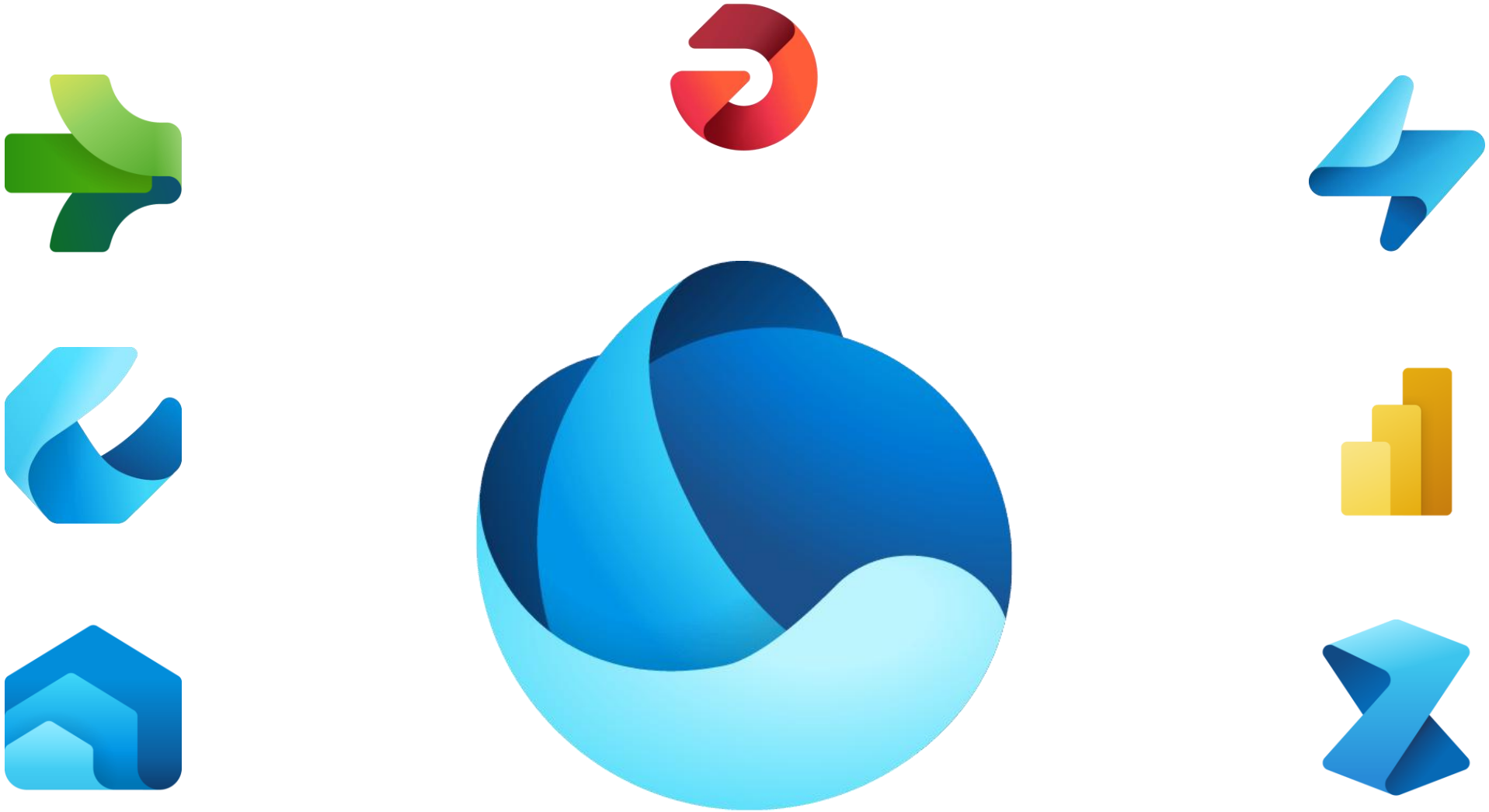


Getting Data into OneLake

Martin Catherall

Data Analytics Consultant

@MartyCatherall

www.MartinCatherall.com

- Data Architect

- SQL Server
  - Since 2002
- Microsoft Azure
  - Since 2015
- Microsoft Fabric
  - Since 2022

MVP Microsoft Most Valuable Professional

Microsoft Certified: Azure Data Fundamentals

Microsoft Certified: Power BI Data Analyst Associate

Microsoft Certified: Azure AI Engineer Associate

Microsoft Certified: Azure Data Engineer Associate

Microsoft Certified: Azure Solutions Architect Expert

Agenda and content

- Brief Intro
  - Data in One-Lake
- Demos - A number of ways to get data into Fabric
  - Slide supplied (and in case the internet lets me down ☺)
- Summary

Slides

https://tinyurl.com/3r6jjbkh

Data Integration or Data Engineering?

Data Integration

Getting data **into** Fabric from various sources (the "Extract" and initial "Load"

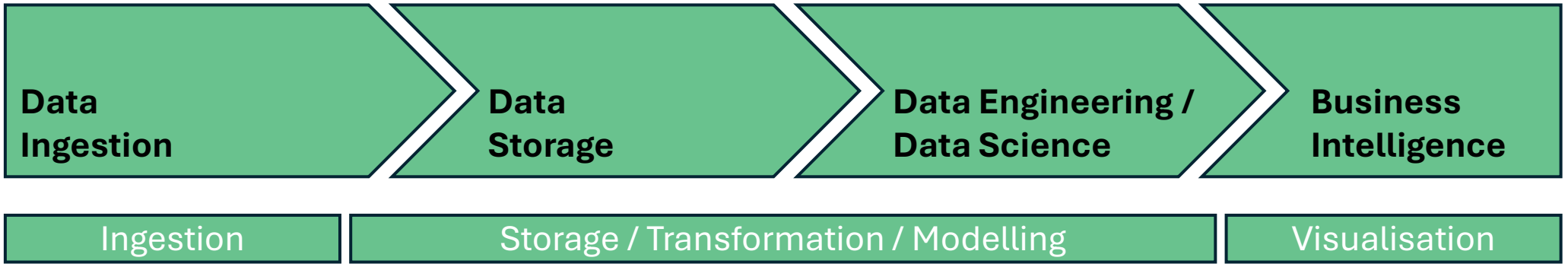
- Batch Ingestion
- Real-Time Ingestion
- Hybrid Ingestion

Data Engineering

What you **do with** the data once it's there (transformation, optimization, pipeline orchestration, data modeling

The Data Journey.

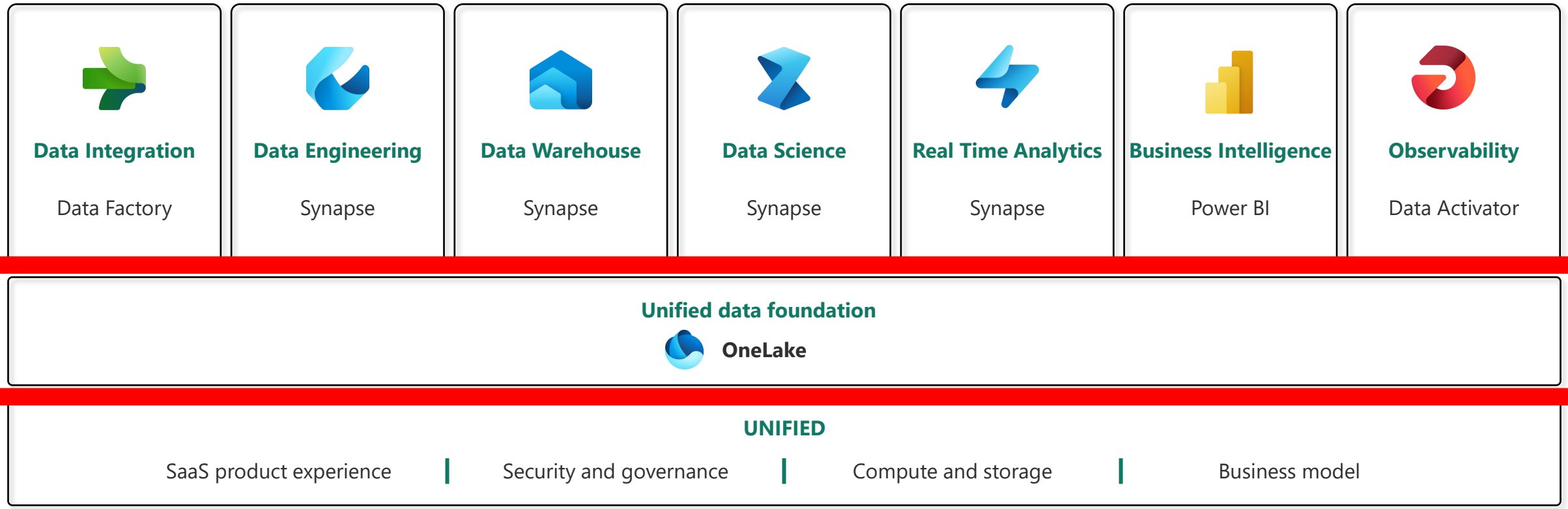
From Source to Visualisation.



- Excel (Power Pivot)
- Power BI
- Azure (Synapse)
- Microsoft Fabric

Microsoft Fabric does it all—in a unified solution

An end-to-end analytics platform that brings together all the data and analytics tools that organizations need to go from the data lake to the business user



One Lake - Acquiring Data

1. Manually
2. Data Integration
   - Notebooks
3. Data Engineering
   - (Data) Pipelines
   - Dataflow Gen 2
4. Mirroring
5. Shortcuts
6. Semantic Model
7. Programmatically
8. Real Time
9. SQL on Fabric
10. Warehouse
    - COPY
    - OPENROWSET
    - T-SQL (CTAS)
11. Mount ADF

One Lake - Acquiring Data

We'll need a place to store the data

Lakehouse

Warehouse

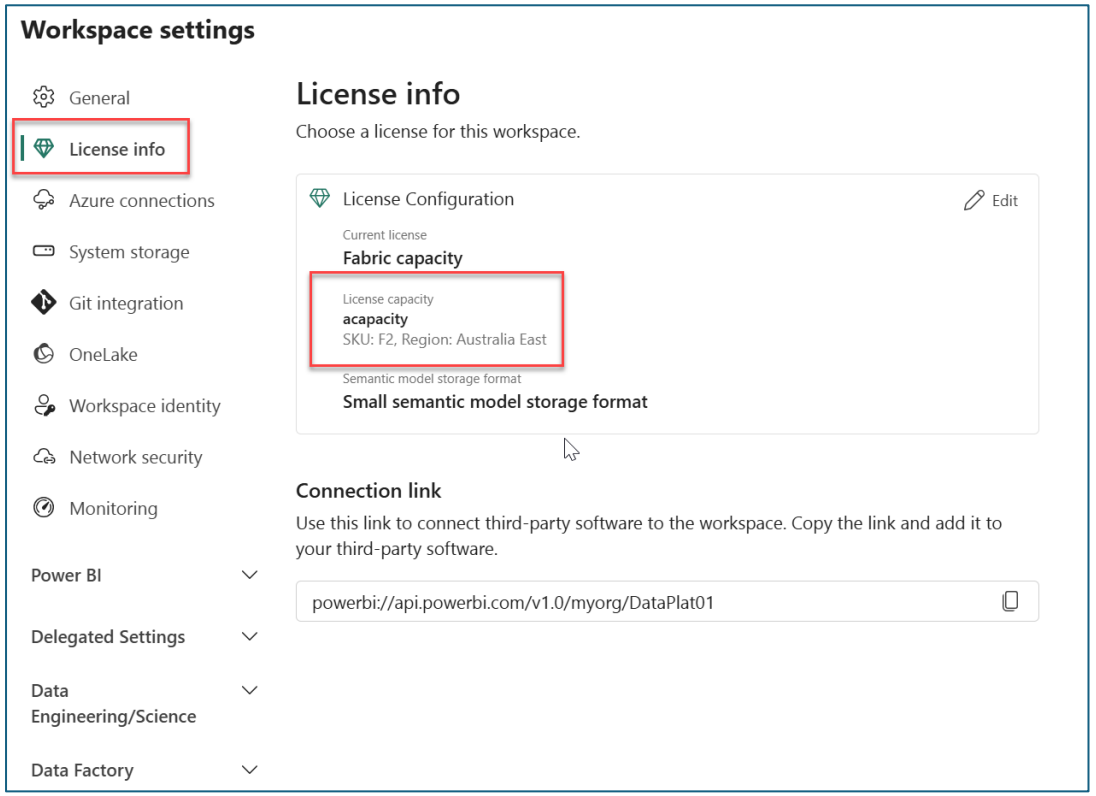
EventHouse

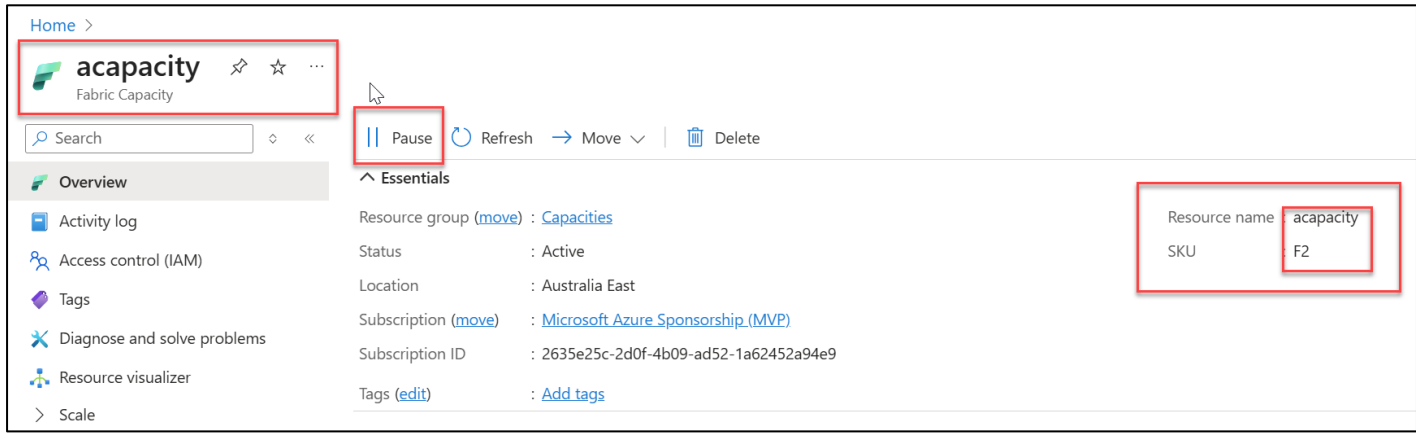
SQL

So, where do we put it? What do we need?

One Lake - Acquiring Data

Workspace, capacity and somewhere to put the data



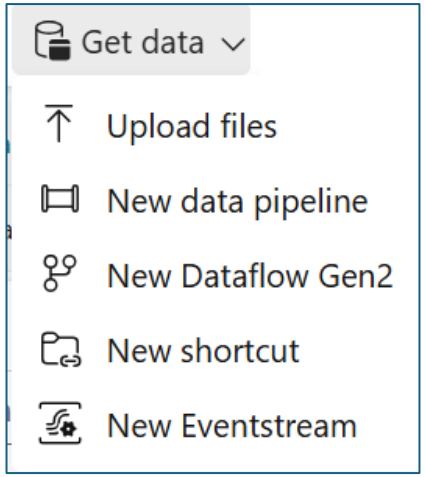


Demos

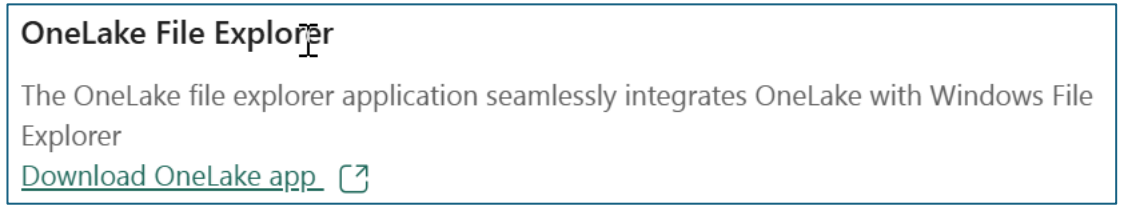
One Lake - Acquiring Data

1 **Manually**

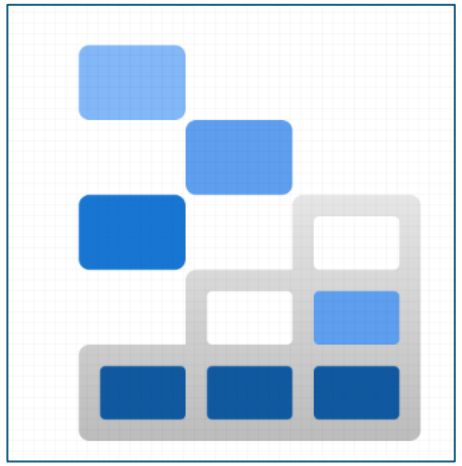
Get data



OneLake File Explorer



Azure Storage Explorer



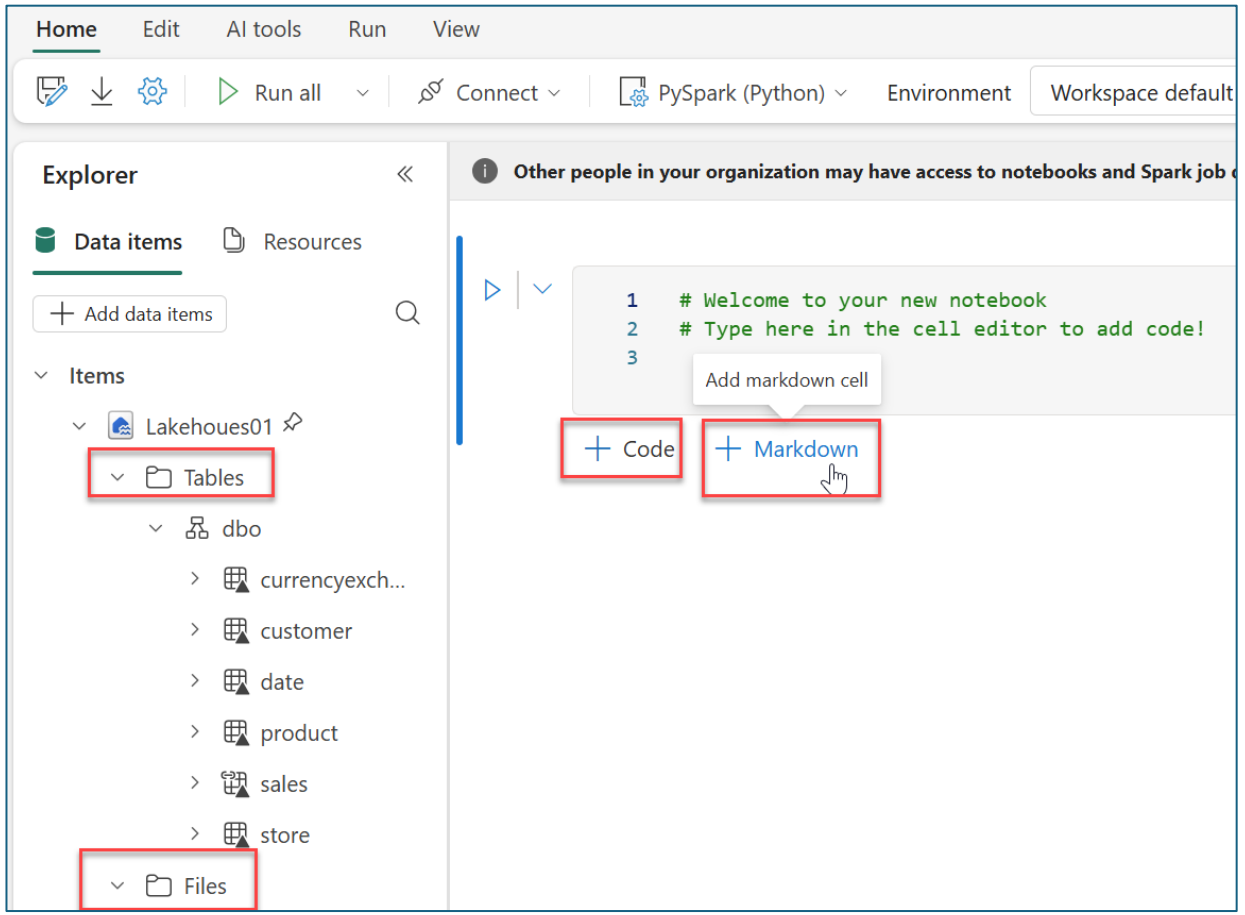
One Lake - Acquiring Data

2 Data Engineering (Notebooks)

Get Data

Prepare data

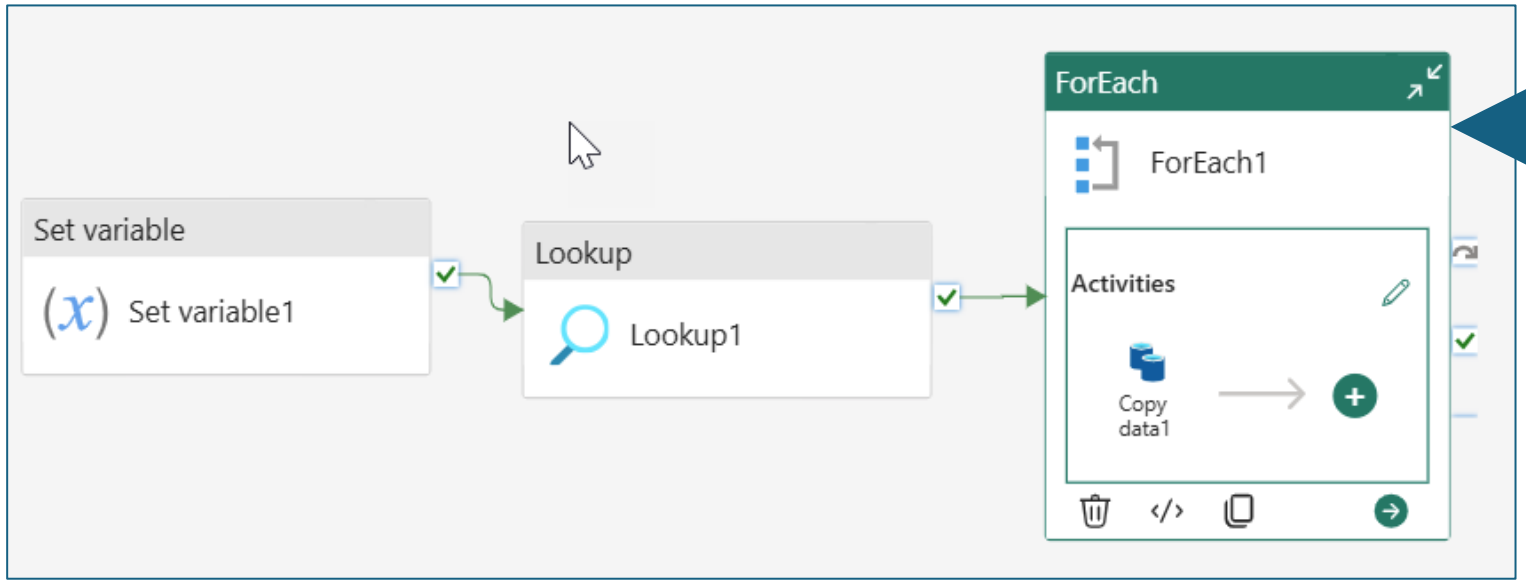
Analyse and Train Data



One Lake - Acquiring Data

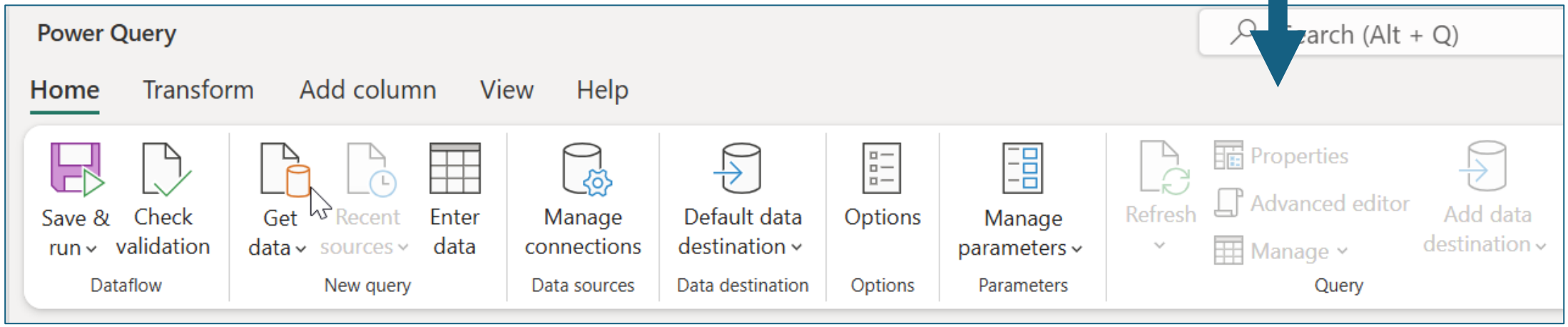
3 Data Integration

What about Dataflow Gen1?



Pipelines

Dataflows Gen 2



One Lake - Acquiring Data (Pipelines)

3 **Data Integration**

Fabric Data Factory (SaaS) – **Similar to**

Azure Data Factory (ADF) – PaaS

Synapse Pipelines – PaaS

SaaS – (Simplifies) v PaaS (more control)

No Datasets

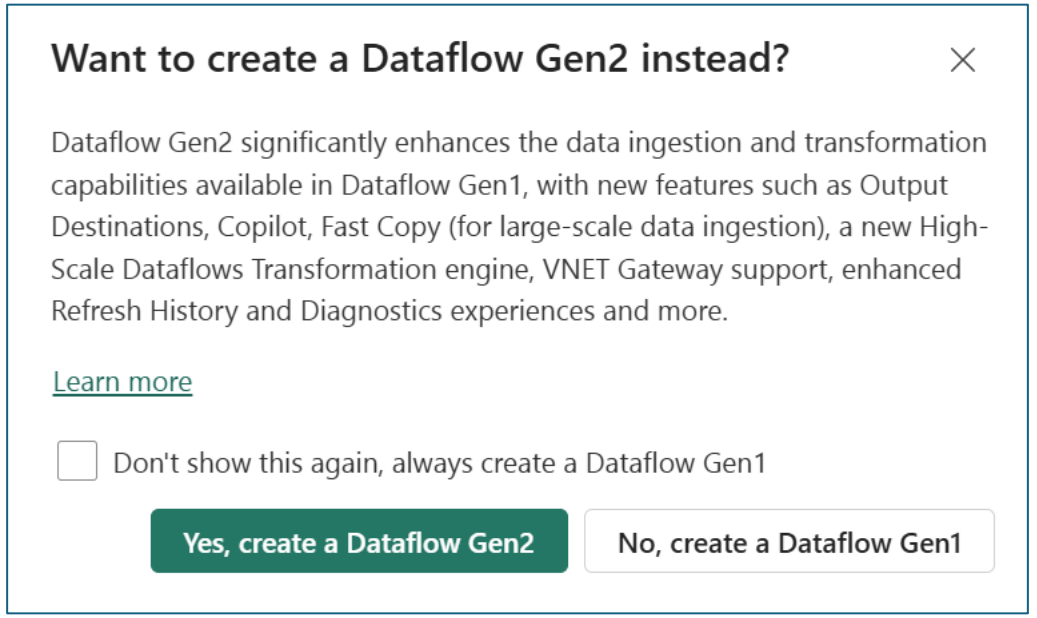
No Linked Services

Ingesting data and Orchestration

Can call – Notebooks , Dataflow Gen2, Refreshes

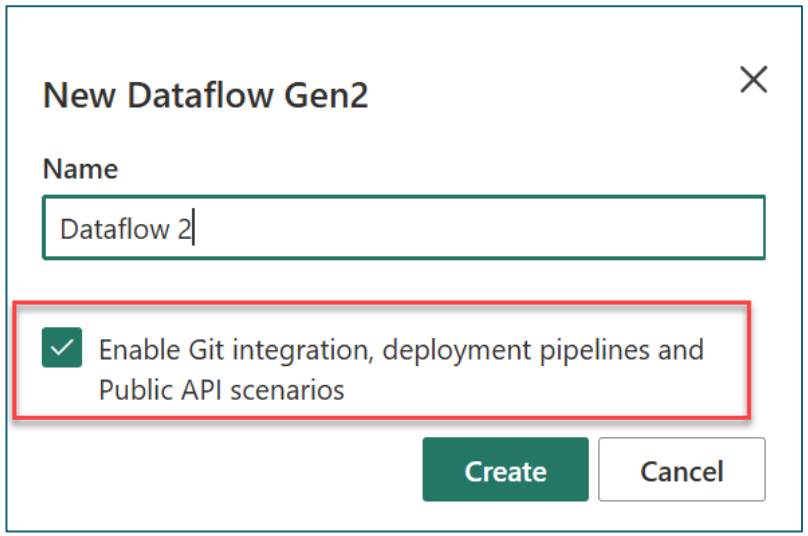
One Lake - Acquiring Data (dataflows)

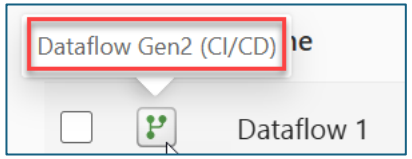
3 Data Integration



One Lake - Acquiring Data (dataflows)

3 Data Integration

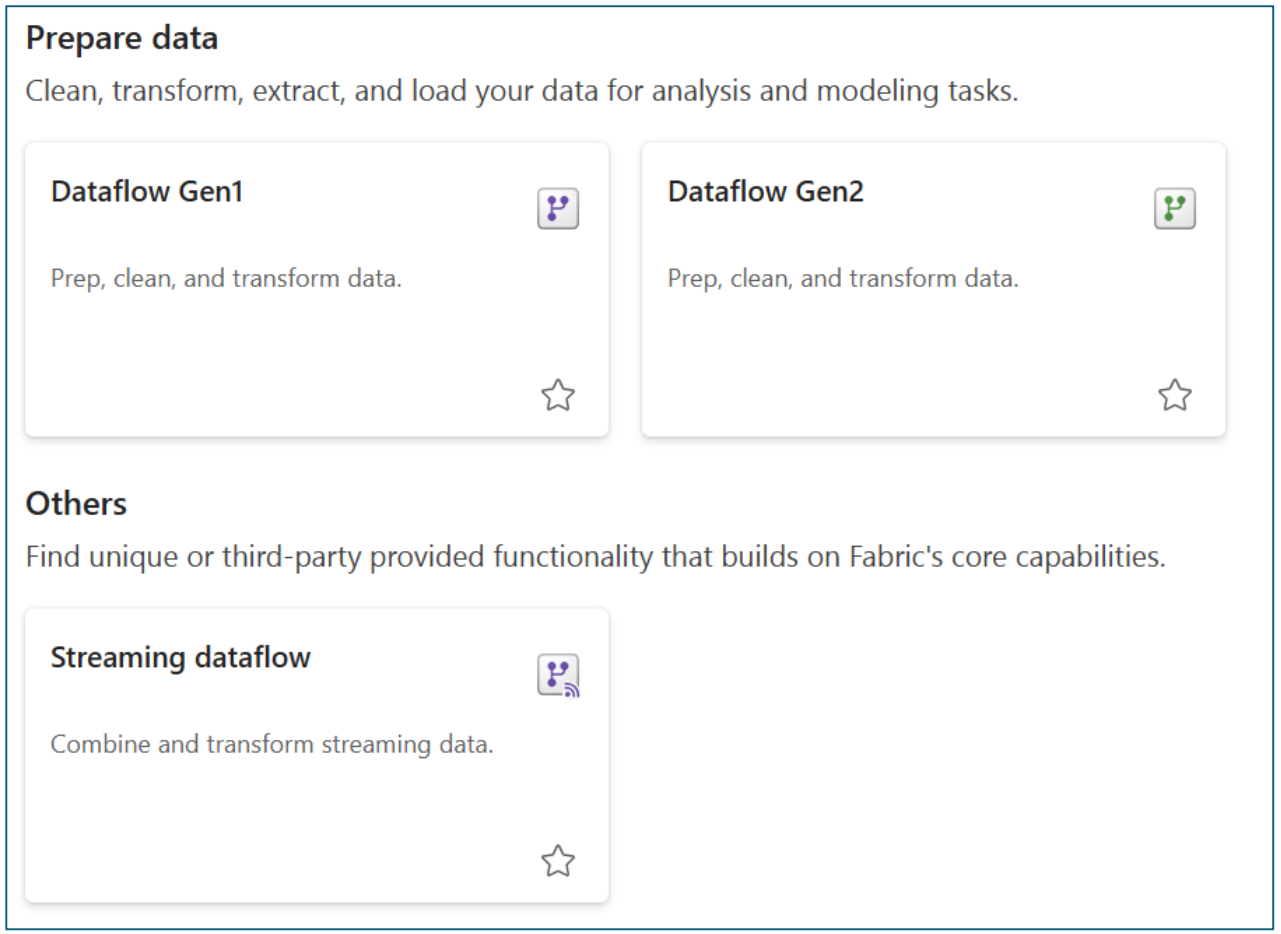




Gen 2 – CI/CD

Gen 2

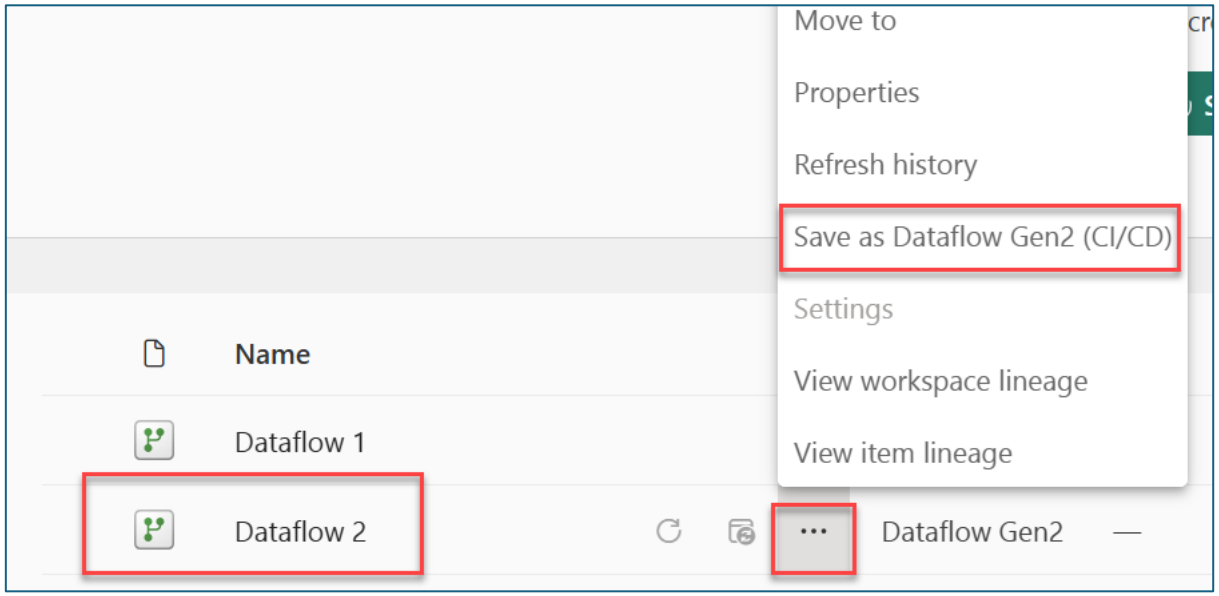
Gen 1

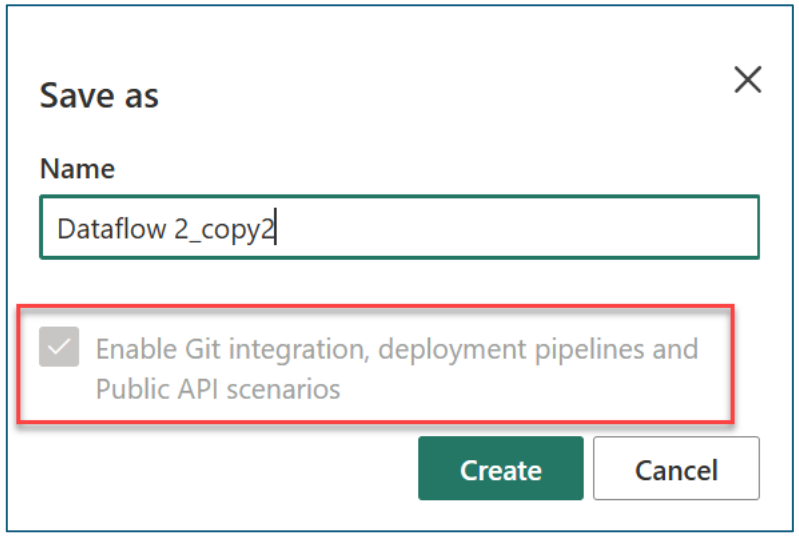


One Lake - Acquiring Data (dataflows)

3 **Data Integration**

Upgrade a ‘Dataflow Gen 2’ to ‘Dataflow Gen 2 CI/CD’





Creates a copy of the dataflow gen2 with a new name

Upgrade (copy) a dataflow gen1 to dataflow gen 2 CI/CD

One Lake - Acquiring Data (Data Flows)

3 **Data Integration**

Power BI Data Flow (Dataflow Gen1) v Dataflow Gen 2

Use Dataflow Gen 2 for new development

Better performance

Fast copy capabilities

Simpler creation process

Multiple output destinations

Works with pipelines

Differences between Dataflow Gen1 and Dataflow Gen2 - Microsoft Fabric | Microsoft Learn

One Lake - Acquiring Data (Data Flows)

4 **Notebooks**

PySpark Notebooks

Multi Language Support

PySpark

Spark SQL

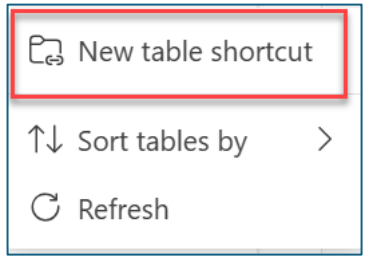
Scala

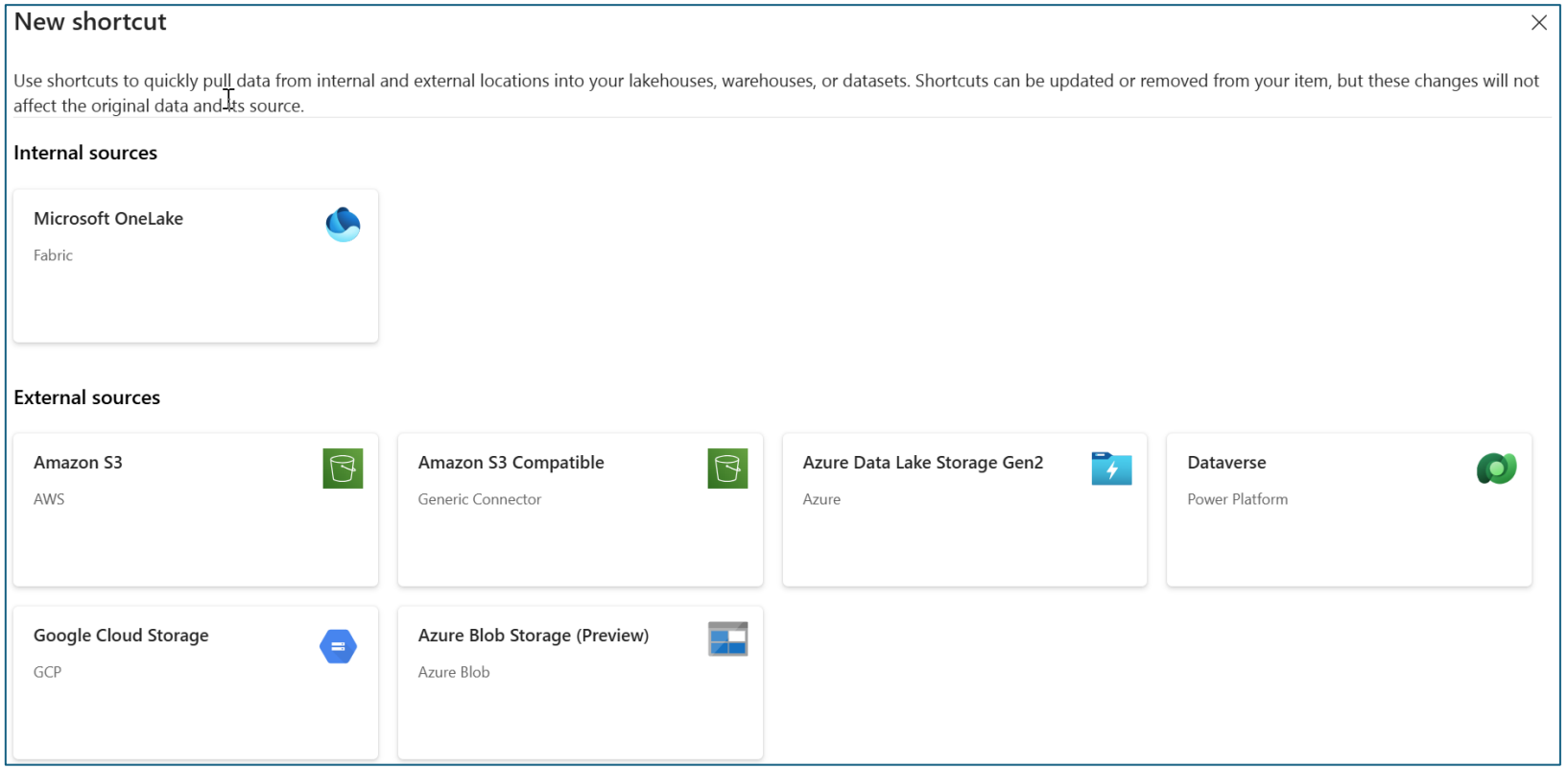
SparkR

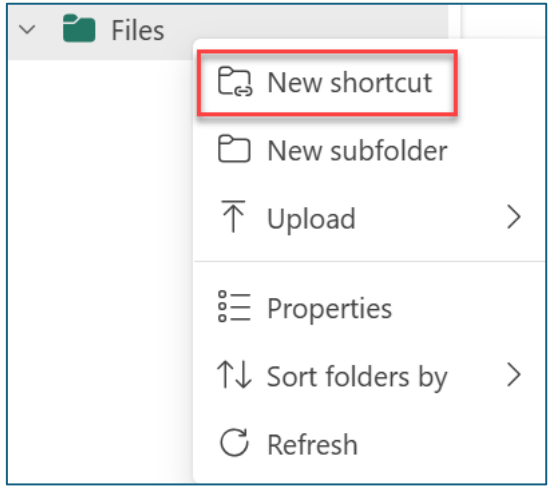
Python Notebooks

One Lake - Acquiring Data

4 Shortcuts

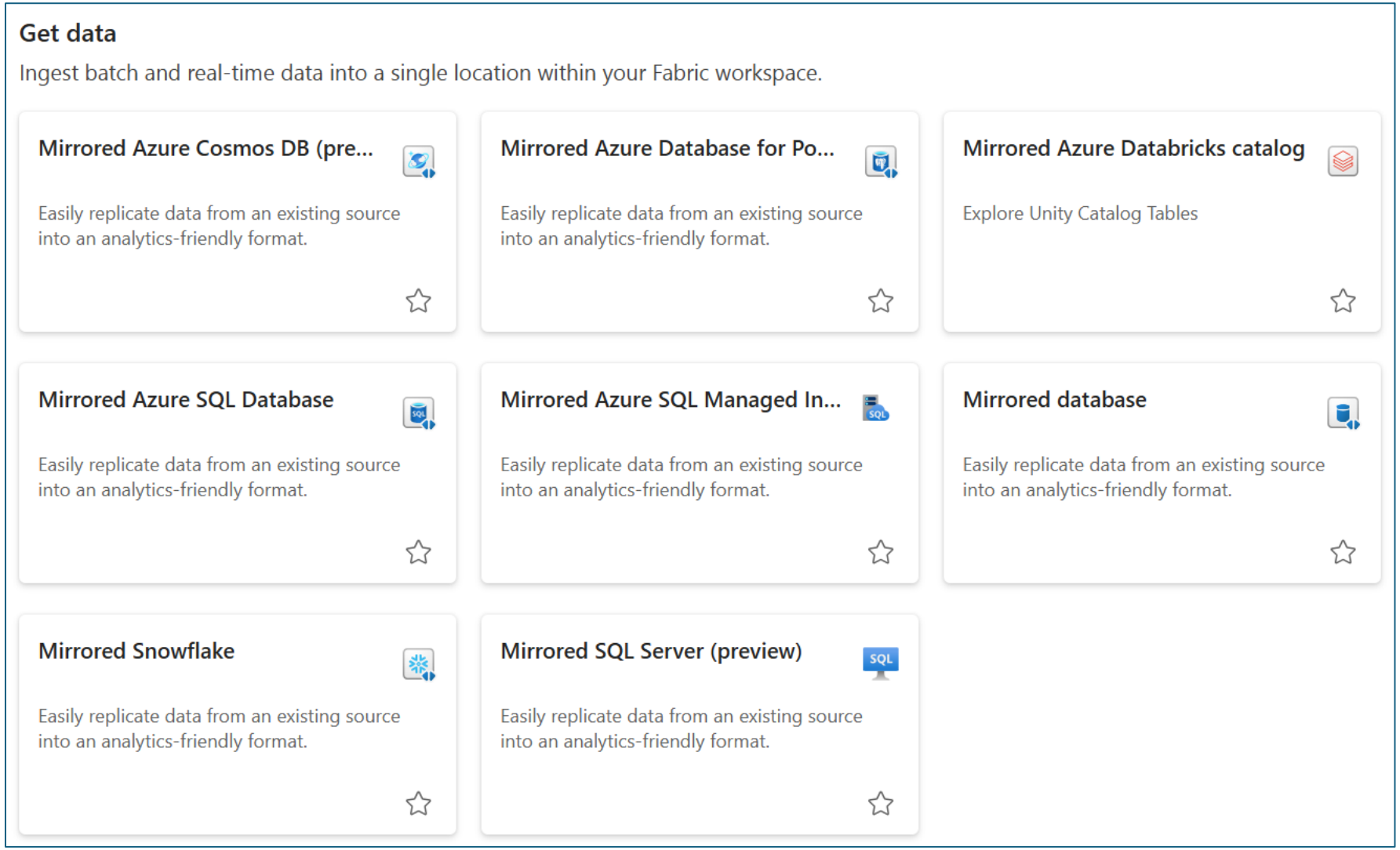




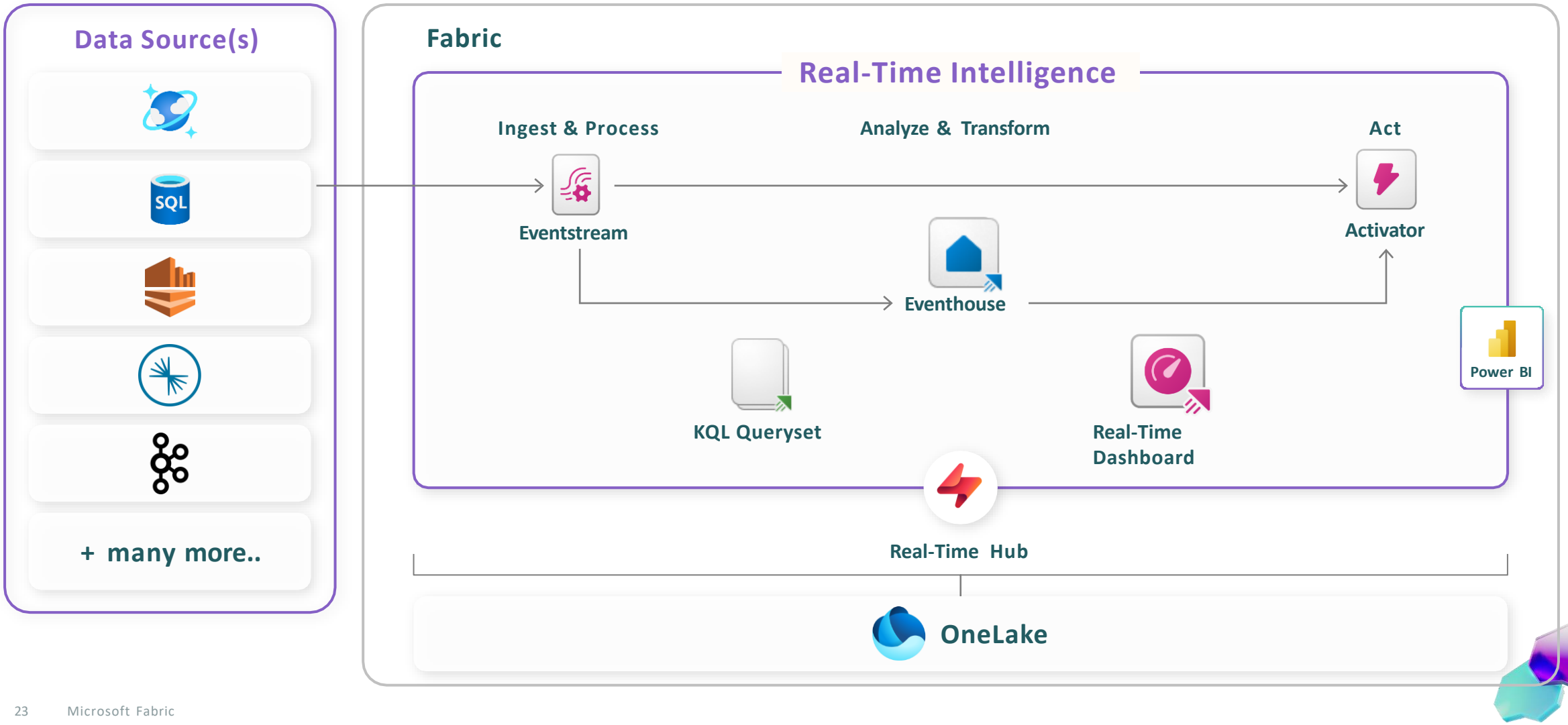


One Lake - Acquiring Data

5 Mirroring



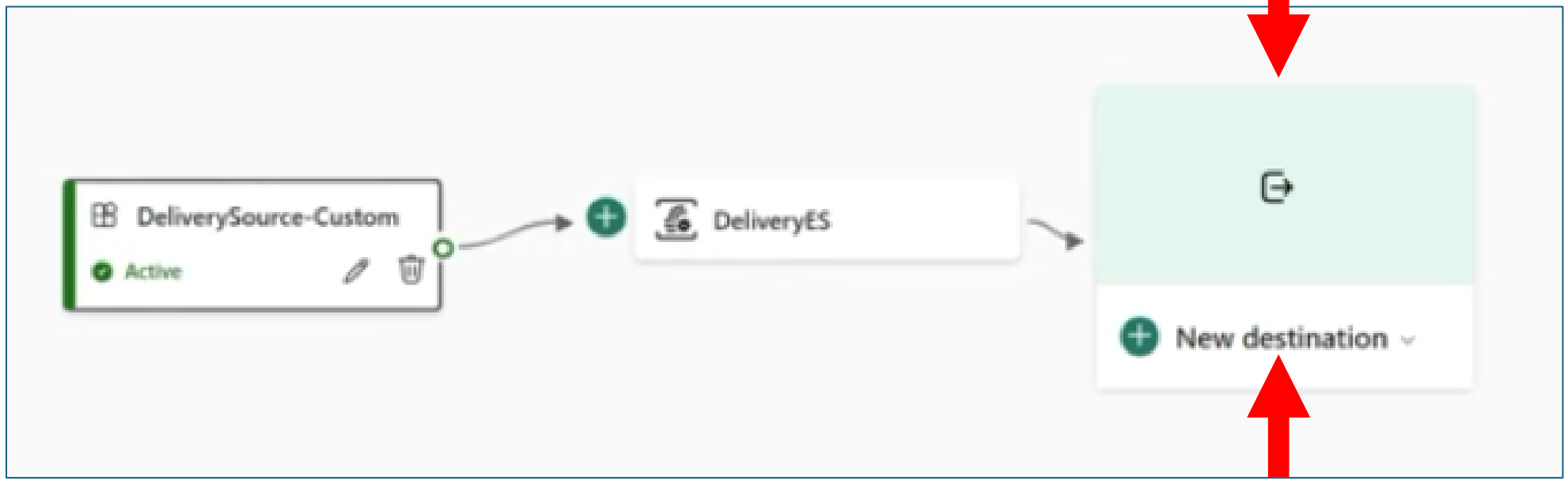
Components of Fabric's Real-Time Intelligence



One Lake - Acquiring Data

6 **Real Time**

A KQL database within an Eventhouse



Turn on OneLake Availability for the Eventhouse

One Lake - Acquiring Data

7 Semantic Model

Upload an existing Semantic Model

Connect to it – example using a notebook

Acquire data

Read data from semantic models and write data that semantic models can consume using Spark - Microsoft Fabric | Microsoft Learn

One Lake - Acquiring Data

8 **Programmatically**

ReST API’s

Various API’s

Fabric CLI

One Lake - Acquiring Data

9 **SQL on Fabric**

Azure SQL Database inside Fabric

2 End Points

Database – Read & Write

DatabaseWarehouse – Read Only

One Lake - Acquiring Data

10 **Warehouse - TSQL**

COPY

```
COPY INTO [    ].[                    ]
FROM 'https://
WITH (
    FILE_TYPE = 'CSV',
    FIRSTROW = 2
);
```

OPENROWSET

```
SELECT *
FROM OPENROWSET(BULK
'https:/
                                                    ',
        FORMAT='CSV',
        HEADER_ROW=True,
        ROW_TERMINATOR='\n',
        FIELD_TERMINATOR=',') AS data;
```

CTAS

```
CREATE TABLE
AS
SELECT DATEPART(YEAR, updated) AS [year],
       DATEPART(MONTH, updated) AS [month],
       DATEPART(DAY, updated) AS [dayofmonth],
       *
FROM dbo.                    ;
```

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Manually

Data Integration
- Notebooks

Data Engineering
- (Data) Pipelines
- Dataflow Gen2

Mirroring

Shortcuts

Semantic Model

Programatically

Real Time

SQL on Fabric

Warehouse
- COPY
- OPENROWSET
- T-SQL (CTAS)

Mount ADF

Thank You

Slides

https://tinyurl.com/3r6jjbkh