Intro into Azure AZ900- Cloud Computing

1. **Define cloud computing.**

Is the delivery of computing services over the internet.
Computing services include common IT infrastructure such as virtual machines, storage, databases and networking.

2. **Compare cloud pricing models.**

Pay as- you- go based on consumption, monthly subscription, pricing calculator,

Benefits

- Elasticity
- Agility
- Deploy globally in minutes

- A single fact is called a datum while data is a plural term.
- Data are facts such as numbers and text descriptors about some entity.
- Entity is the object you want to describe like customers, name or orders.
- Structured data has defined schema.

Relational database model

Key advantages:

- use of table > efficient, flexible way to store access structured information.
- useful for storing any information containing related data elements that must be organised in a rules- based, consistent structure.

An entity can be anything for which you want to record information; typically important objects and events.

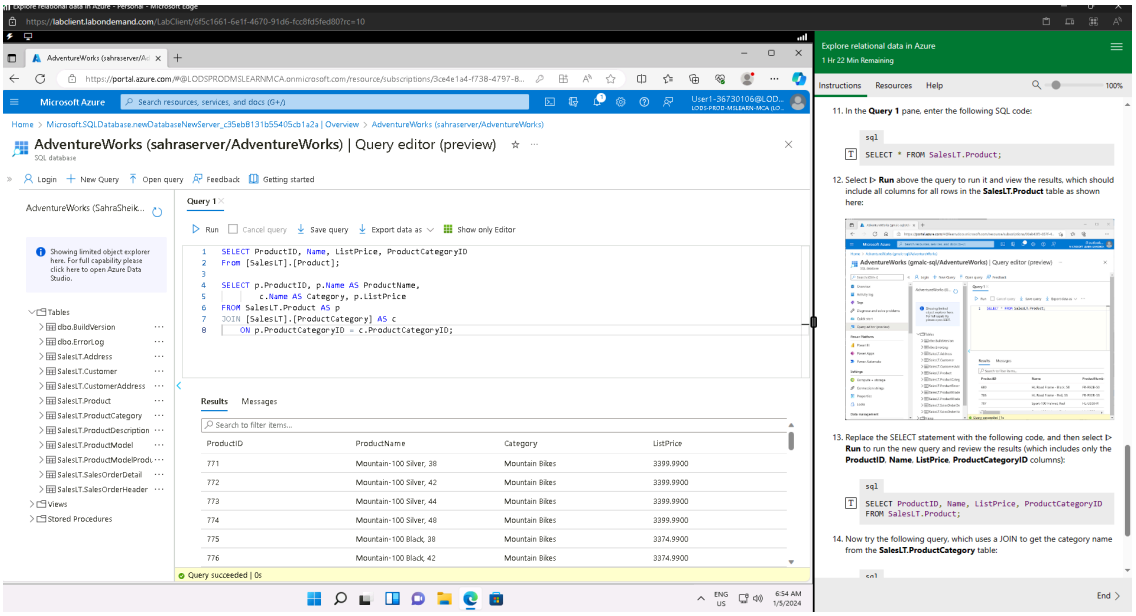
Normalization is a term used by database professionals for a schema design process that minimises data duplication and enforces data integrity.

1. Separate each entity into its own table
2. Separate each unique attribute into its own column
3. Define a primary key for each entity instance or row that uniquely identifies that row.
4. Define foreign key columns to link related tables.

SQL STATEMENTs

1. Data Definition Language (DDL)
   Used to define and manage database tables and other objects.
   CREATE ALTER DROP RENAME

2. Data Control Language (DCL)
   GRANT DENY




```
(
    CustomerID INT PRIMARY KEY,
    Name VARCHAR(20) NOT NULL,
    Email VARCHAR(20),
    Type VARCHAR(20),
    Active VARCHAR(3) NOT NULL
);
```

INT giving identity to the attribute

```
GRANT SELECT, INSERT, UPDATE
ON Customer
TO dbo;

GRANT SELECT, INSERT, UPDATE
ON OrderHeader
TO dbo;
```

Grants to dbo to select insert update
Admins will creator users using syntax CREATE USER

```
INSERT INTO Customer(CustomerID, Name, Email, Type, Active)
VALUES(1001,'John Smith','jsmith@gmail.com','Consumer','Yes');
```

D3: Explore non-relational data in Azure

Blob

- ❖ stores binary large objects.
- ❖ They are an efficient way to store data.
- ❖ Stored in containers in azure storage account.
- ❖ Can be stored in hierarchy.

Azure data lake store gen 1

- a separate service for hierarchy data storage for analytical data lakes like big data.

To create an Azure Data Lake Store Gen2 files system, you must enable the Hierarchical Namespace option of an Azure Storage account. You can do this when initially creating the storage account, or you can upgrade an existing Azure Storage account to support Data Lake Gen2. Be aware however that upgrading is a one-way process – after upgrading a storage account to support a hierarchical namespace for blob storage, you can't revert it to a flat namespace.

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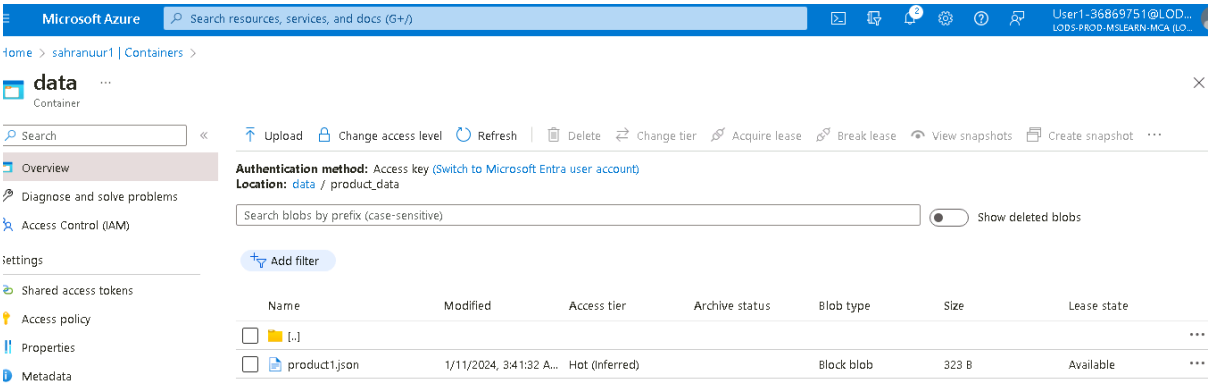
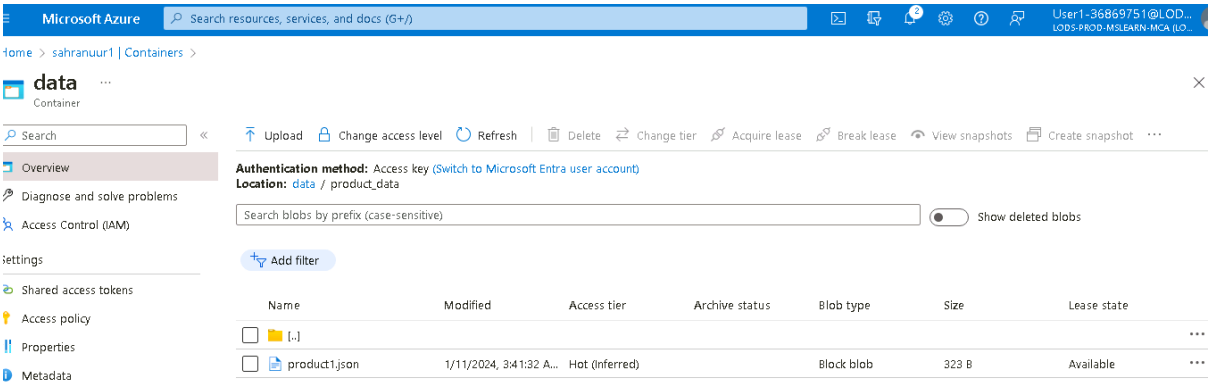
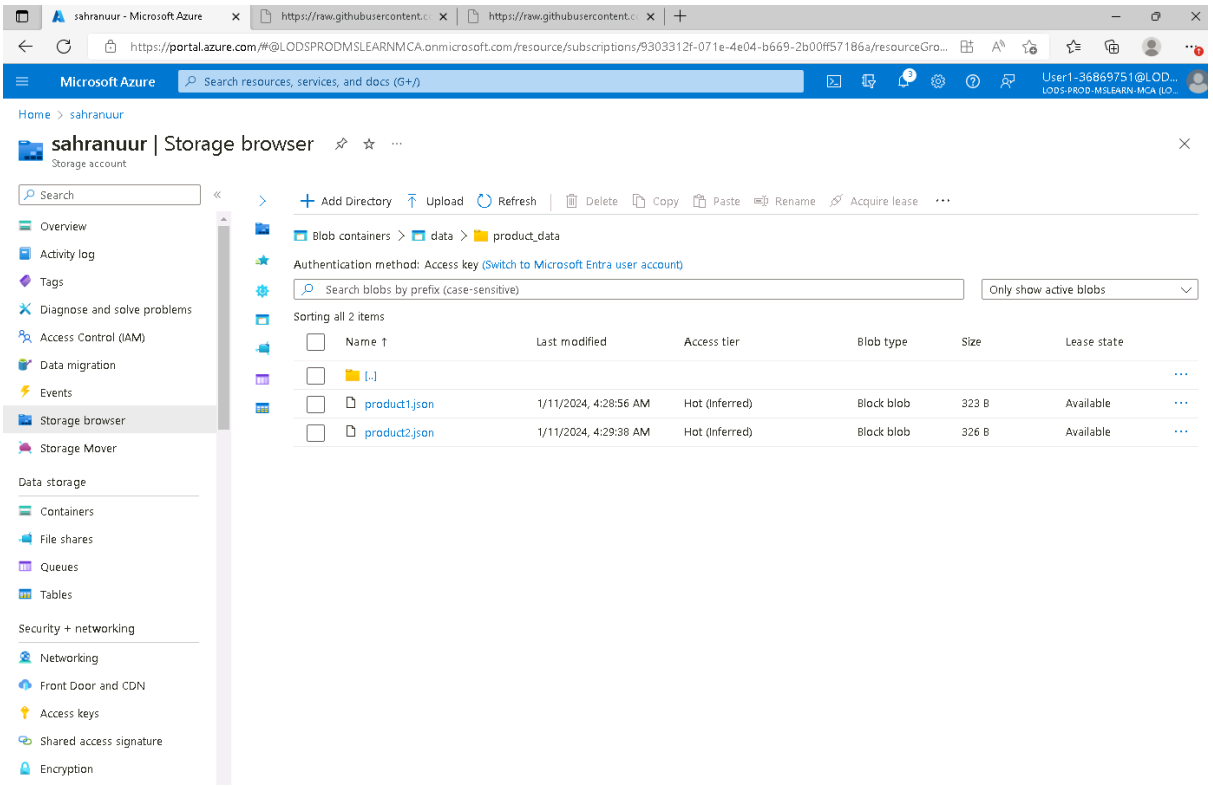
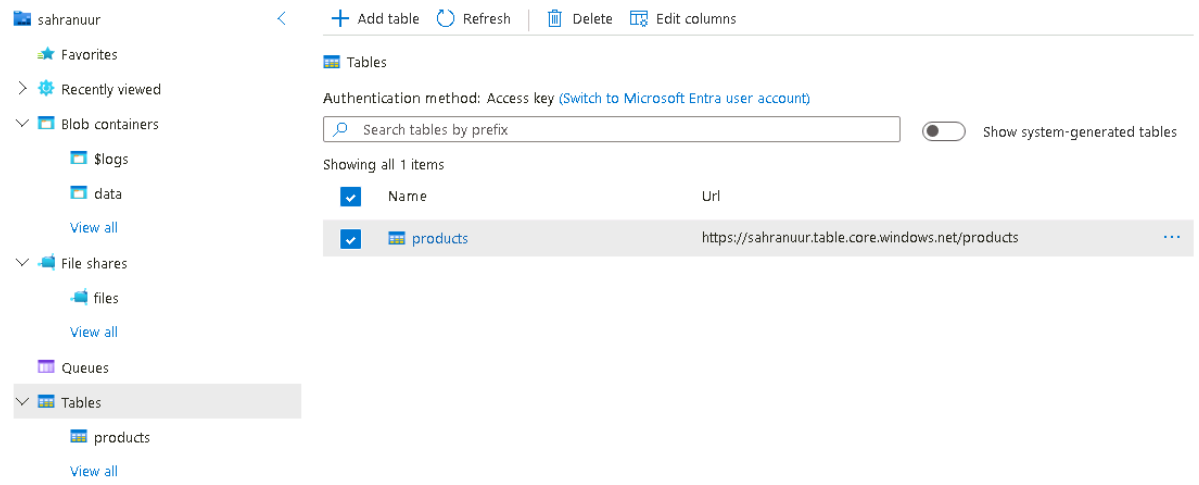
Now that you have an Azure Storage account, you can create a container for blob data.



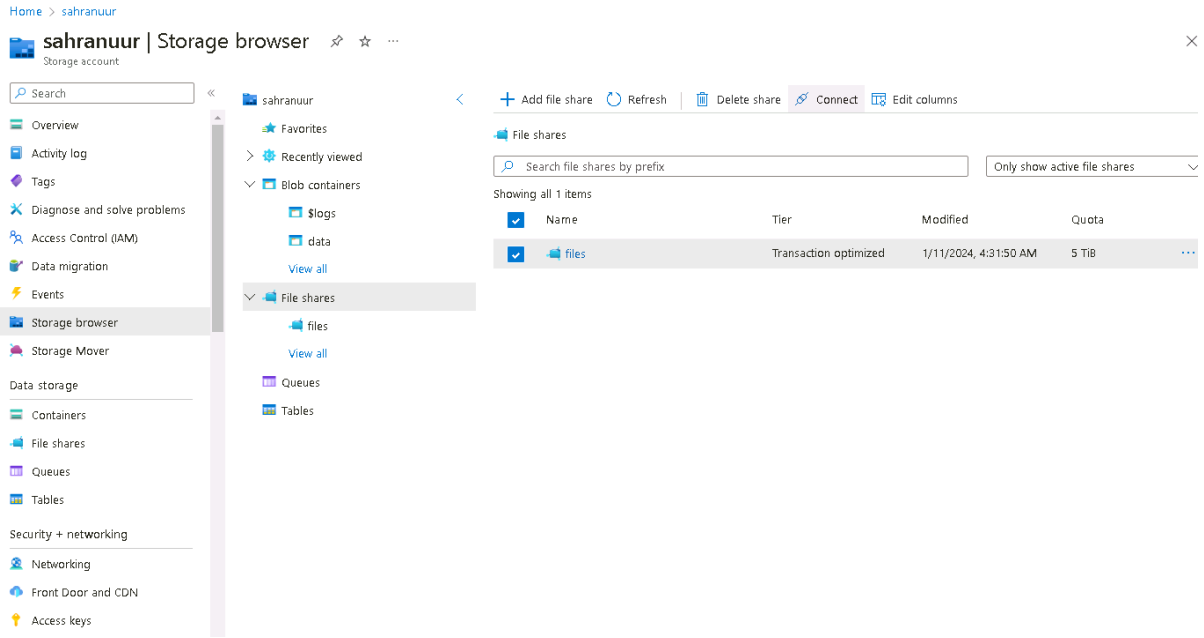


Azure Data Lake Store Gen2 support enables you to use hierarchical folders to organize and manage access to blobs. It also enables you to use Azure blob storage to host distributed file systems for common big data analytics platforms.



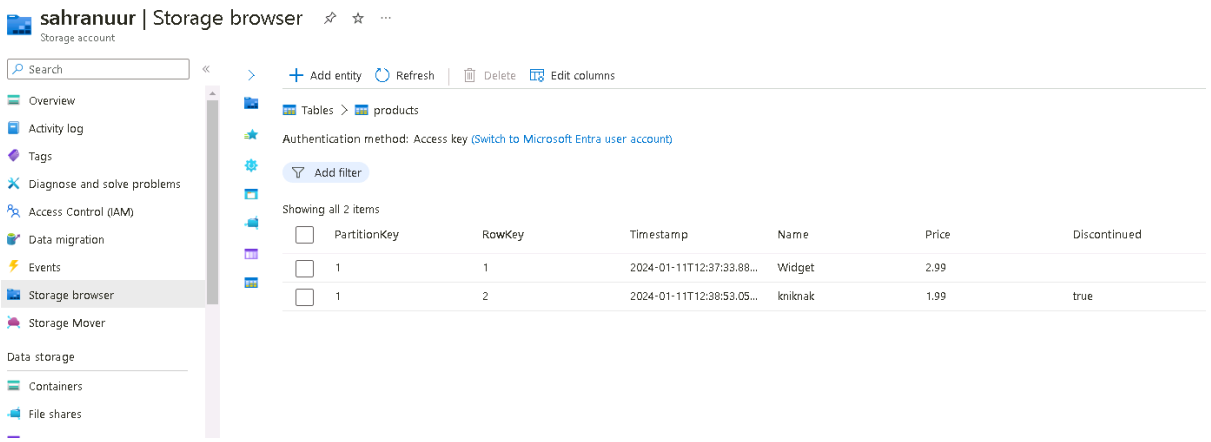


Explore files:



Azure Files provides a way to create cloud-based file shares.

Explore azure tables:

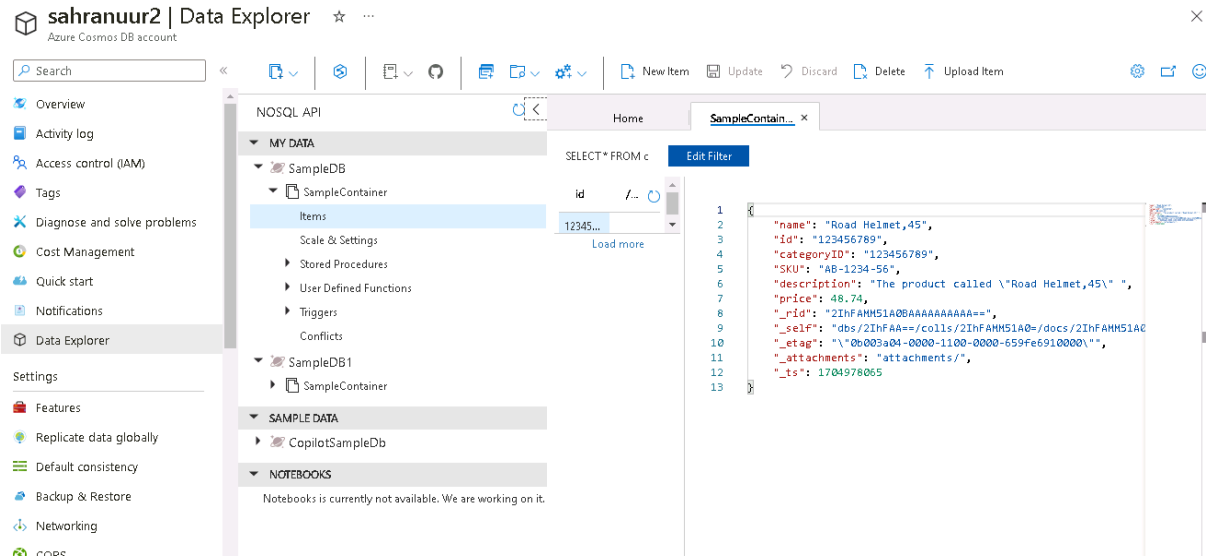


You have manually entered data into the table using the storage browser interface. In a real scenario, application developers can use the Azure Storage Table API to build applications that read and write values to tables, making it a cost effective and scalable solution for NoSQL storage.

Azure Cosmos DB:

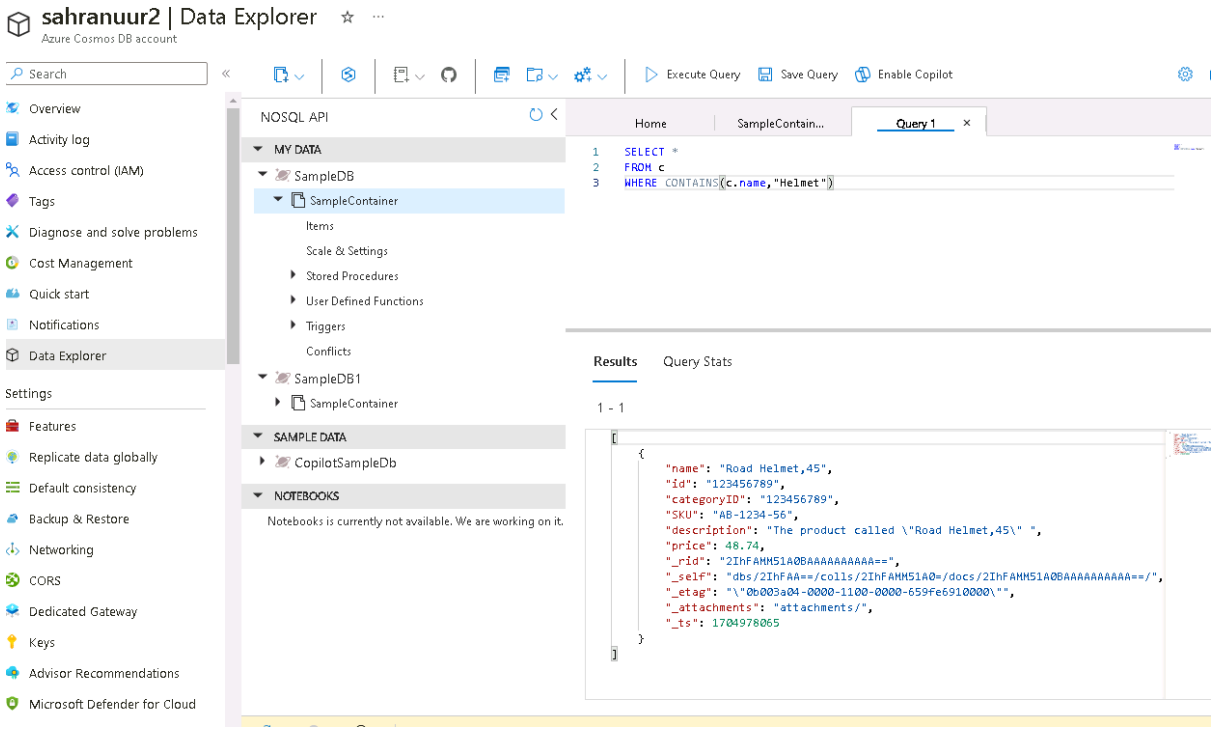
View and create items

New item in sampledb and samplecontainer. Items represent product data each with a unique id and other properties. This is a modified joson file for the new item



Query the database :

Results show which includes JSON entities for any items with a **name** field containing the text "Helmet".



Summary:
Learned to create and query JSON entities in a Cosmos DB database by using the data explorer interface in the Azure portal. In a real scenario, an application developer would use one of the many programming language specific software development kits (SDKs) to call the NoSQL API and work with data in the database.

https://learn.microsoft.com/api/achievements/share/en-us/sahranuur-7217/N7SRAWBF?sharingId=20C829D3B9FE7234

Describe Azure Cosmos DB

- Supports multiple applications programming interfaces - APIs
- Internal data is abstracted enabling developers to use Cosmos DB to store and query data.
- Allows performed to be scaled up or down elastically for games.
- Uses PaaS (platform as a service).
- Its a foundational service in azure and is used by many of microsofts products for mission critical applications at global scale such a s
    - IoT and telematics
    - Retail and marketing. Microsoft uses Cosmos DB for its own e-commerce platforms.
    - Used in retail industry for storing catalog data.
    - Gaming- relies on the cloud to deliver customised and personalised content.
    - Web and Mobile applications.
    -

https://learn.microsoft.com/api/achievements/share/en-us/sahranuur-7217/9N487RWU?sharingId=20C829D3B9FE7234

Broad data model support is what makes it possible for both healthcare providers and supply chain systems to both use Cosmos DB for entirely different applications
User expectations for low latency and instant page loads are higher than ever and on a holiday like Black Friday where millions of consumers are adding, removing, submitting and refreshing shopping carts, downtime and latency translate to lost revenue.

Asos runs their entire shopping cart and recommendation engine on Cosmos DB to take advantage of the low latency, high availability and elasticity necessary when adjusting the spikes in traffic.ASOS performs real time recommendation and personalization with materializing views in Cosmos by pre calculating vectors which describe the likelihood X user will want to purchase Y product and on a daily cadence, ASOS can surface lightweight real time recommendations to millions of concurrent users.

Microsoft Teams relies on the performance and scalability of Cosmos to handle everything from messaging and litigation to transportation services.Performance and availability challenge running a multi tenant SaaS platform means our software needs to scale as every tenant usage scales and cosmos DB is how teams can get this done reliably now.

Choose an API in Azure Cosmos DB | Microsoft Learn

Which storage solution replicates data to a secondary region, and maintains six copies of the data?
Read-access geo-redundant storage is the default replication option. Geo-redundant storage (GRS) copies the data synchronously three times within a single physical location in

the primary region by using LRS. The data is then copied asynchronously to a single physical location in the secondary region