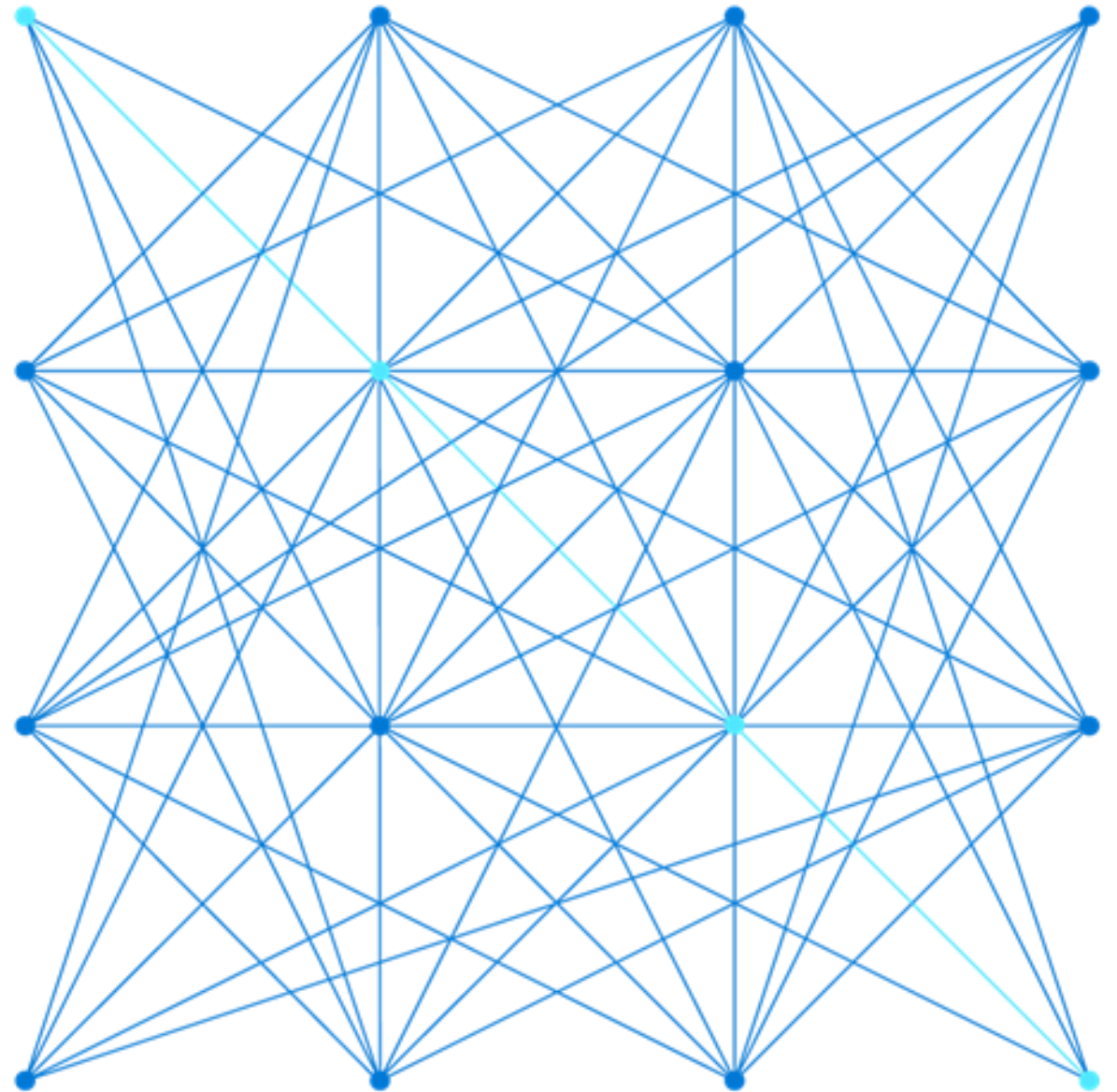


DP-203T00: Run interactive queries using Azure Synapse Analytics serverless SQL pools



Lesson 01: Explore Azure Synapse serverless SQL pools capabilities



Azure Synapse serverless SQL Pools

Every Azure Synapse Analytics workspace comes with serverless SQL pool endpoints so you can start querying data in seconds to minutes in a data lake as soon as the workspace is created. There's no infrastructure to setup or clusters to maintain.

Comparing dedicated SQL Pools with serverless SQL pools in Azure Synapse Analytics

Dedicated SQL pools

- Used for Data Warehouse operations
- Provides predictable performance and costs
- Reserves processing power for data stored in SQL tables

Serverless SQL pools

- Used for data preparation or ad-hoc queries against unstructured data.
- Provides an always available SQL endpoint for unplanned workloads
- Enables interactive querying

Explore Azure Synapse serverless SQL pools capabilities

Every Azure Synapse Analytics workspace comes with serverless SQL pool endpoints so you can start querying data in seconds to minutes in a data lake as soon as the workspace is created. There's no infrastructure to setup or clusters to maintain.

Data Exploration

Browse the data lake and get initial insights about the data. Using Azure Synapse Studio, you can explore the data both graphically and programmatically.

Data transformation

Serverless SQL pool enables you to execute transformation statements over the data in the lake and store the results back to the data lake in a specified file format.

Logical data warehouse

Create objects (such as VIEWS and External Tables) that provide you with a SQL metadata layer over the data in the lake to create a logical data warehouse. Once these objects are created, any tool that can connect to serverless SQL pool will see these objects as regular SQL Server objects

Lesson 01: Query data in the lake using Azure Synapse serverless SQL pools



Common files to query



Parquet



Json



DelimitedText

Using Azure Synapse Studio to view data

Workspace

Linked

Filter resources by name

Azure Blob Storage1

Azure Data Lake Storage Gen22

- asaworkspacexx12 (Primary - asada...
 - staging
 - tempdata (Primary)
 - wwi-02
- asdatalakexx12 (asdatalakexx12)

wwi-02

New SQL script

New notebook

New data flow

New integration dataset

More

wwi-02 > sale-small > Year=2019 > Quarter=Q4 > Month=12 > Day=20191231

Name	Last Modified	Content Type
sale-small-20191231-snappy.parquet		

New SQL script

New notebook

New data flow

New integration dataset

Manage access...

Rename...

Download

Delete

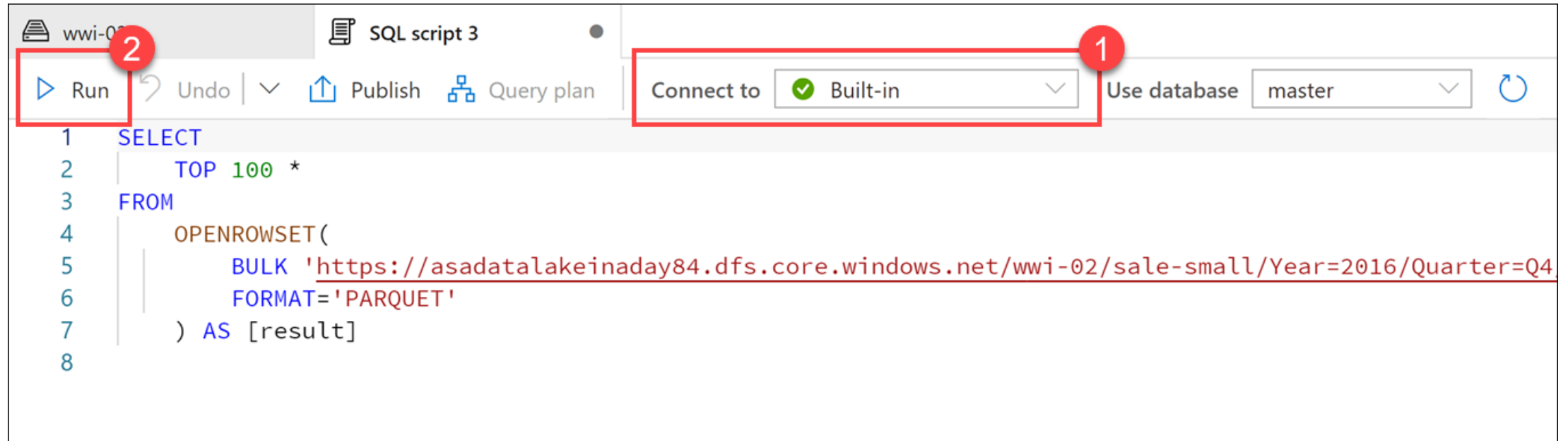
Properties...

Select TOP 100 rows

Create external table

Bulk load

Querying parquet files in a data lake



Lesson 01: Create metadata objects in Azure Synapse serverless SQL pools



Create metadata objects in Azure Synapse serverless SQL pools



Database



```
CREATE DATABASE [YourDatabaseName]
```



Database
scoped credential



```
CREATE DATABASE SCOPED CREDENTIAL [sqlondemand]  
WITH IDENTITY='SHARED ACCESS SIGNATURE',  
SECRET = 'sv=2018-03-28&ss=bf&srt=sco&sp=rl&'
```



External data
source



```
CREATE EXTERNAL DATA SOURCE SqlOnDemandDemo WITH (  
    LOCATION = 'https://sqlondemandstorage.blob.core.windows.net',  
    CREDENTIAL = sqlondemand );
```



External file
format



```
CREATE EXTERNAL FILE FORMAT QuotedCsvWithHeaderFormat  
WITH  
( FORMAT_TYPE = DELIMITEDTEXT,  
  FORMAT_OPTIONS ( FIELD_TERMINATOR = ',', STRING_DELIMITER = '"',  
    FIRST_ROW = 2 ) );
```



External
Table

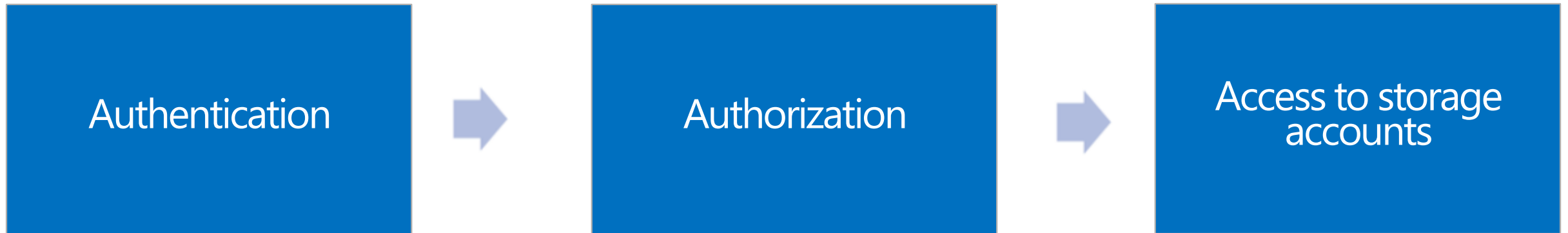


```
CREATE EXTERNAL TABLE populationExternalTable  
( [country_name] VARCHAR (100) COLLATE Latin1_General_BIN2,  
  [year] smallint, [population] bigint )  
WITH  
( LOCATION = 'csv/population/population.csv',  
  DATA_SOURCE = sqlondemanddemo,  
  FILE_FORMAT = QuotedCSVWithHeaderFormat );
```

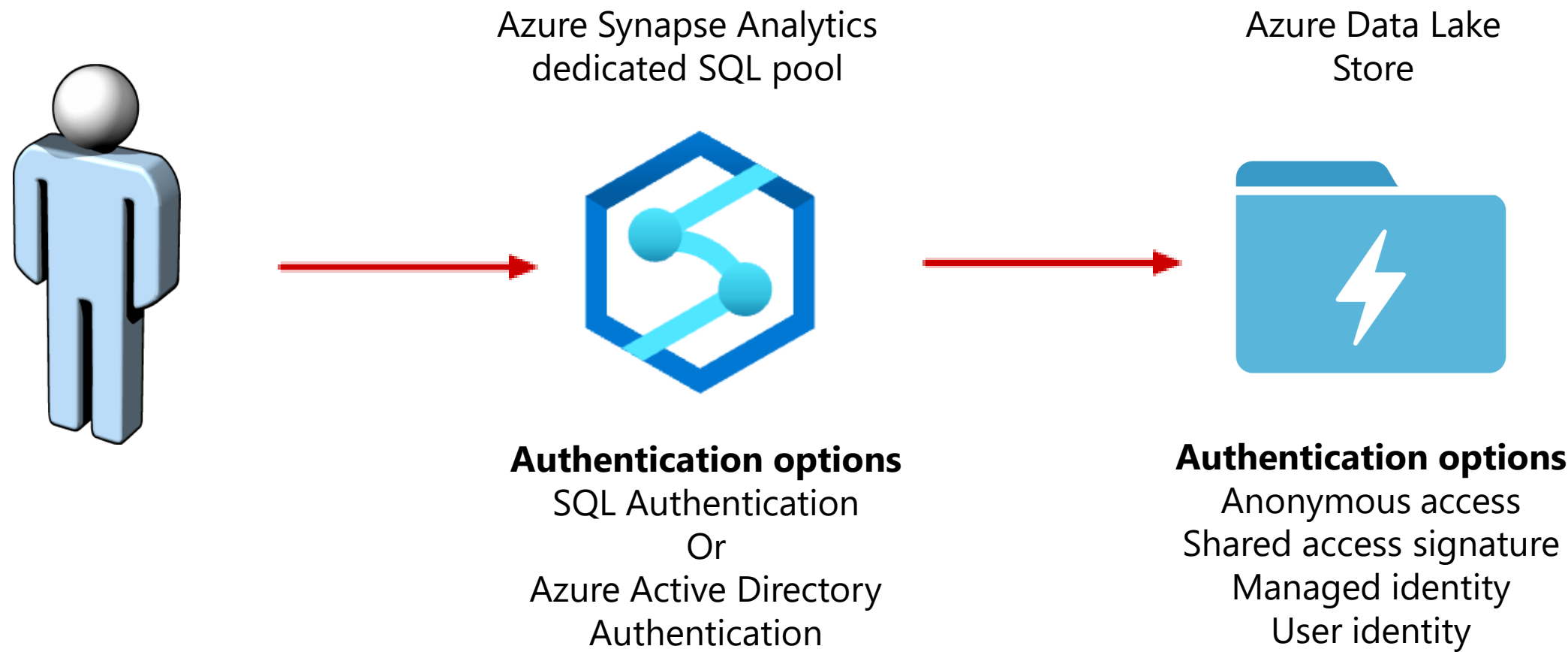
Lesson 01: Secure data and manage users in Azure Synapse serverless SQL pools



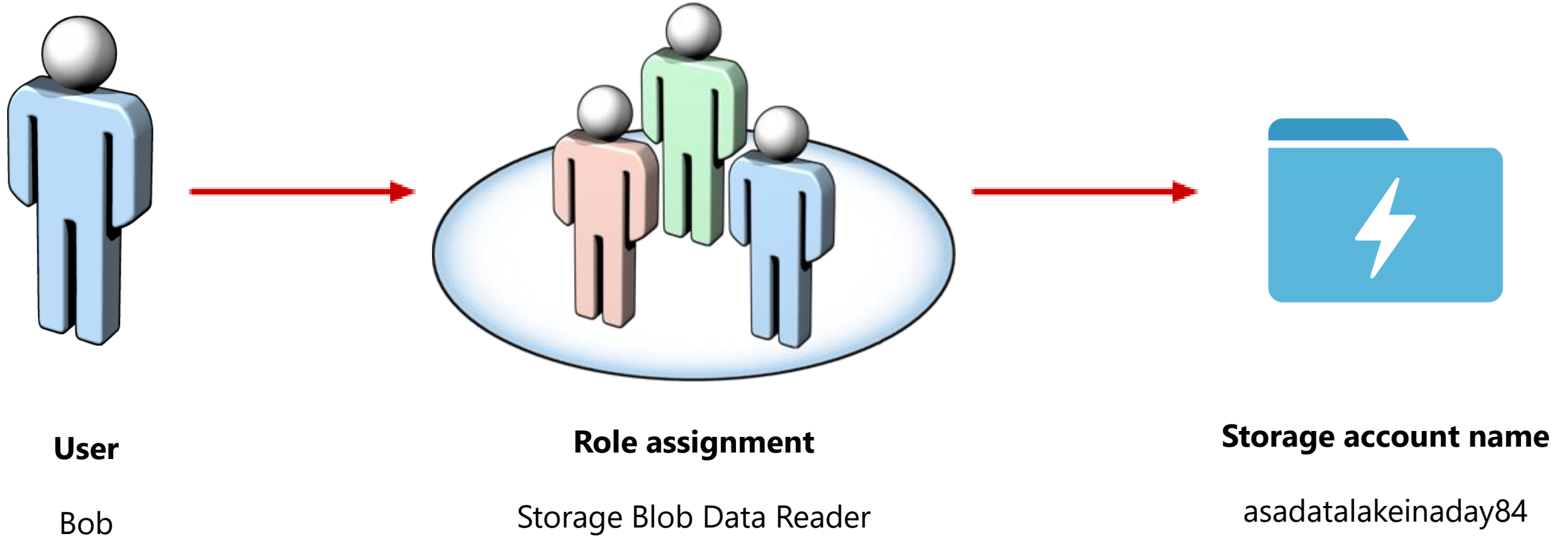
Securing access to data in a data lake when using Azure Synapse Analytics



Choose an authentication method



Manage users in Azure Synapse serverless SQL pools



Manage user access to data lake files

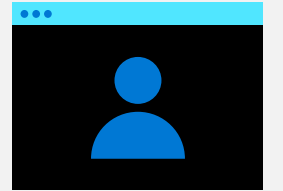
The screenshot displays the Azure Storage Explorer (preview) interface for the storage account **asadatalakeinaday84**. The interface is divided into three main sections: a left sidebar, a central pane, and a right pane.

Left Sidebar: Contains navigation links for Overview, Activity log, Tags, Diagnose and solve problems, Access Control (IAM), Data transfer, Events, and Storage Explorer (preview). The **Storage Explorer (preview)** link is highlighted with a red box and labeled with a red circle containing the number 1.

Central Pane: Shows the hierarchy of the storage account. Under **CONTAINERS**, there are **staging**, **tempdata**, and **wwi-02**. The **wwi-02** container is highlighted with a blue selection bar and a red box, labeled with a red circle containing the number 2.

Right Pane: Shows the contents of the selected container. At the top, there are buttons for Upload, Download, and New Folder. Below these is a breadcrumb navigation path: **wwi-02 > sale-small**, which is highlighted with a red box and labeled with a red circle containing the number 3. The main list shows folders for years from 2010 to 2019, and a file named **_placeholder**. The **Year=2019** folder is highlighted with a blue selection bar and a red box, labeled with a red circle containing the number 4. A context menu is open over the **Year=2019** folder, showing options: **Rename...**, **Manage Access...**, **Properties...**, and **Delete**. The **Manage Access...** option is highlighted with a red box and labeled with a red circle containing the number 5.

Lab: Run interactive queries using Azure Synapse Analytics serverless SQL pools



Lab overview

In this lab, students will learn how to work with files stored in the data lake and external file sources, through T-SQL statements executed by a serverless SQL pool in Azure Synapse Analytics. Students will query Parquet files stored in a data lake, as well as CSV files stored in an external data store. Next, they will create Azure Active Directory security groups and enforce access to files in the data lake through Role-Based Access Control (RBAC) and Access Control Lists (ACLs).

Lab objectives

After completing this lab, you will be able to:

Querying a Data Lake Store using serverless SQL pools in Azure Synapse Analytics

Securing access to data through using a serverless SQL pool in Azure Synapse Analytics