**Azure Storage - discussion**

What should you consider when creating Azure storage account name?

One of the benefits of using an Azure Storage Account is having a unique namespace in Azure for your data. In order to do this, *every storage account in Azure must have a unique-in-Azure account name*.

When naming your storage account, keep these rules in mind:

* Choose a unique name for your storage account. Storage account name must be globally unique across Azure.
* Storage account names must be between 3 and 24 characters in length and may contain numbers and lowercase letters only.
* Select the appropriate region for your storage account.

Can you change Azure storage account name?

No, you cannot change the storage account name, Azure region, or the performance type of the storage.

Mention some Azure storage services

**Blob storage**

Azure Blob storage is an object storage solution for the cloud.

It can store massive amounts of data, such as text or binary data.

Azure Blob storage is unstructured, meaning that there are no restrictions on the kinds of data it can hold.

Blob storage can manage thousands of simultaneous uploads, massive amounts of video data, log files, and it can be reached from anywhere with an internet connection.

Blobs aren't limited to common file formats. it contains gigabytes of binary data

One advantage of blob storage over disk storage is that it doesn't require developers to think about or manage disks. Data is uploaded as blobs, and Azure takes care of the physical storage needs.

Blob storage is ideal for:

* Serving images or documents directly to a browser.
* Storing files for distributed access.
* Streaming video and audio.
* Storing data for backup and restore, disaster recovery, and archiving.
* Storing data for analysis by an on-premises or Azure-hosted service.

### Accessing blob storage

Objects in blob storage can be accessed from anywhere in the world via HTTP or HTTPS. Users or client applications can access blobs via URLs, the Azure Storage REST API, Azure PowerShell, Azure CLI, or an Azure Storage client library. The storage client libraries are available for multiple languages, including .NET, Java, Node.js, Python, PHP, and Ruby.

### Blob storage tiers

Data stored in the cloud can be handled differently based on how it's generated, processed, and accessed over its lifetime. Some data is actively accessed and modified throughout its lifetime. **Some** data is accessed frequently early in its lifetime, with access dropping drastically as the data ages. Some data remains idle in the cloud and is rarely, if ever, accessed after it's stored. To accommodate these different access needs, Azure provides several access tiers, which you can use to balance your storage costs with your access needs.

Azure Storage offers different access tiers for your blob storage, helping you store object data in the most cost-effective manner. The available access tiers include:

* **Hot access tier**: Optimized for storing data that is accessed frequently (for example, images for your website).
* **Cool access tier**: Optimized for data that is infrequently accessed and stored for at least 30 days (for example, invoices for your customers).
* **Cold access tier**: Optimized for storing data that is infrequently accessed and stored for at least 90 days.
* **Archive access tier**: Appropriate for data that is rarely accessed and stored for at least 180 days, with flexible latency requirements (for example, long-term backups).

The following considerations apply to the different access tiers:

* Hot, cool, and cold access tiers can be set at the account level. The archive access tier isn't available at the account level.
* Hot, cool, cold, and archive tiers can be set at the blob level, during or after upload.
* Data in the cool and cold access tiers can tolerate slightly lower availability, but still requires high durability, retrieval latency, and throughput characteristics similar to hot data. For cool and cold data, a lower availability service-level agreement (SLA) and higher access costs compared to hot data are acceptable trade-offs for lower storage costs.
* Archive storage stores data offline and offers the lowest storage costs, but also the highest costs to rehydrate and access data.

## Azure Data Lake Storage Gen2

* A data lake is a repository of data that is stored in its natural format, usually as blobs or files. Azure Data Lake Storage Gen2 (ADLS) is a cloud-based repository for both structured and unstructured data and large-scale analytics solutions. Azure Data Lake Storage is a comprehensive, massively scalable, secure, and cost-effective data lake solution for high performance analytics built into Azure.
* Many organizations have spent the last two decades building data warehouses and business intelligence (BI) solutions based on relational database systems. Many BI solutions have lost out on opportunities to store unstructured data due to cost and complexity in these types of data in databases.
* Data lakes have become a common solution to this problem. A data lake provides file-based storage, usually in a distributed file system that supports high scalability for massive volumes of data. Organizations can store structured, semi-structured, and unstructured files in the data lake and then consume them from there in big data processing technologies, such as Apache Spark.
* Azure Data Lake Storage combines a file system with a storage platform to help you quickly identify insights into your data. Data Lake Storage builds on Azure Blob storage capabilities to optimize it specifically for analytics workloads. This integration enables analytics performance, the tiering and data lifecycle management capabilities of Blob storage, and the high-availability, security, and durability capabilities of Azure Storage.

## Azure Files

Azure File storage offers fully managed file shares in the cloud that are accessible via the industry standard Server Message Block (SMB) or Network File System (NFS) protocols. Azure Files file shares can be mounted concurrently by cloud or on-premises deployments. SMB and NFS Azure file shares are accessible from Windows, Linux, and macOS clients.

### Azure Files key benefits:

* **Shared access**: it support the industry standard SMB and NFS protocols, meaning you can seamlessly replace your on-premises file shares with Azure file shares without worrying about application compatibility.
* **Fully managed**: Azure file shares can be created without the need to manage hardware or an OS. This means you don't have to deal with patching the server OS with critical security upgrades or replacing faulty hard disks.
* **Scripting and tooling**: PowerShell cmdlets and Azure CLI can be used to create, mount, and manage Azure file shares as part of the administration of Azure applications. You can create and manage Azure file shares using Azure portal and Azure Storage Explorer.
* **Resiliency**: Azure Files has been built from the ground up to always be available. Replacing on-premises file shares with Azure Files means you don't have to wake up in the middle of the night to deal with local power outages or network issues.
* **Familiar programmability**: Applications running in Azure can access data in the share via file system I/O APIs. Developers can therefore use their existing code and skills to migrate existing applications. In addition to System IO APIs, you can use Azure Storage Client Libraries or the Azure Storage REST API.

## Queues storage

Azure Queue storage is a service for storing large numbers of messages. Once stored, you can access the messages from anywhere in the world via authenticated calls using HTTP or HTTPS. A queue can contain as many messages as your storage account. Each individual message can be up to 64 KB in size. Queues are commonly used to create a backlog of work to process asynchronously.

Queue storage can be combined with compute functions like Azure Functions to take an action when a message is received. For example, you want to perform an action after a customer uploads a form to your website. You could have the submit button on the website trigger a message to the Queue storage. Then, you could use Azure Functions to trigger an action once the message was received.

## Azure Disks

Azure Disk storage, or Azure managed disks, are block-level storage volumes managed by Azure for use with Azure VMs. Conceptually, they’re the same as a physical disk, but they’re virtualized – offering greater resiliency and availability than a physical disk. With managed disks, all you have to do is provision the disk, and Azure will take care of the rest.

## Tables storage

Azure Table storage stores large amounts of structured data. Azure tables are a NoSQL datastore that accepts authenticated calls from inside and outside the Azure cloud. This enables you to use Azure tables to build your hybrid or multi-cloud solution and have your data always available. Azure tables are ideal for storing structured, non-relational data.

## Create a storage account

In this task, you'll create a new storage account.

1. Sign in to the Azure portal at [https://portal.azure.com](https://portal.azure.com/learn.docs.microsoft.com)
2. Select **Create a resource**.
3. Under Categories, select **Storage**.
4. Under Storage account, select **Create**.
5. On the **Basics** tab of the Create a storage account blade, fill in the following information. Leave the defaults for everything else.

On the **Advanced** tab of the Create a storage account blade

1. Select **Review** to review your storage account settings and allow Azure to validate the configuration.
2. Once validated, select **Create**. Wait for the notification that the account was successfully created.
3. Select **Go to resource**.