Microsoft

Module 3: Explore non-relational data in Azure- Segment 1

Agenda

Explore non-relational data offerings in Azure

Explore provisioning and deploying non-relational data services in Azure

Manage non-relational data stores in Azure

Lesson 1: Explore non-relational data offerings in Azure

Lesson 1 objectives

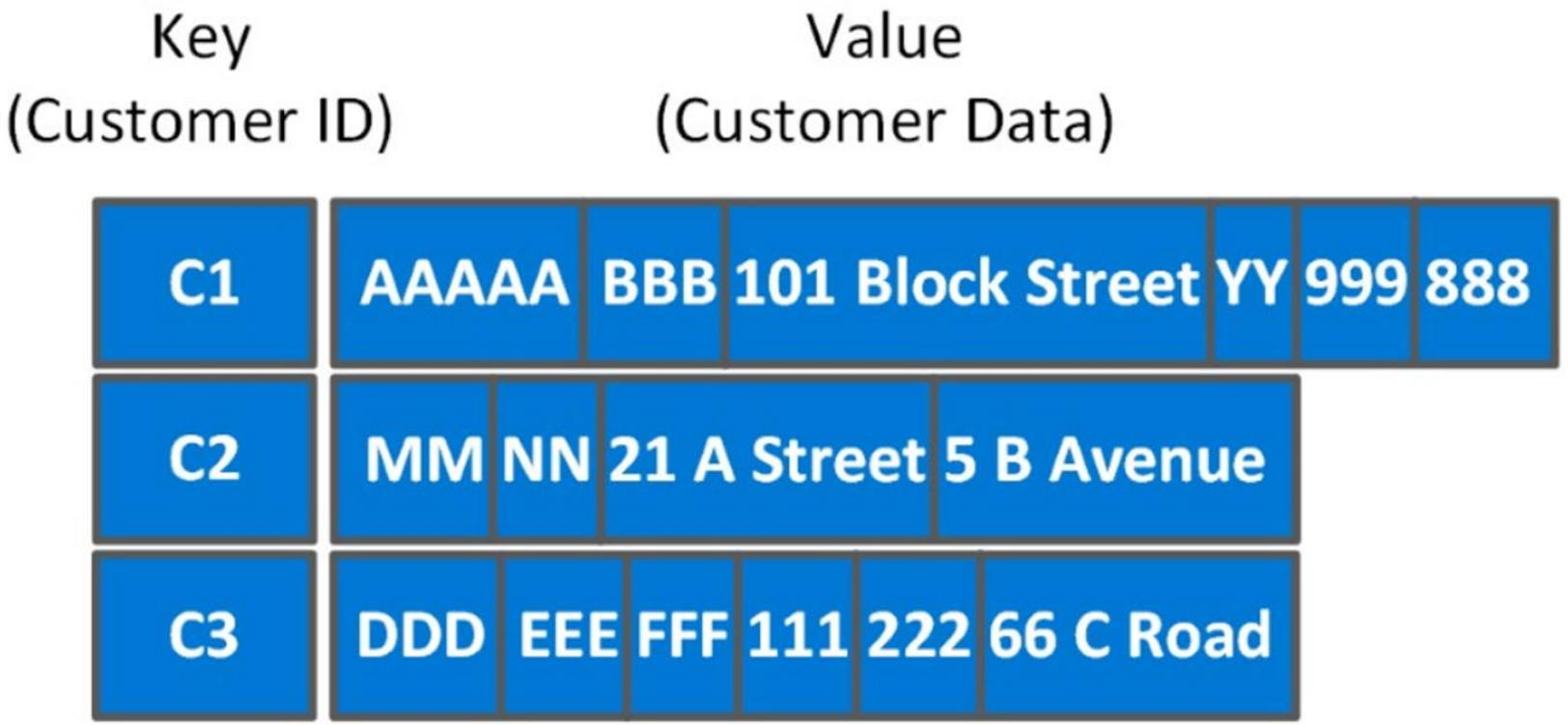
Explore use-cases and management benefits of using Azure Table storage

Explore use-cases and management benefits of using Azure Blob storage

Explore use-cases and management benefits of using Azure File storage

Explore use-cases and management benefits of using Azure Cosmos DB

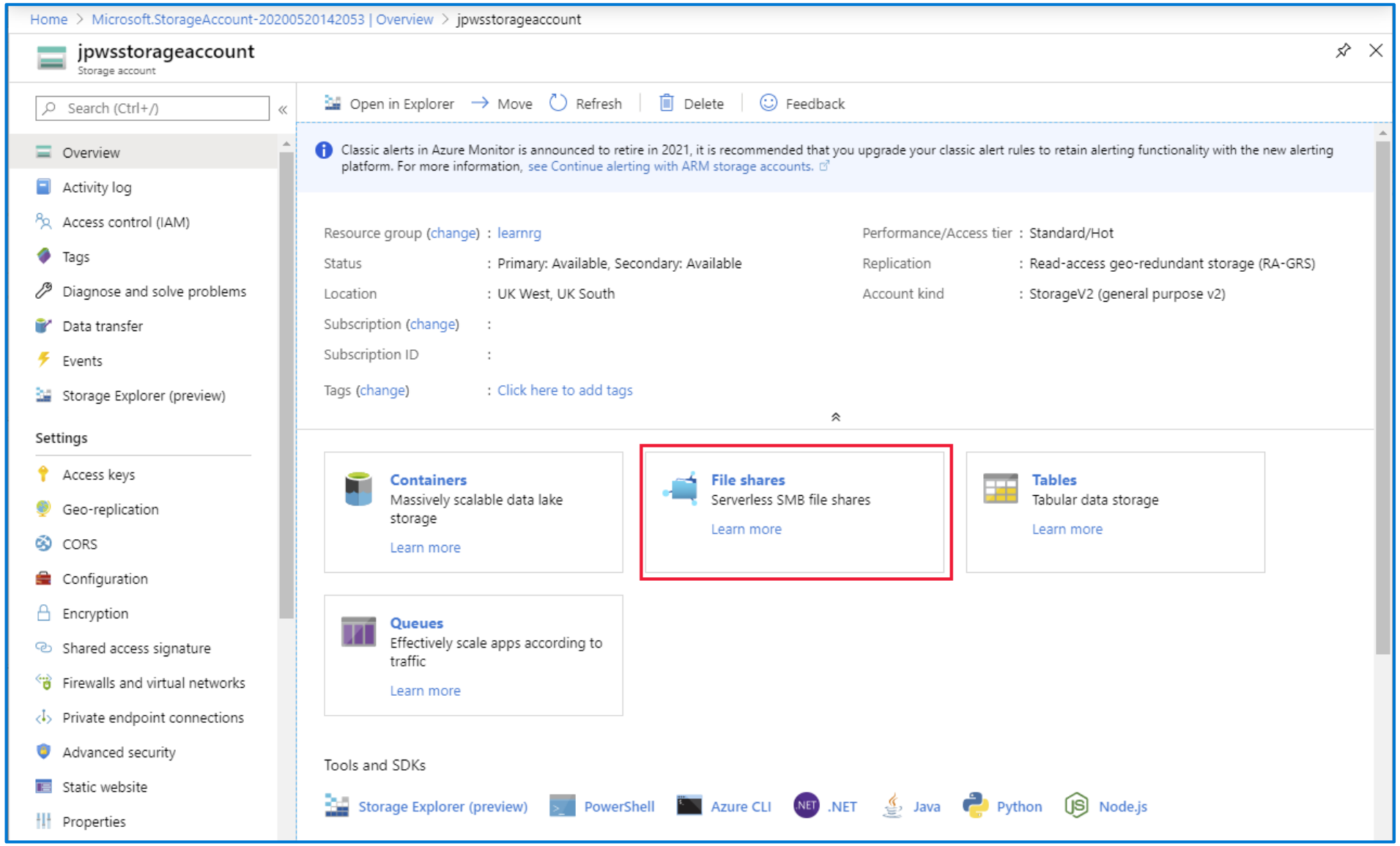
Explore Azure Table storage



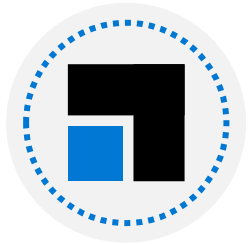
Explore Azure Blob Storage

Block blobs	Page blobs	Append blobs
• Has a maximum size of 4.7TB • Best for storing large, discrete, binary objects that changes infrequently • Each individual block can store up to 100MB of data • A block blob can contain up to 50000 blocks	• Can hold up to 8TB of data • Is organized as a collection of fixed sized-512 byte pages • Used to implement virtual disk storage for virtual machines	• The maximum size is just over 195GB • Is a block blob that is used to optimize append operations • Each individual block can store up to 4MB of data

Explore Azure File Storage



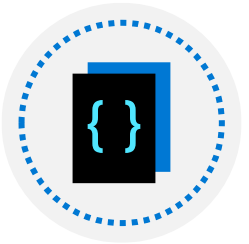
Explore Azure Cosmos DB



Scalability

Performance

Availability

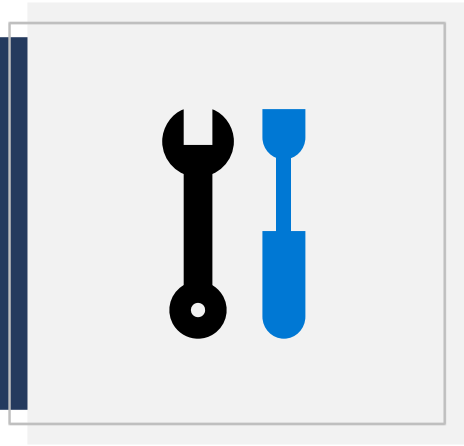


Programming model

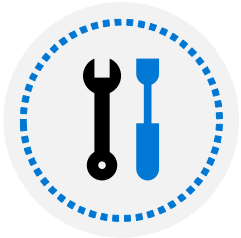
Use cases for Azure Cosmos DB

Web and retail	Using Azure Cosmos DB's multi-master replication model along with Microsoft's performance commitments, Data Engineers can implement a data architecture to support web and mobile applications that achieve less than a 10-ms response time anywhere in the world
Gaming	The database tier is a crucial component of gaming applications. Modern games perform graphical processing on mobile/console clients but rely on the cloud to deliver customized and personalized content like in-game stats, social media integration, and high-score leader boards.
IoT scenarios	Hundreds of thousands of devices have been designed and sold to generate sensor data known as Internet of Things (IoT) devices. Using technologies like Azure IoT Hub, Data Engineers can easily design a data solution architecture that captures real-time data. Cosmos DB can accept and store this information very quickly

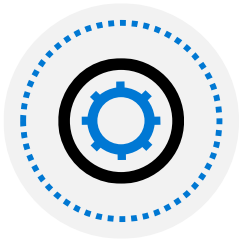
Lesson 2: Explore provisioning and deploying non-relational data services in Azure



Lesson 2 objectives



Provision non-relational data services

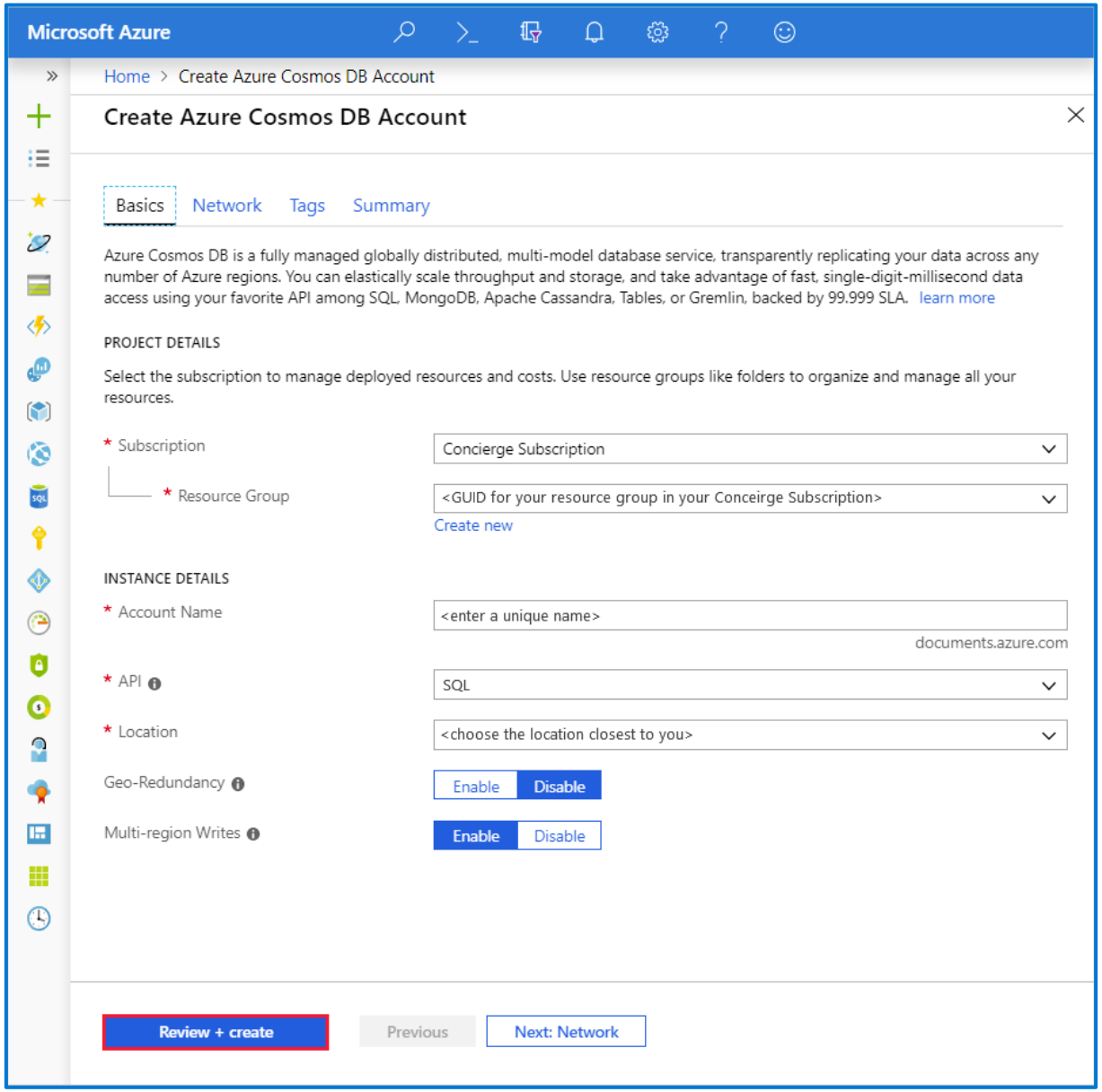


Configure non-relational data services

Explore basic connectivity issues

Explore data security components

Provisioning Cosmos DB



Microsoft Azure

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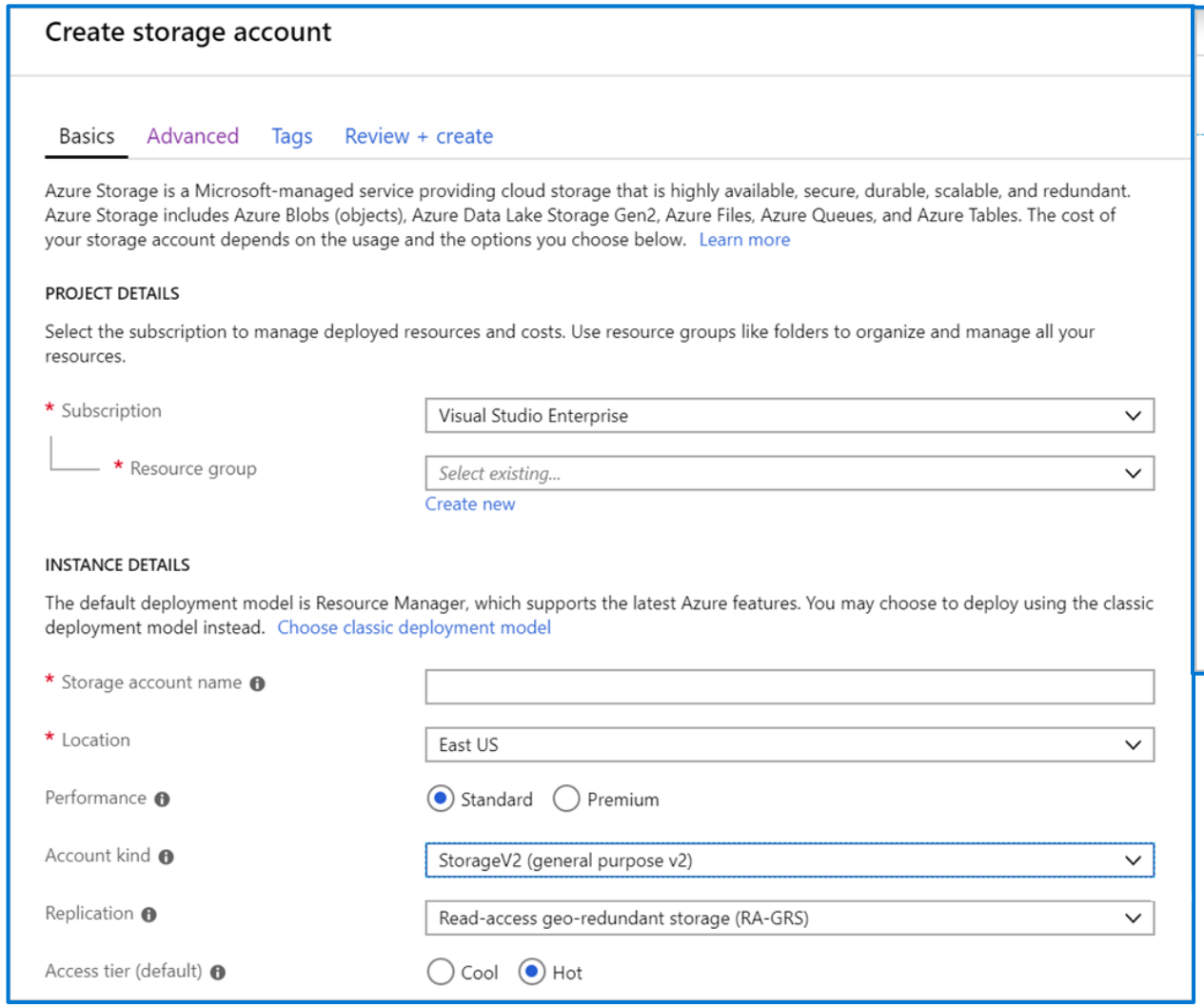
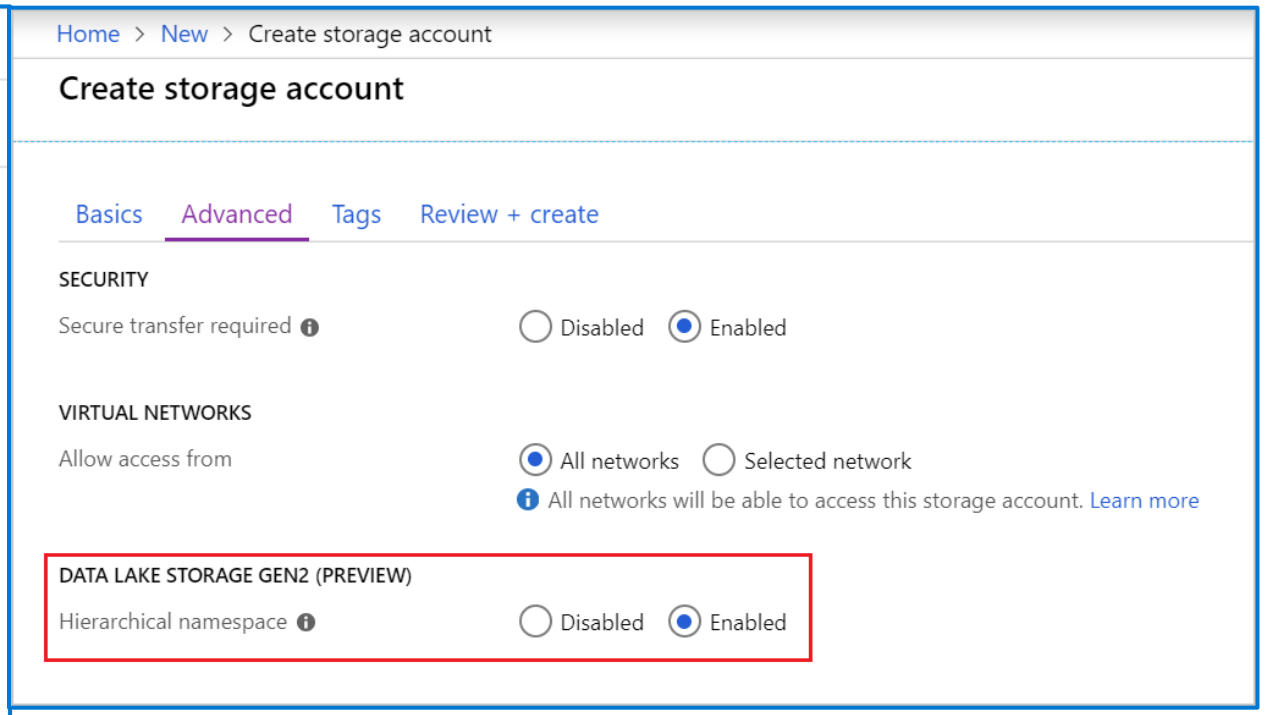
Module 3: Explore non-relational data in Azure Segment 2

Demo: Create and Deploy a Cosmos DB Database

Provisioning Data Lake Storage



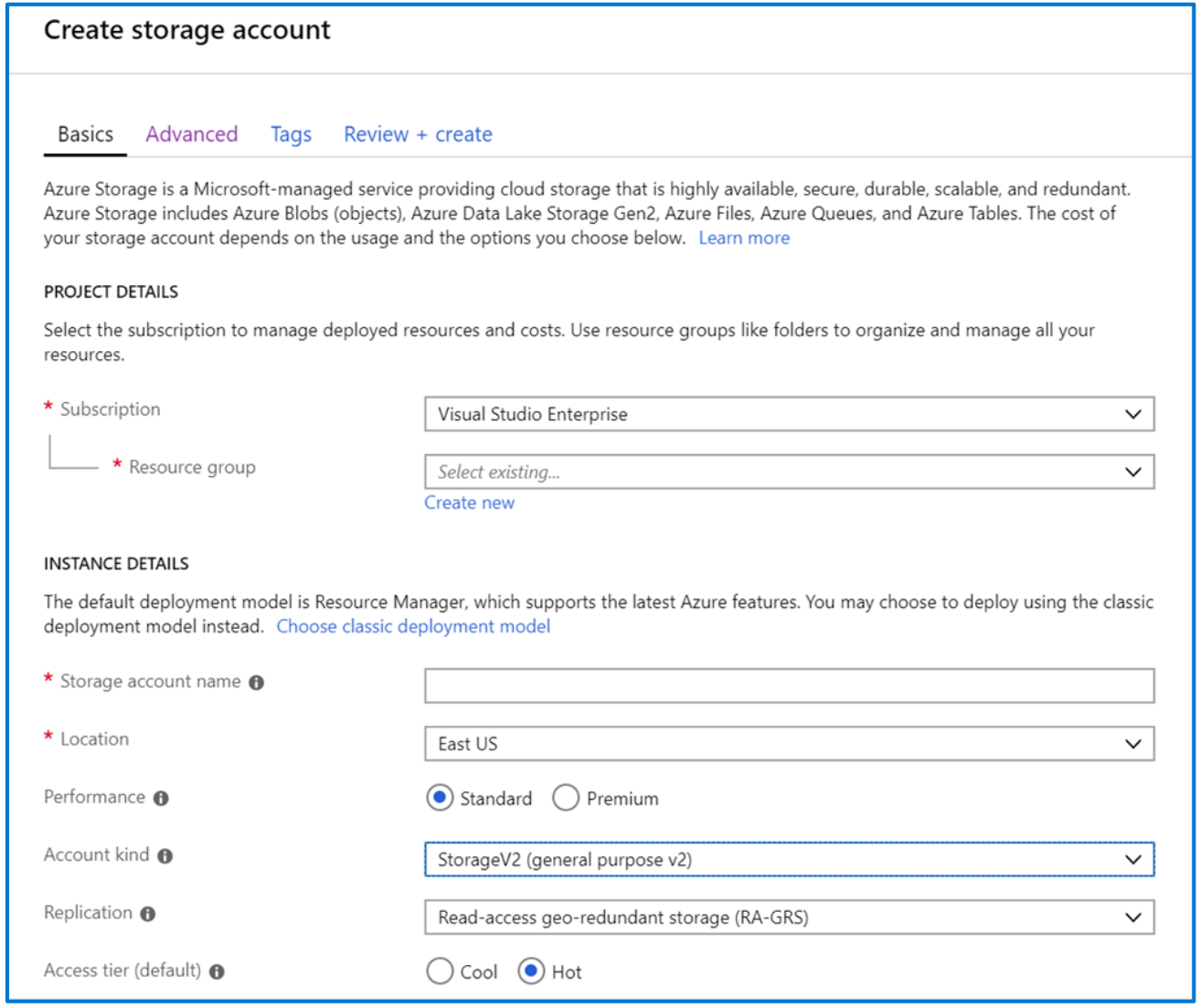


Azure authentication

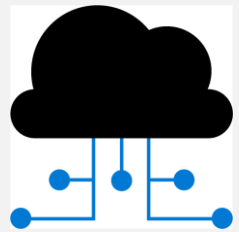
Azure authentication

Azure authentication

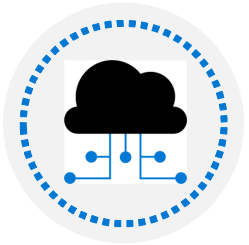
Configure Storage Accounts



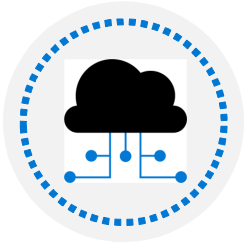
Lesson 3: Manage non-relational data stores in Azure



Lesson 3 objectives

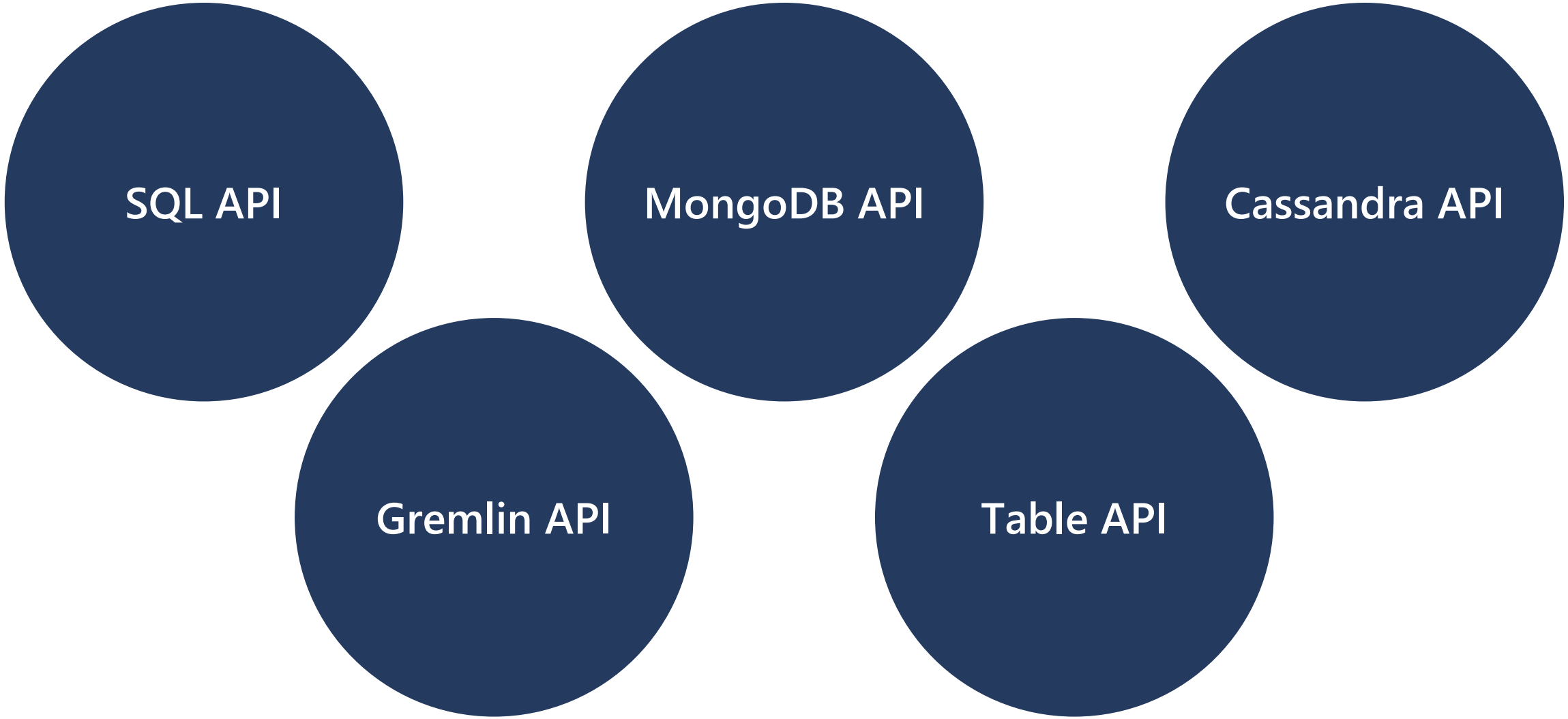


Upload data to a Cosmos DB database, and learn how to query this data.



Upload and download data in an Azure Storage account.

Cosmos DB APIs

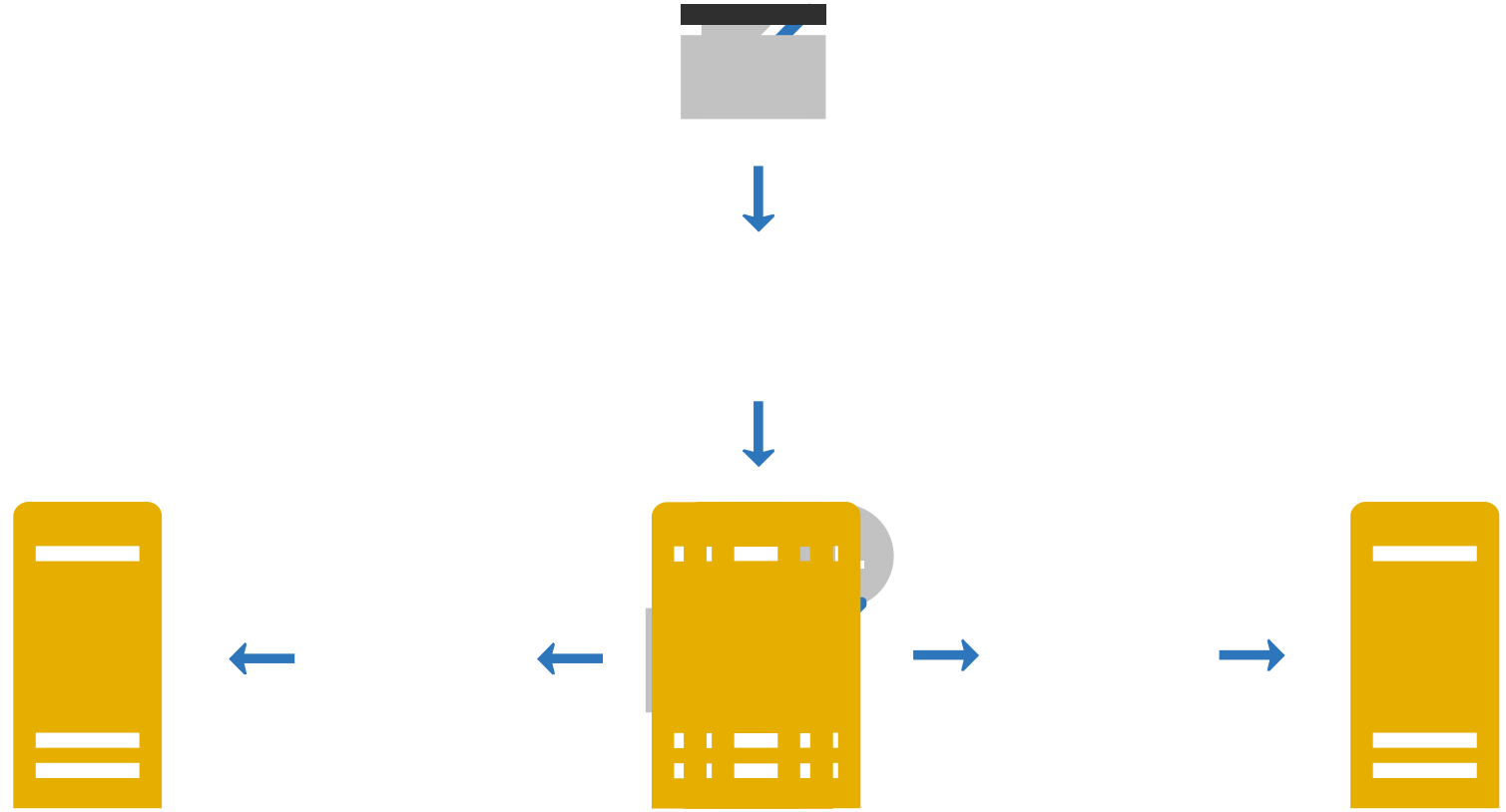


Load data using the Cosmos DB Migration tool

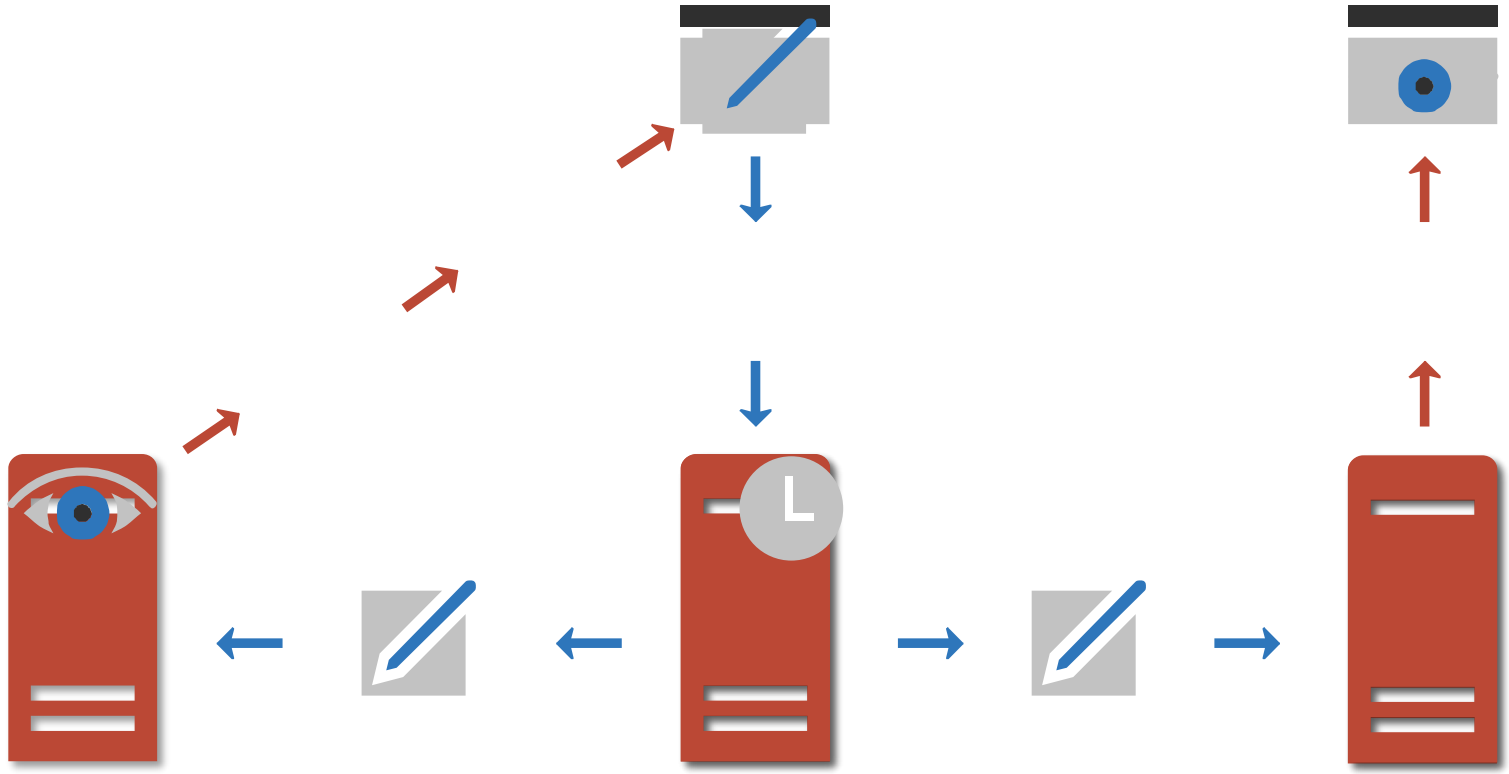
You can use the Data Migration tool to import data to Azure Cosmos DB from a variety of sources, including:

- JSON files
- MongoDB
- SQL Server
- CSV files
- Azure Table storage
- Amazon DynamoDB
- HBase
- Azure Cosmos containers

Configure consistency



Configure consistency



Query Azure Cosmos DB

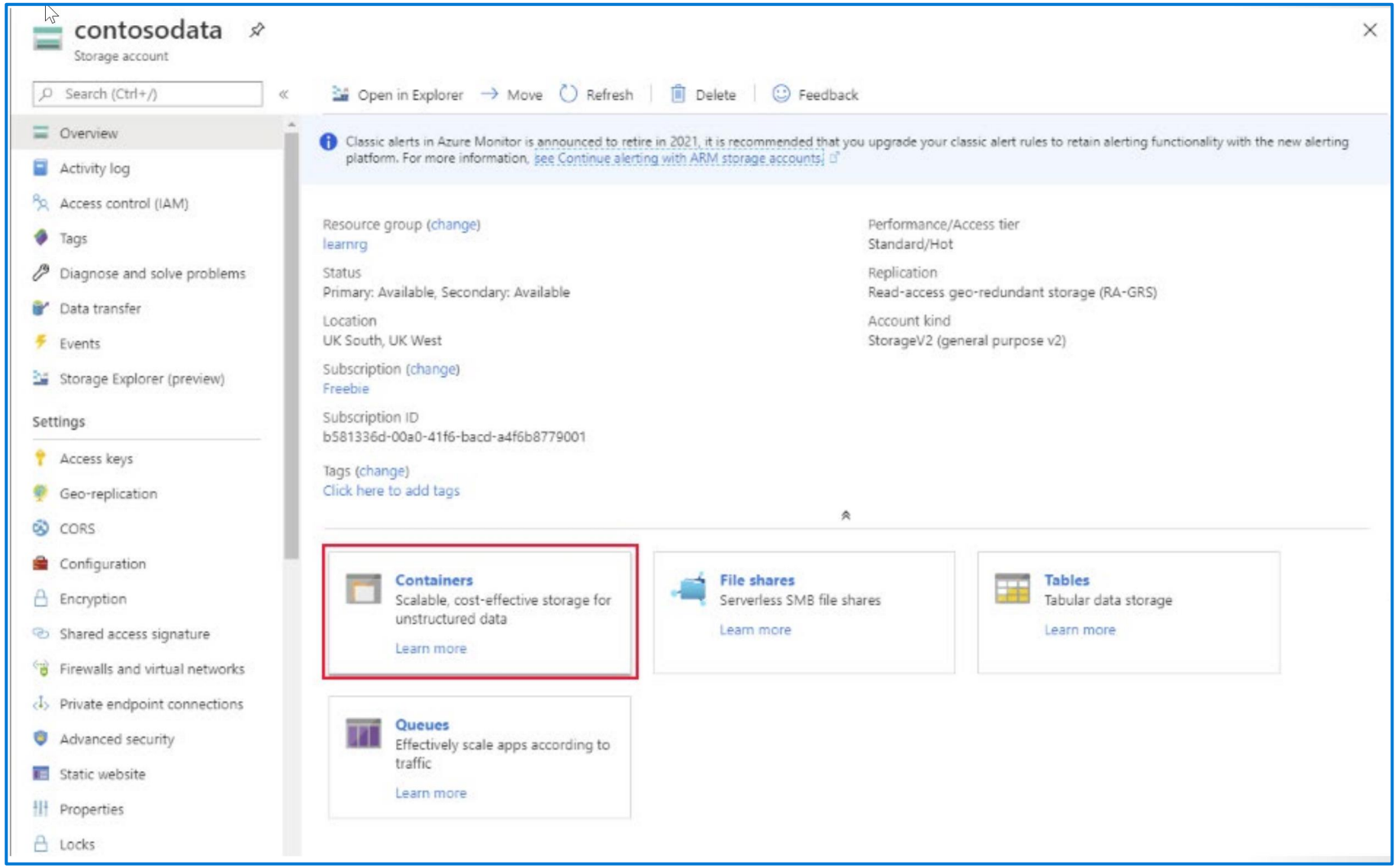
SELECT Query Basics

```
SELECT <select_list>
[FROM <optional_from_specification>]
[WHERE <optional_filter_condition>]
[ORDER BY <optional_sort_specification>]
[JOIN <optional_join_specification>]
```

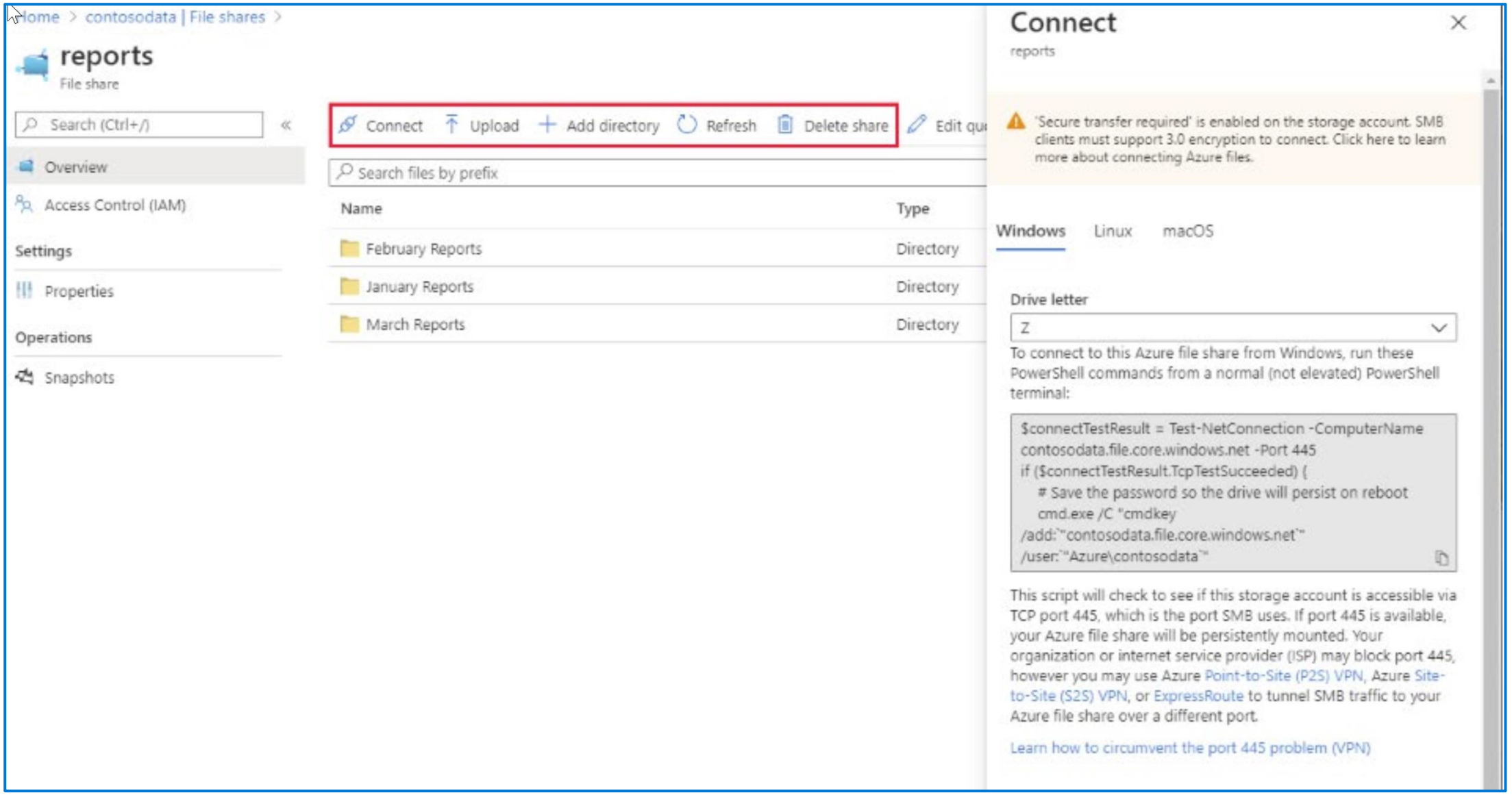
Examples

```
SELECT *
FROM Products p WHERE p.id ="1“

SELECT p.id, p.manufacturer, p.description
FROM Products p WHERE p.id ="1“

SELECT p.price, p.description, p.productId
FROM Products p ORDER BY p.price ASC

SELECT p.productId
FROM Products p JOIN p.shipping
```

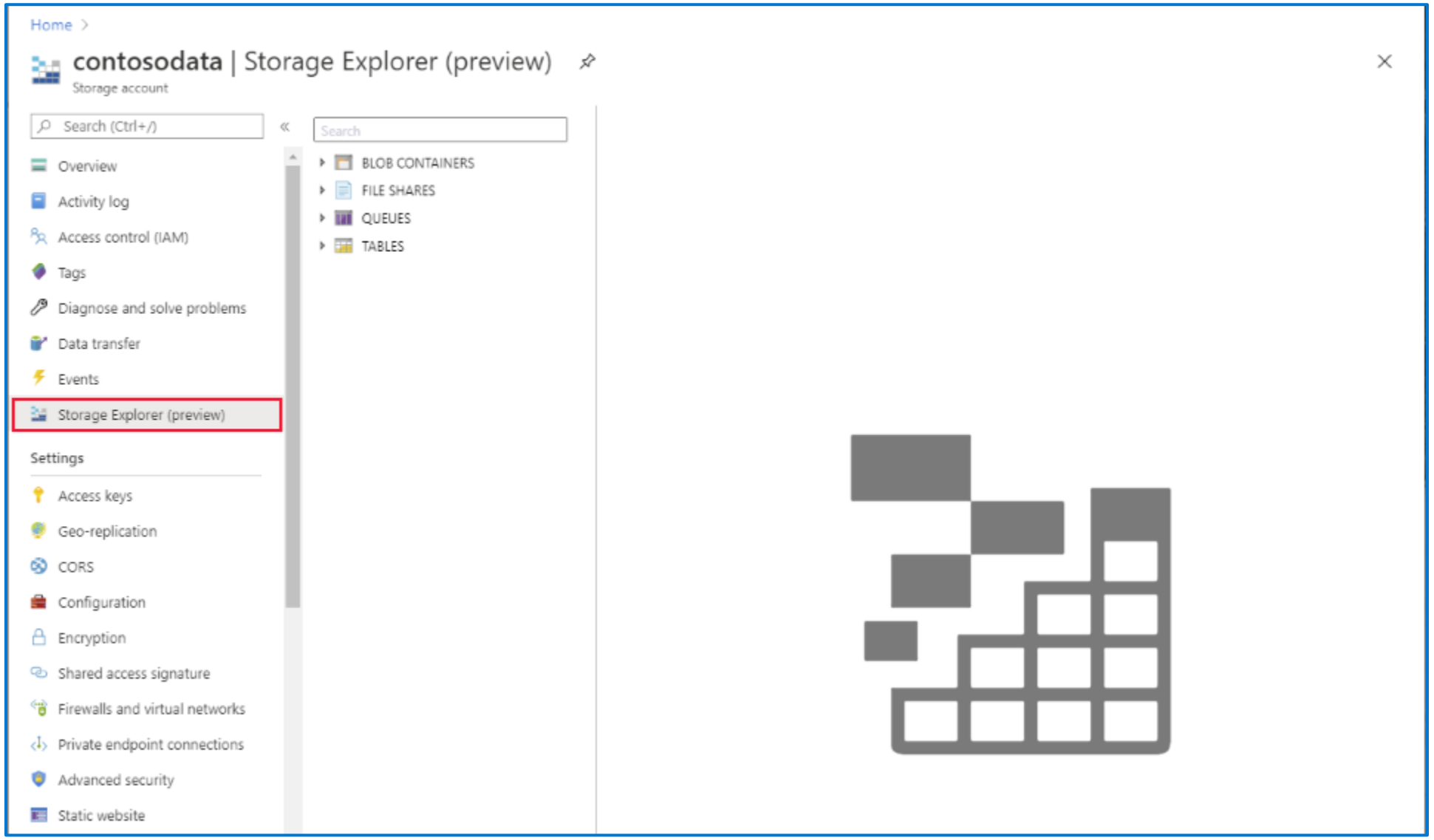
Manage Azure Blob Storage



Manage Azure File storage



Copying to Azure Storage



Microsoft Azure

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Module 4: Explore modern data warehouse analytics

Agenda

Examine components of a modern data warehouse

Explore data ingestion in Azure

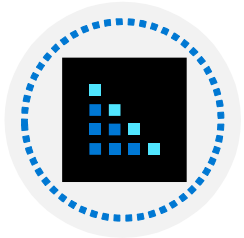
Explore data storage and processing in Azure

Get started building with Power BI

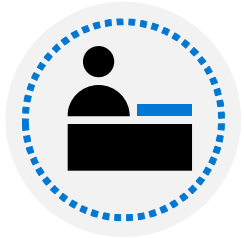
Lesson 1: Examine components of a modern data warehouse

Lesson 1 objectives

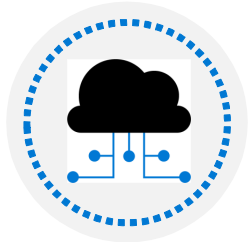
Explore data warehousing concepts



Explore Azure data services for modern data warehousing

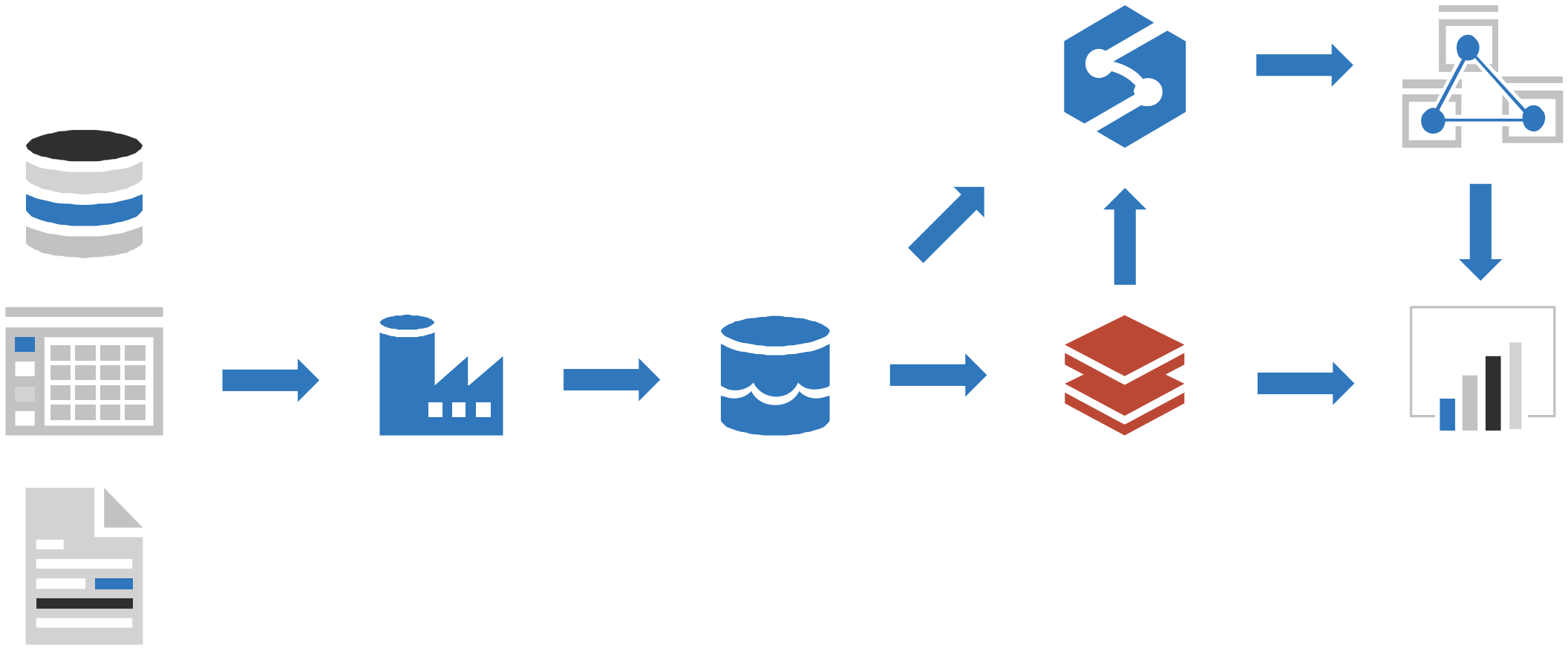


Explore modern data warehousing architecture and workload



Explore Azure data services in the Azure portal

Modern data warehouse components



What is modern data warehousing?

Ingest & Prep

Azure Data Factory

Code-free data transformation and ingestion from 90+ data integration connectors

Azure Databricks
(Data prep)
Up to 10x faster than vanilla Spark

Model & Serve

Azure Synapse Analytics
(Data Warehouse)

Up to 14x faster and costs 94% less than other cloud providers

Visualize

Power BI

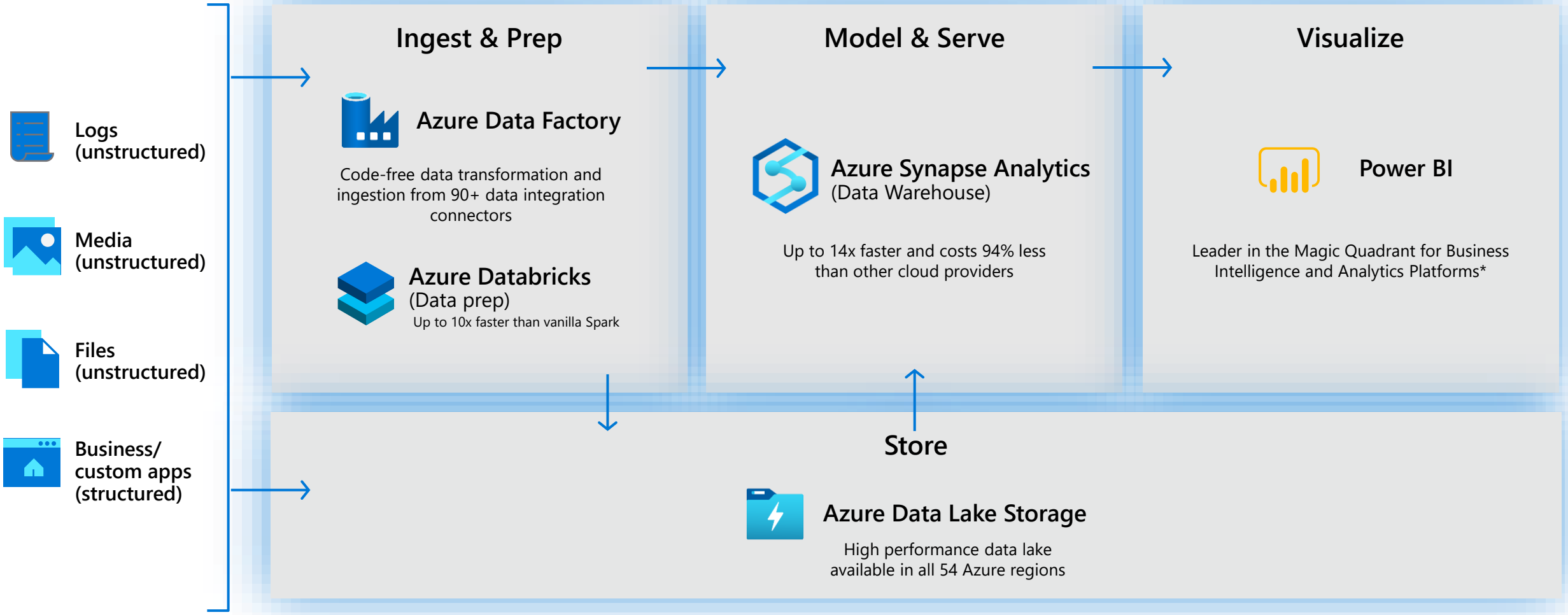
Leader in the Magic Quadrant for Business Intelligence and Analytics Platforms*

Store

Azure Data Lake Storage

High performance data lake available in all 54 Azure regions

Combine batch and stream processing



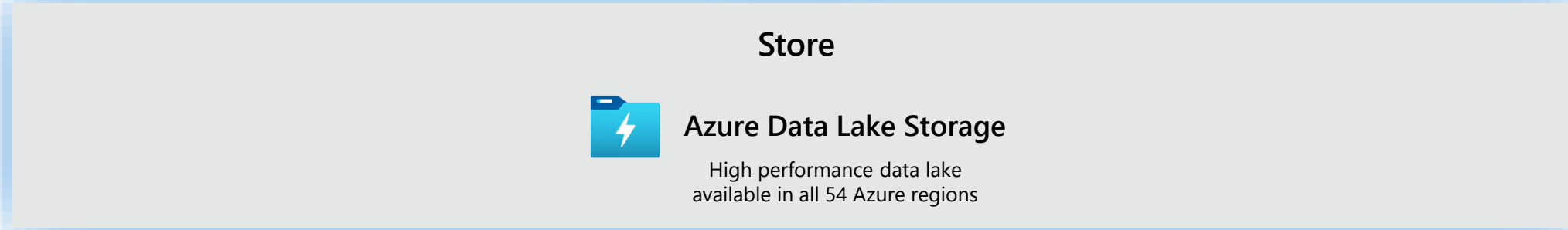
Explore Azure data services for modern data warehousing

What is Azure Data Factory

A cloud-based data integration service that allows you to orchestrate and automate data movement and data transformation.

What is Azure Data Lake Storage?

- A repository of data for your Modern Data Warehouse
- Organises data into directories for improved file access
- Supports POSIX and RBAC permissions
- It is compatible with Hadoop Distributed File System



What is Azure Databricks?

Apache Spark-based platform

Simplifies the provisioning and collaboration of Apache Spark-based analytical solutions

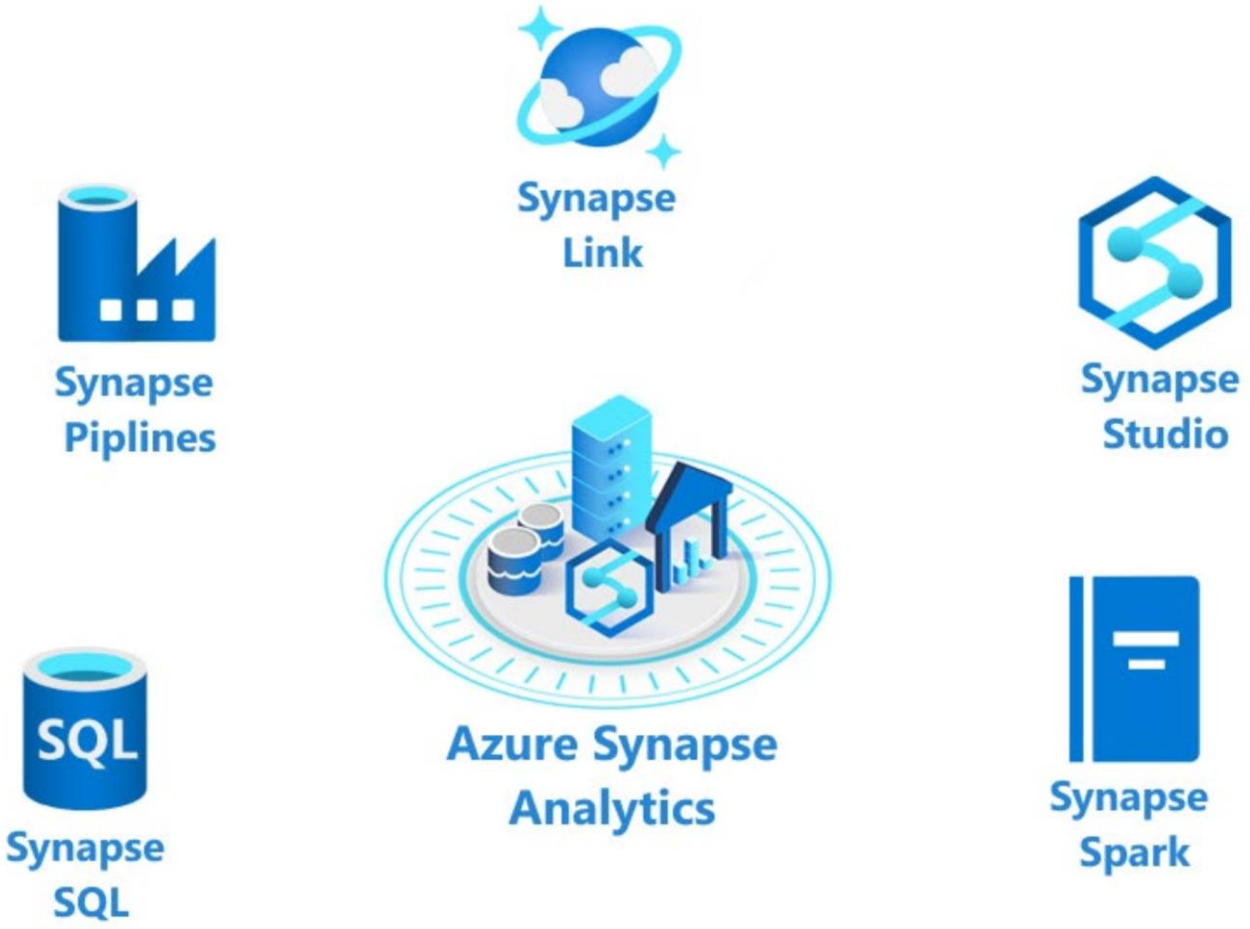
Enterprise Security

Utilizes the security capabilities of Azure.

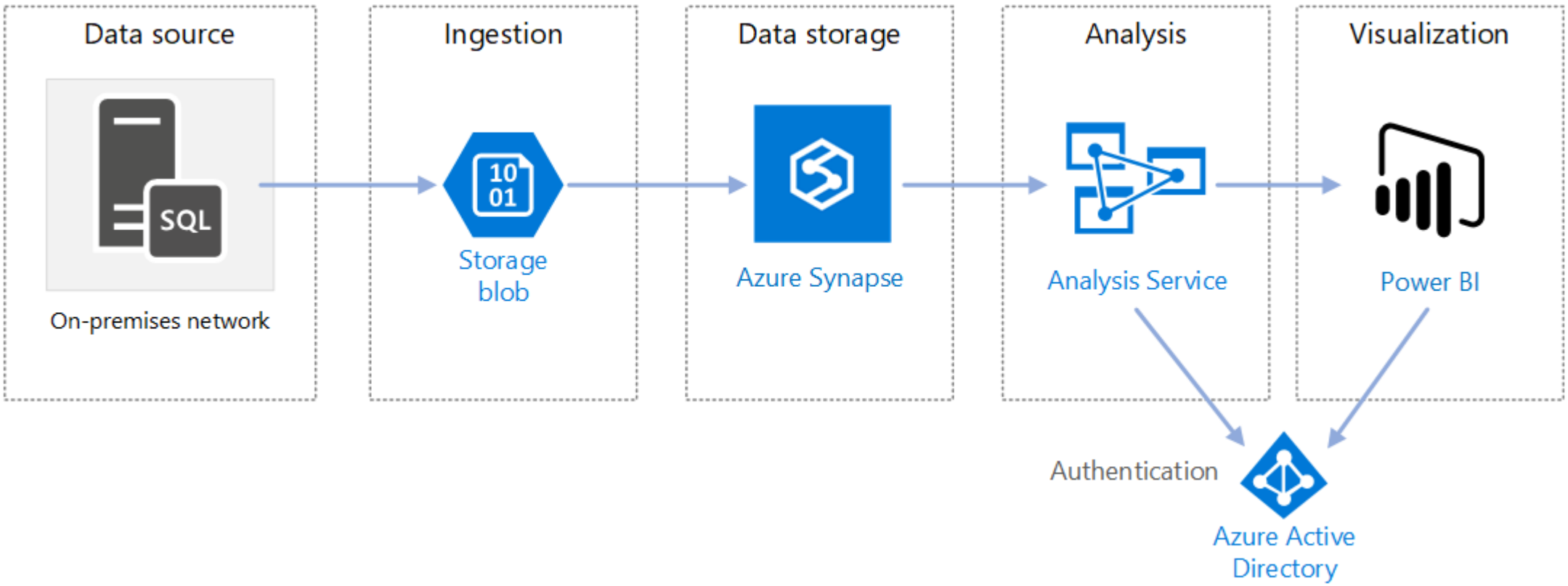
Integration with Azure services

Can integrate with a variety of Azure data platform services and Power BI

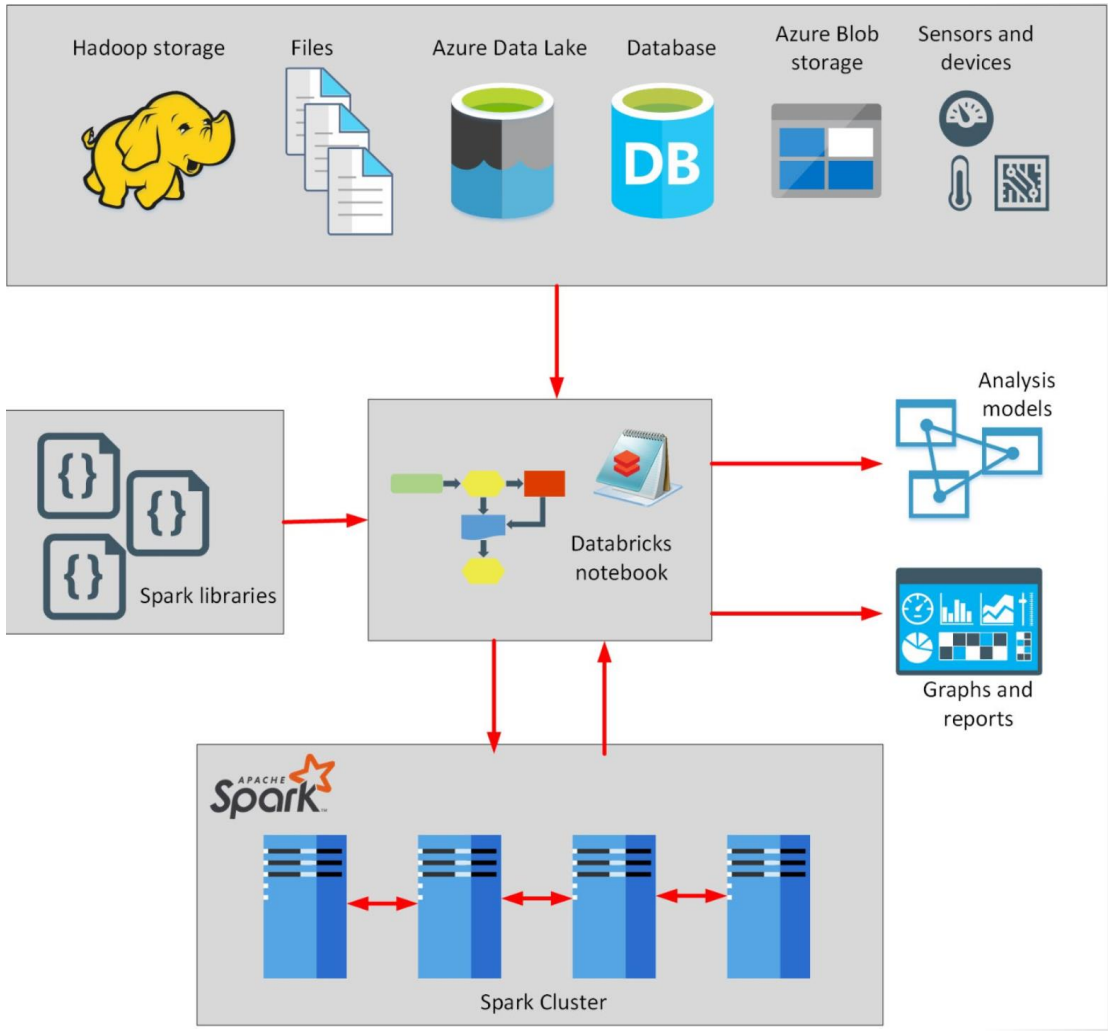
What is Azure Synapse Analytics?



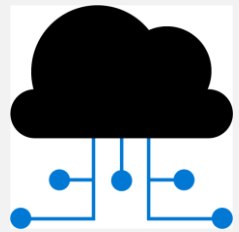
What is Azure Analysis Services?



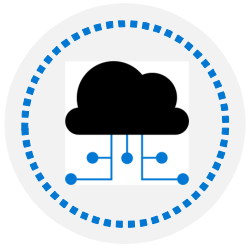
What is Azure HDInsight?



Lesson 2: Explore data ingestion in Azure



Lesson 2 objectives



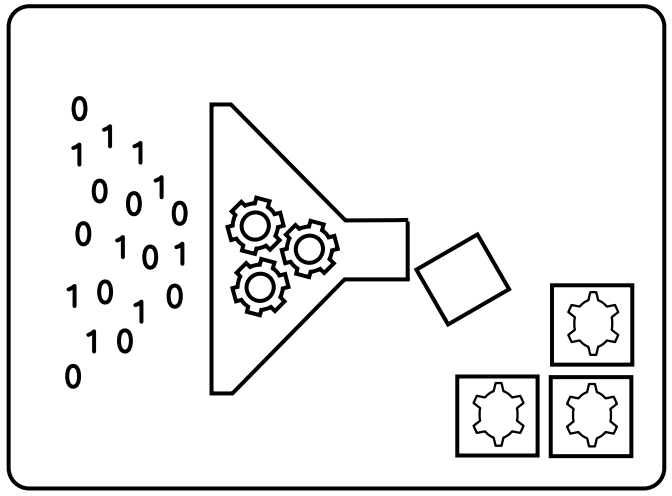
Describe data ingestion in Azure

Describe components of Azure Data Factory

See how to use Azure Data Factory to load data into a data warehouse

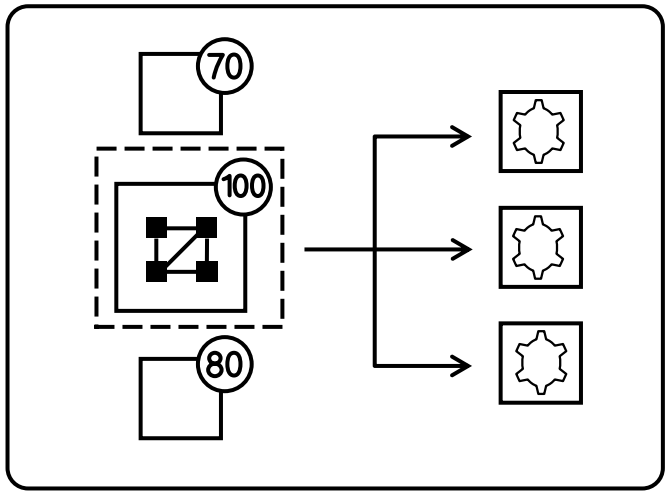
Describe data ingestion in Azure

ADF



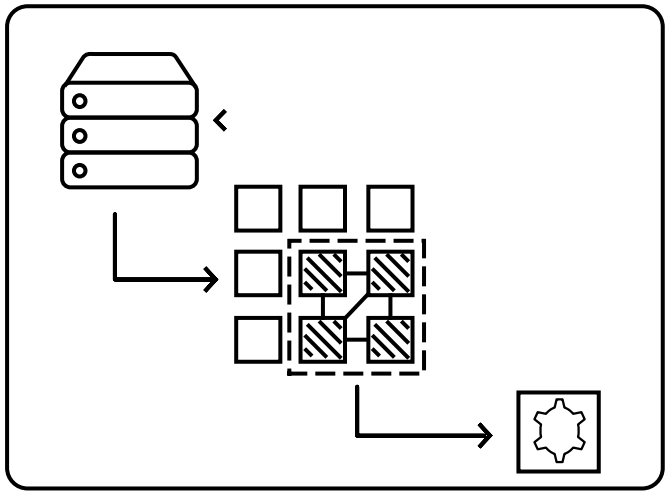
Heterogenous

PolyBase



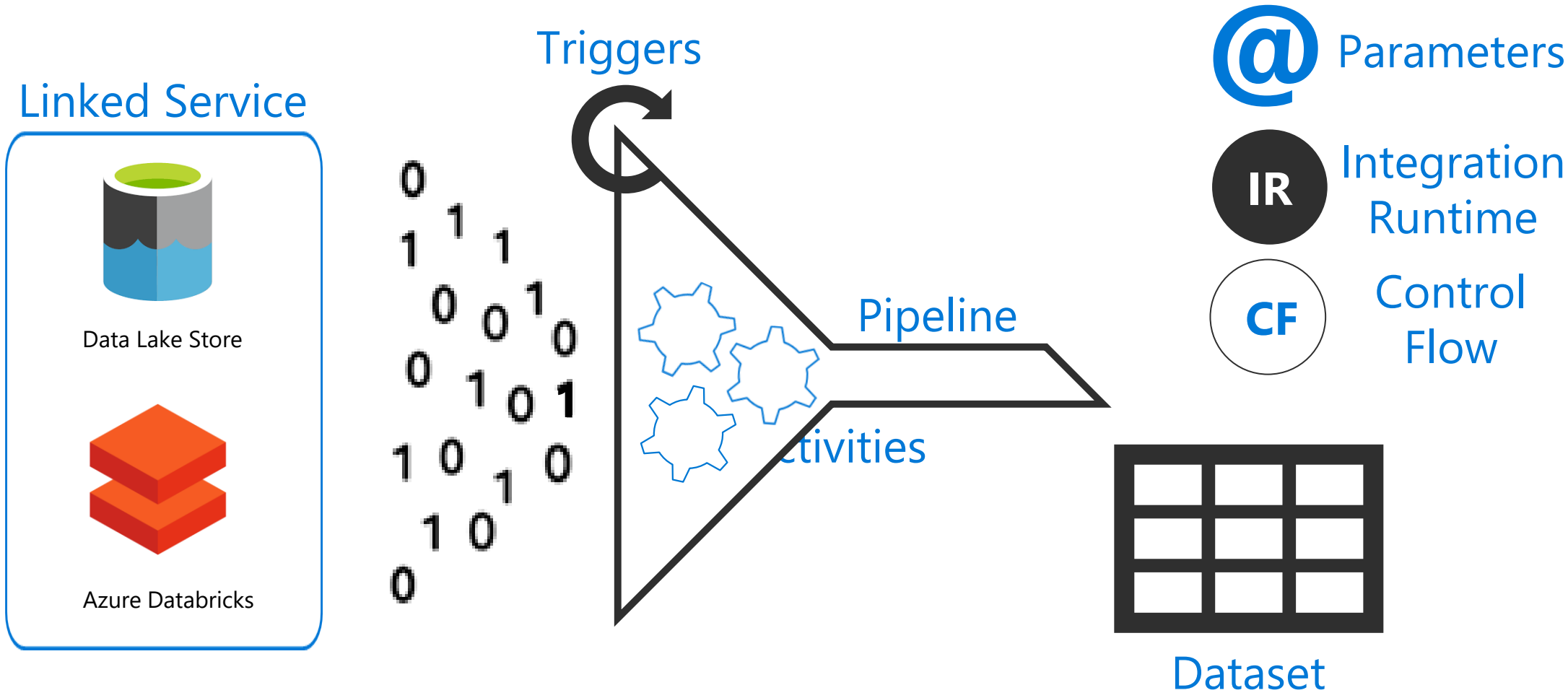
File based

SSIS



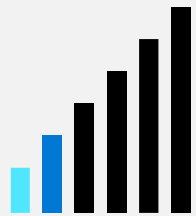
Heterogenous

Describe components of Azure Data Factory



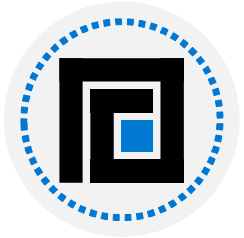
Demo: Load data into Azure Synapse Analytics

Lesson 3: Explore data storage and processing in Azure



Lesson 3 objectives

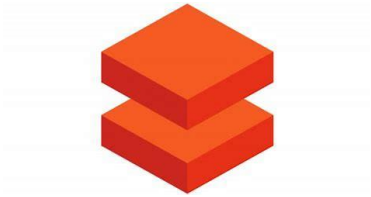
Describe data processing options for performing analytics in Azure



Explore Azure Synapse Analytics

Data processing options for performing analytics in Azure

Azure Synapse Analytics



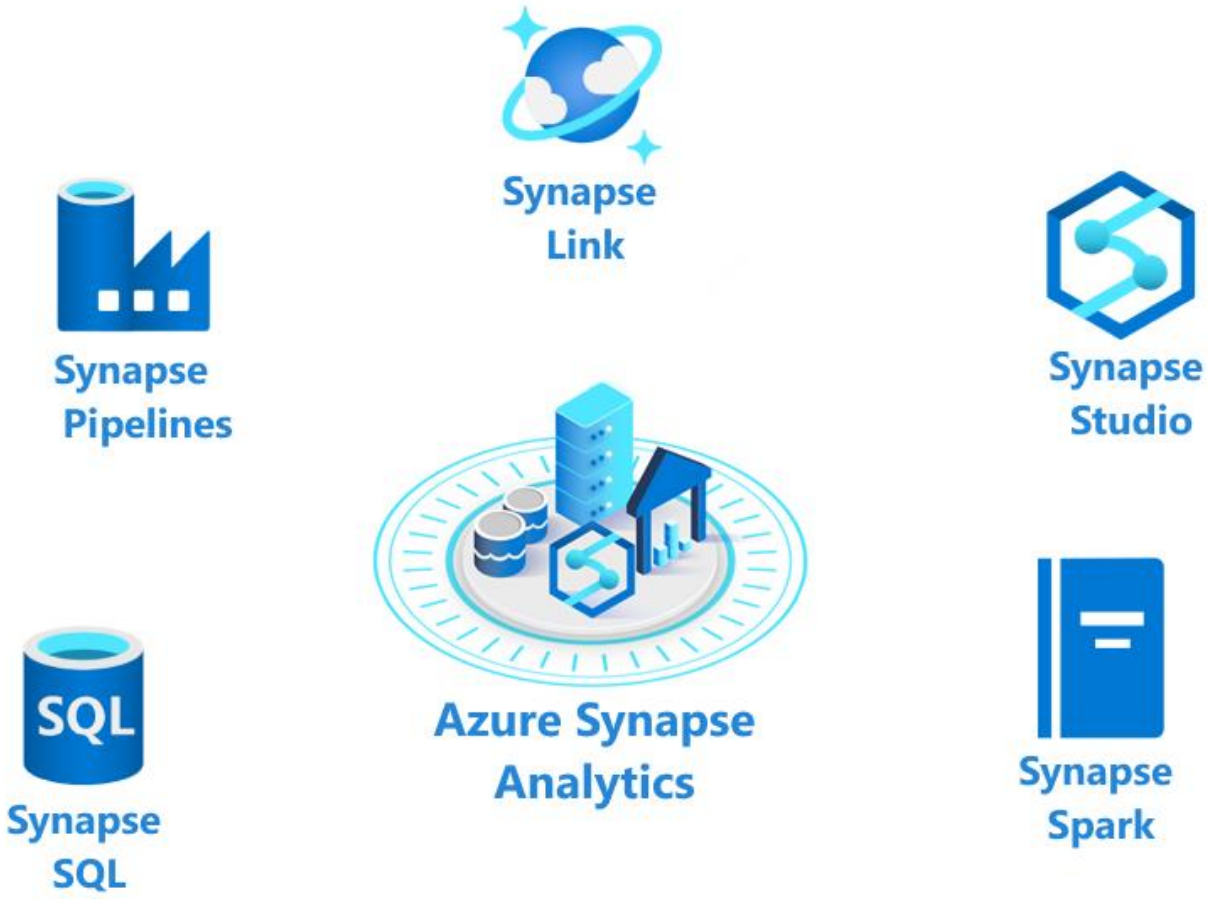
Azure Databricks

Azure HDInsight

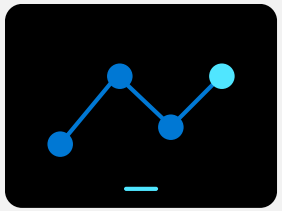
Azure Data Factory

Data Lake Store

Explore Azure Synapse Analytics



Lesson 4: Get started building with Power BI



Lesson 4 objectives

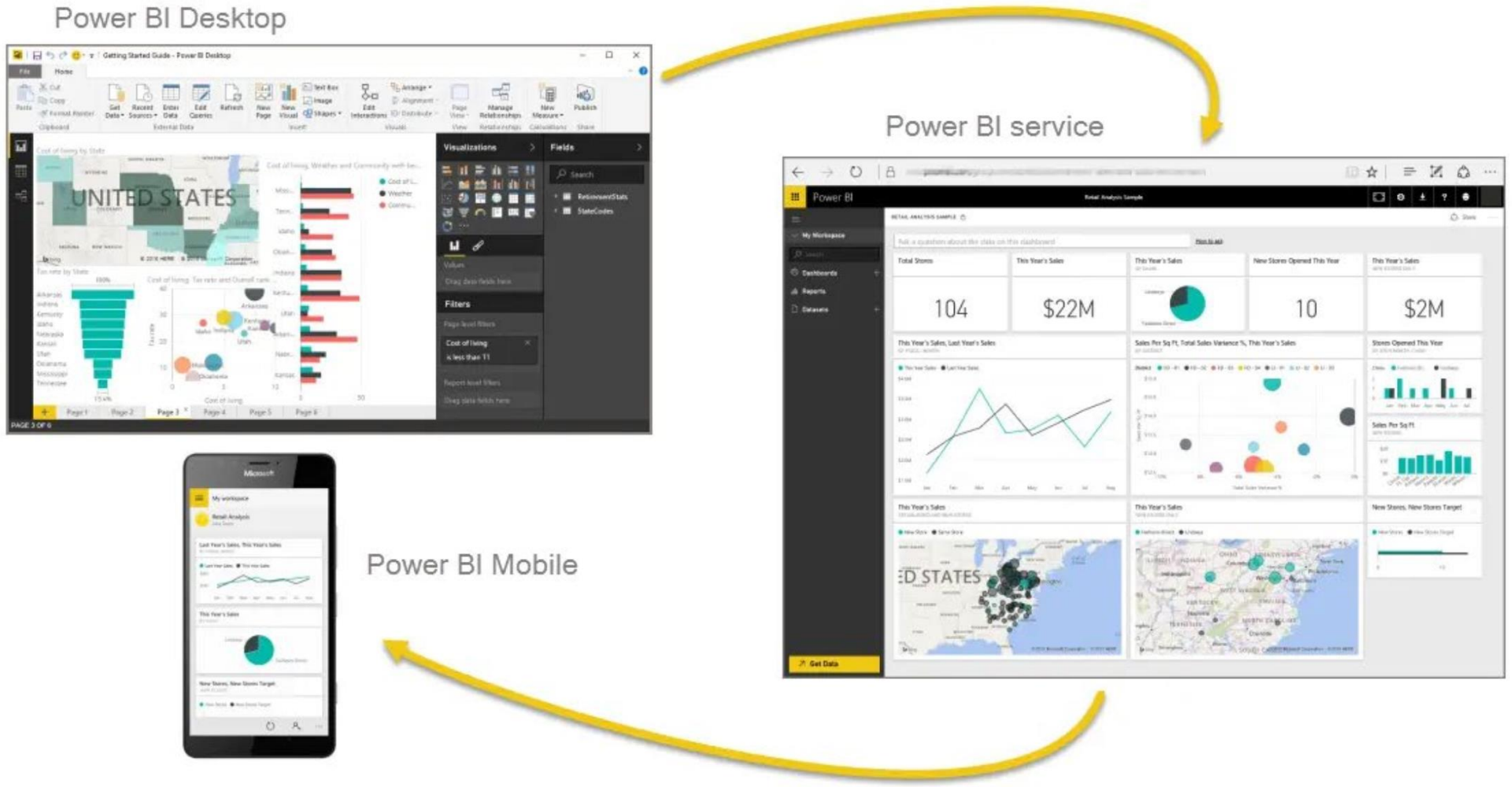
Learn how Power BI services and applications work together

Explore how Power BI can make your business more efficient

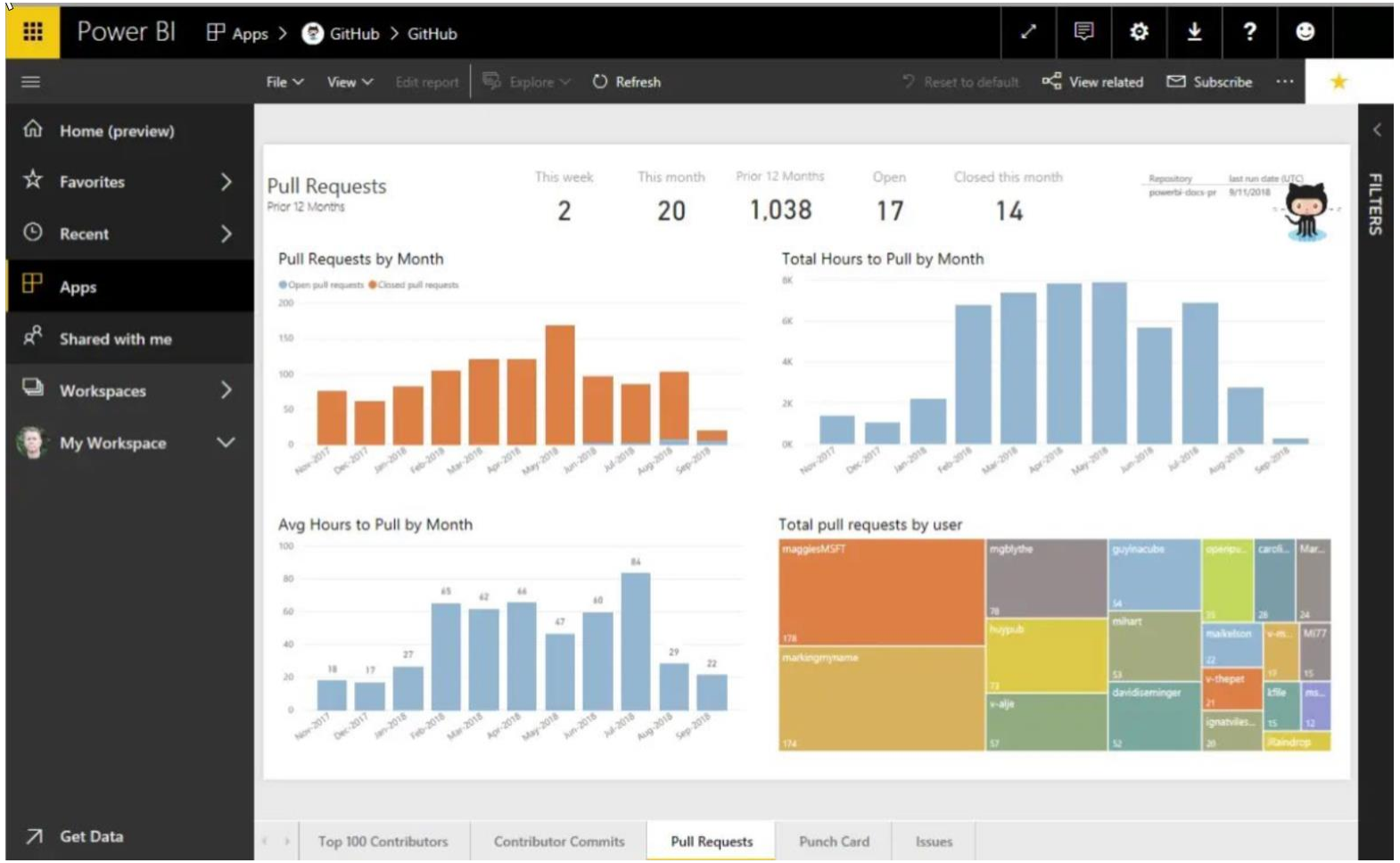
Learn how to create compelling visuals and reports.

Learn how Power BI services and applications work together

Explore how Power BI can make your business more efficient



Learn how to create compelling visuals and reports.



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