer
- Copy data by using AZCopy

Data Management Tools

Azure Import/Export Service



AzCopy



Azure Storage Explorer

Export and Import with Azure Jobs

Export and Import with Azure Jobs

Securely import/export large amounts of data with physical drives

Create jobs in Azure Portal or Azure Resource Manager REST API

Import to Azure BlobStorage and Azure Files

Export to Azure BlobStorage Only

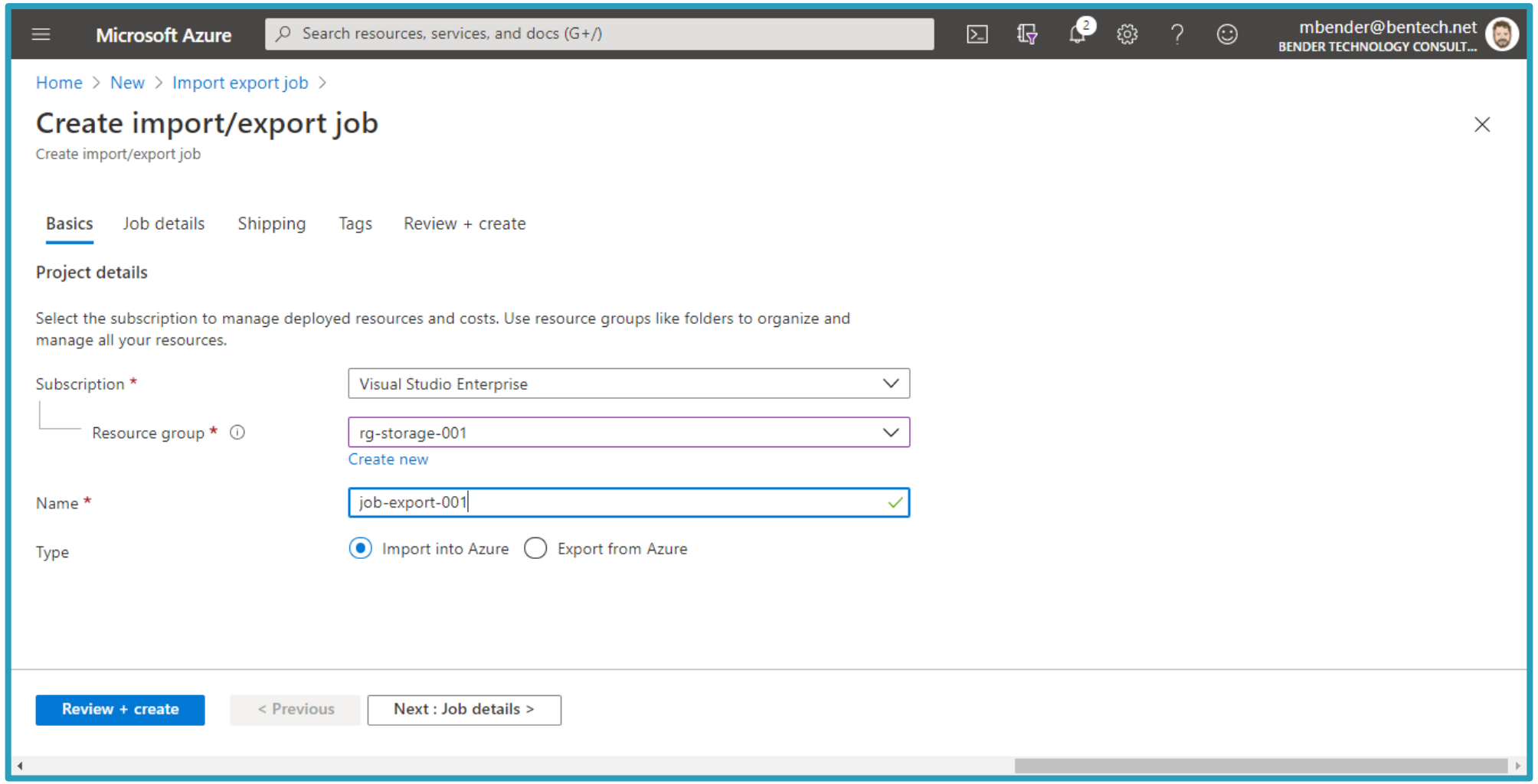
Drives shipped to Microsoft

```
.\WAImportExport.exe PrepImport
    /j:<JournalFile>
    /id:<SessionId>
    [/logdir:<LogDirectory>]
    [/sk:<StorageAccountKey>] [/silentmode]
    [/InitialDriveSet:<driveset.csv>]
    /DataSet:<dataset.csv>
```

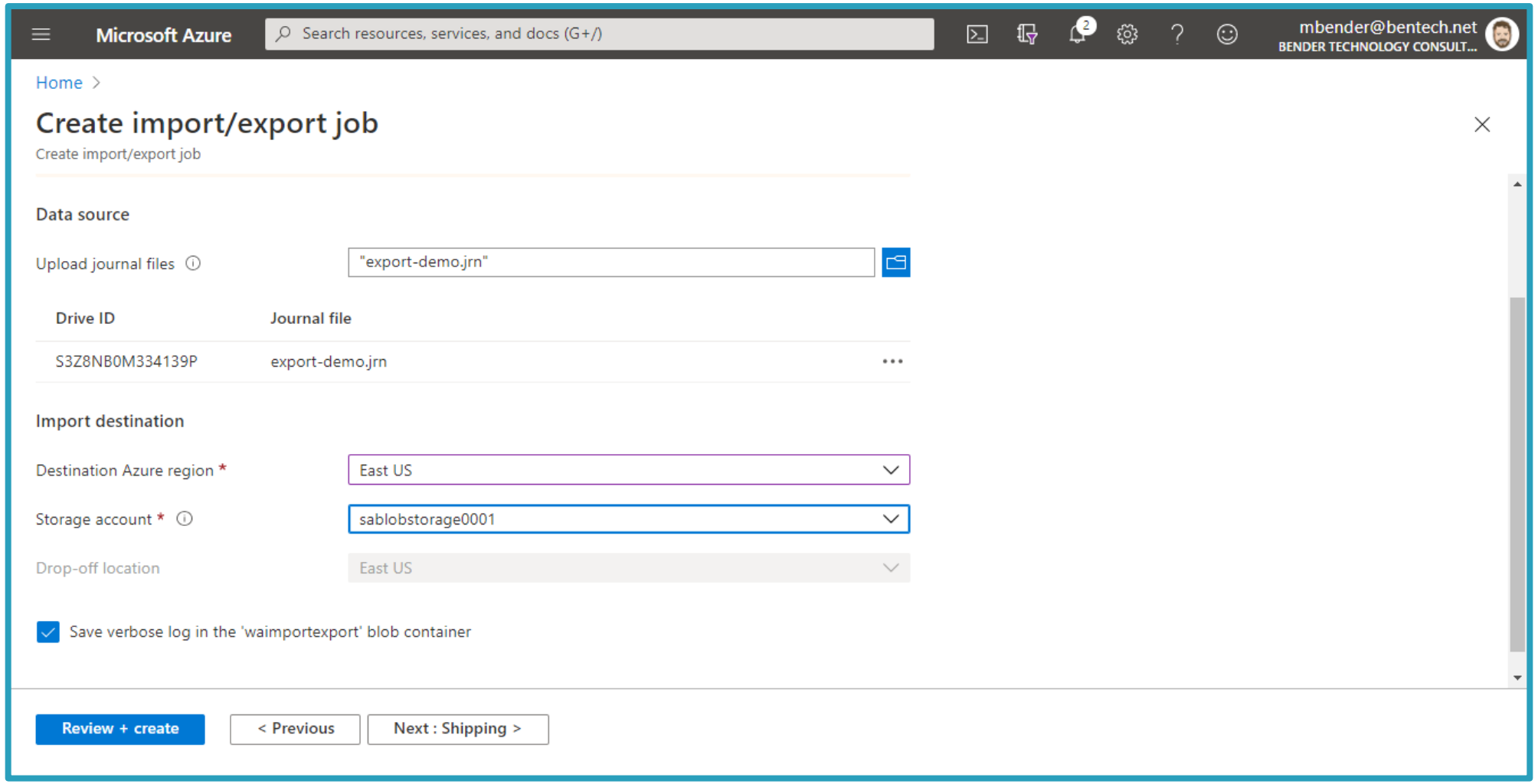
WAImportExportTool

- CLI tool run on 64-bit Windows Only!
- Encryption, decryption and data copy
- Creation of journal files
- Determine number of drives needed for export job
- Understand uses for driveset.csv and dataset.csv)

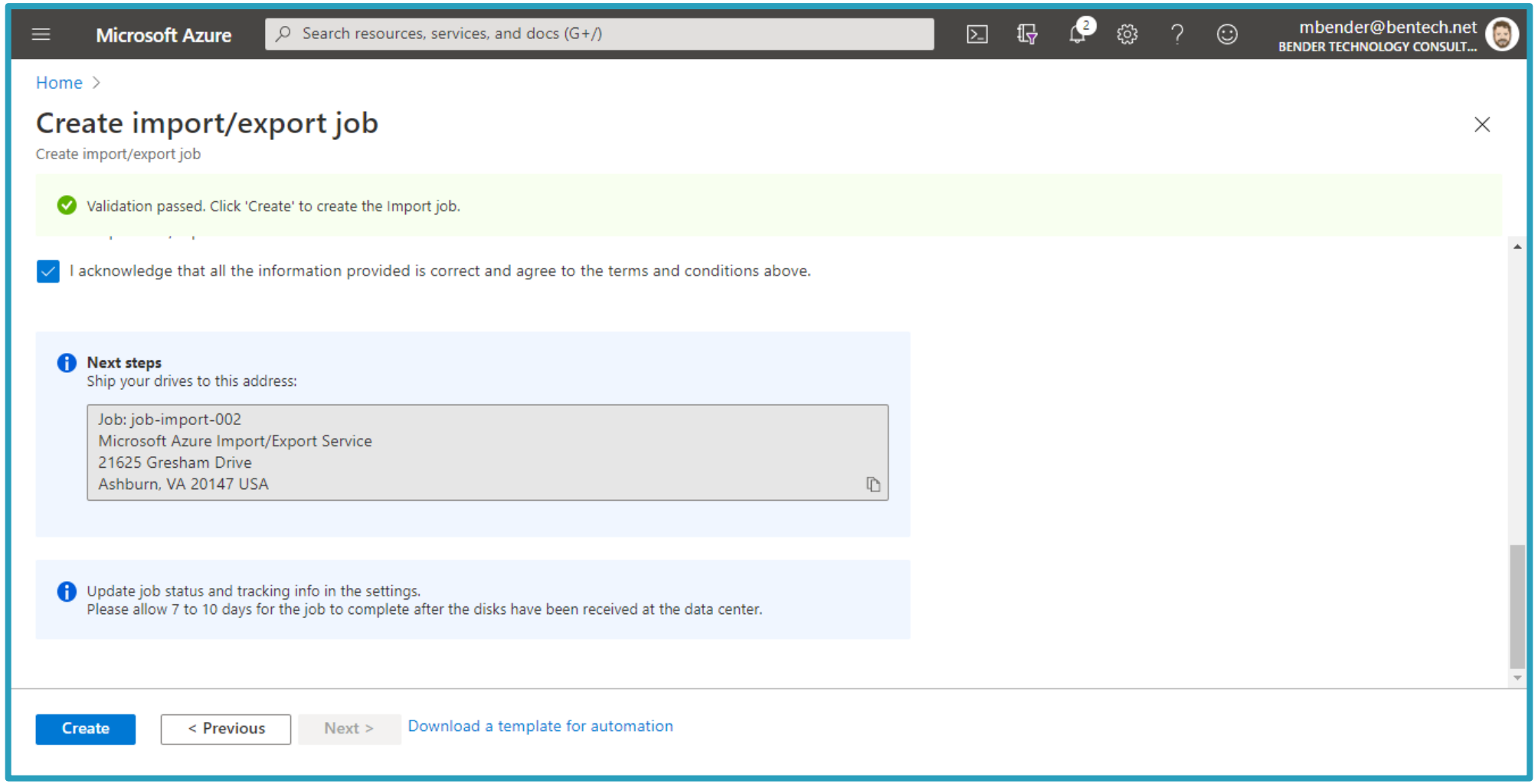
Create Import Job in Azure Portal



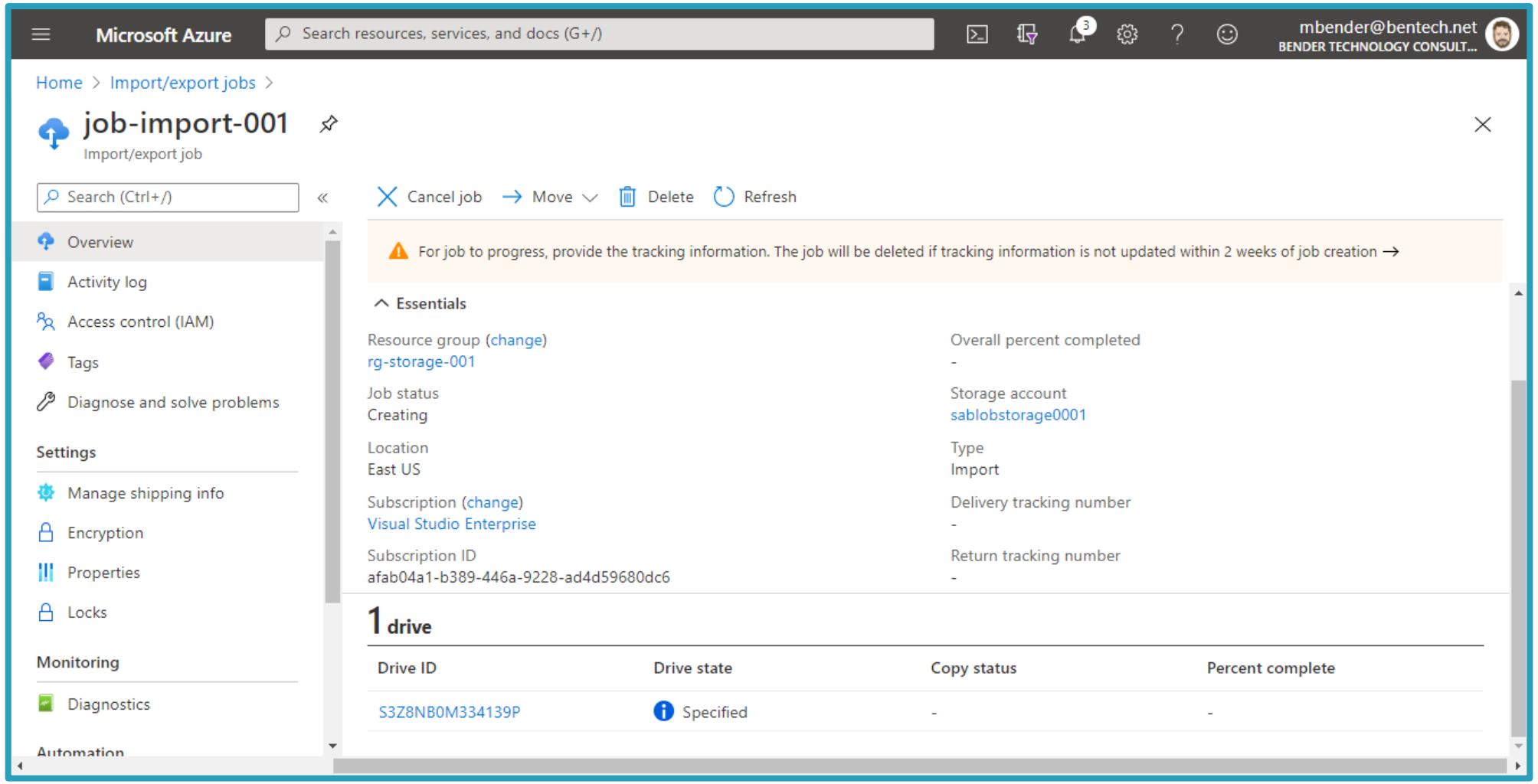
Create Import Job in Azure Portal



Create Import Job in Azure Portal



Verify Job Status



Install and use Azure Storage Explorer

Install and use Azure Storage Explorer

Download from Microsoft

Manage Azure Storage from your Desktop

Be familiar with tasks performed with Azure Storage Explorer

- SAS key creation
- Blob and Blob container creation
- Configure container and object settings

Copy Data by using AZCopy

Copy Data by using AZCopy

- Copies blobs or files to or from storage accounts
- Installed by downloading from Microsoft
- Supports Authentication with SAS and Azure AD
- Understand the basic Syntax

```
azcopy [command] [arguments]
--[flag-name]=[flag-value]
```

AzCopy Syntax

```
azcopy copy 'H:\data'
'https://sablobstore001.blob.core.windows.net/blobdata' --
recursive
```

AzCopy Syntax

Azure Files and Azure Blobs “Need to Know” Exam Information

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Configure Azure Files and Azure Blob storage

Objectives

- Create an Azure file share
- Create and configure Azure File Sync service
- Configure Azure blob storage
- Configure storage tiers for Azure blobs

Create an Azure File Share

Create an Azure File Share

Cloud-based SMB or NFS file share

Create shares through Azure Portal or Code

Clients use port 445

Supported in GPv1, GPv2 and FileStorage Storage Accounts

- Understand when to use each
- Know the performance and access tiers

Replication available depending on Storage Account

Azure File Share Options

	Max Size of File Share	Performance Tiers	Access Tiers	Replication Options
General Purpose v2	5 TiB default Up to 100 TiB upon request	Standard	Hot, Cool, Transaction Optimized	LRS, GRS, ZRS, GZRS
General Purpose v1	5 TiB default Up to 100 TiB upon request	Standard	N/A	LRS, GRS
FileStorage	100 TiB default	Premium	N/A	LRS, ZRS (small subset of regions)

Authentication

Azure Active Directory Domain Services and Active Directory Domain Services

- Provides identity-based access for hybrid environments
- Allows granular share-level and file-level permissions
- Recommended best practice

Storage Account Key or Shared Access Signature

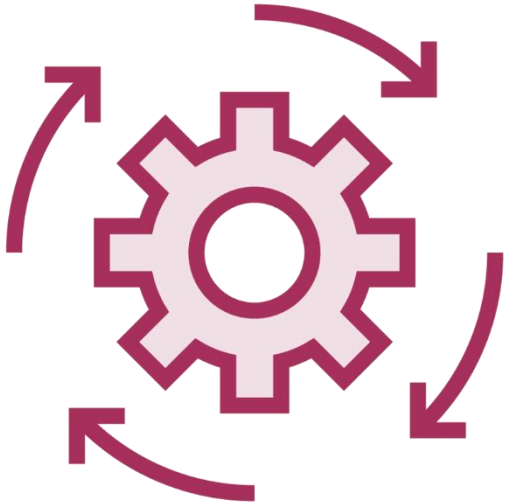
- Less granular control
- Secure the keys

Create and Configure Azure File Sync Service

Azure File Sync Management Components

Cloud Endpoint
Azure File Share

Server Endpoint



Sync Group

Deploying Azure File Sync

Deploy the Storage Sync Service

Create a sync group and cloud endpoint

Install the Azure File Sync agent on Windows Servers

Register Windows Server with the Storage Sync Service

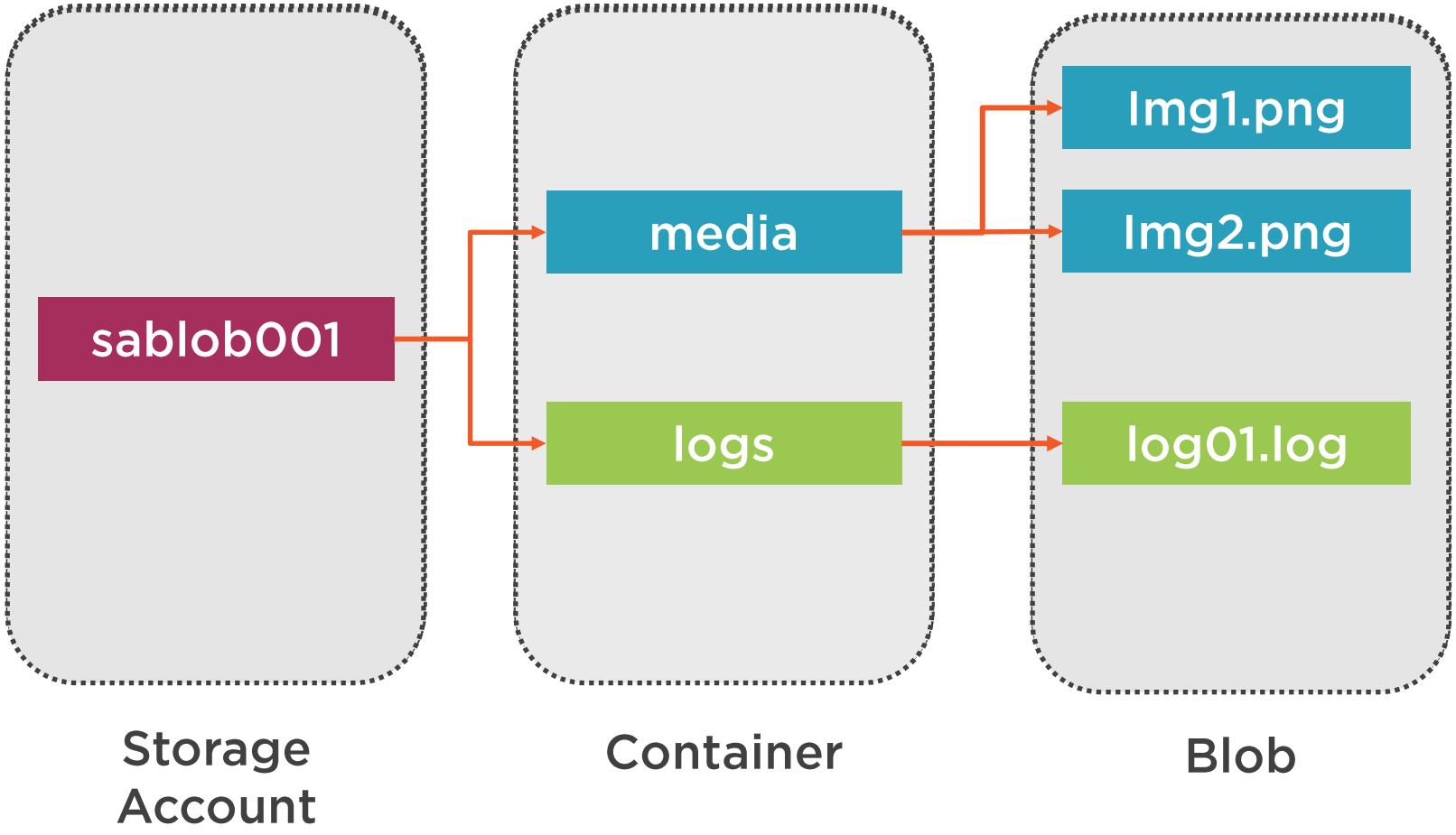
Create a server endpoint and wait for sync

Configure Azure Blob Storage

Configure Blob Storage

- Unstructured data objects of various types
- Create through various tools
- Use a unique URI-based namespace
- Supported in BlobStorage, General Purpose v1 and General Purpose v2 storage accounts
- Manage costs with tiering
- Support various replication options depending on Storage Account used

Blob Storage Resources



https://sablob001.blob.core.windows.net/media/img001.png

Configure Azure Blob Storage Tiers

Configuring Blob Tiering

Know the tiering options

- Understand cost-effective scenarios
- Storage-at-rest vs. storage access

Default tier established at storage account creation

Tiers can be applied when uploading blobs to Azure

Change tiers at blob level

Archive requires rehydration for access

Use Lifecylce Management for automation

Exam Strategy

Know how services fit together

Be familiar with implementations in portal and with code

Weight your study time based on exam percent

- Manage Azure Storage will be approximately 5-8 questions

Exam Strategy

- Build on your weaknesses
- Make sure to check the AZ-104 exam guide regularly
- Remember this is an Administrator Associate Exam
- Get hands-on experience

Best of Luck on the Exam!!!

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Next Up

Managing Data in Azure Storage

Next Up

Configuring Azure Files and Azure Blobs