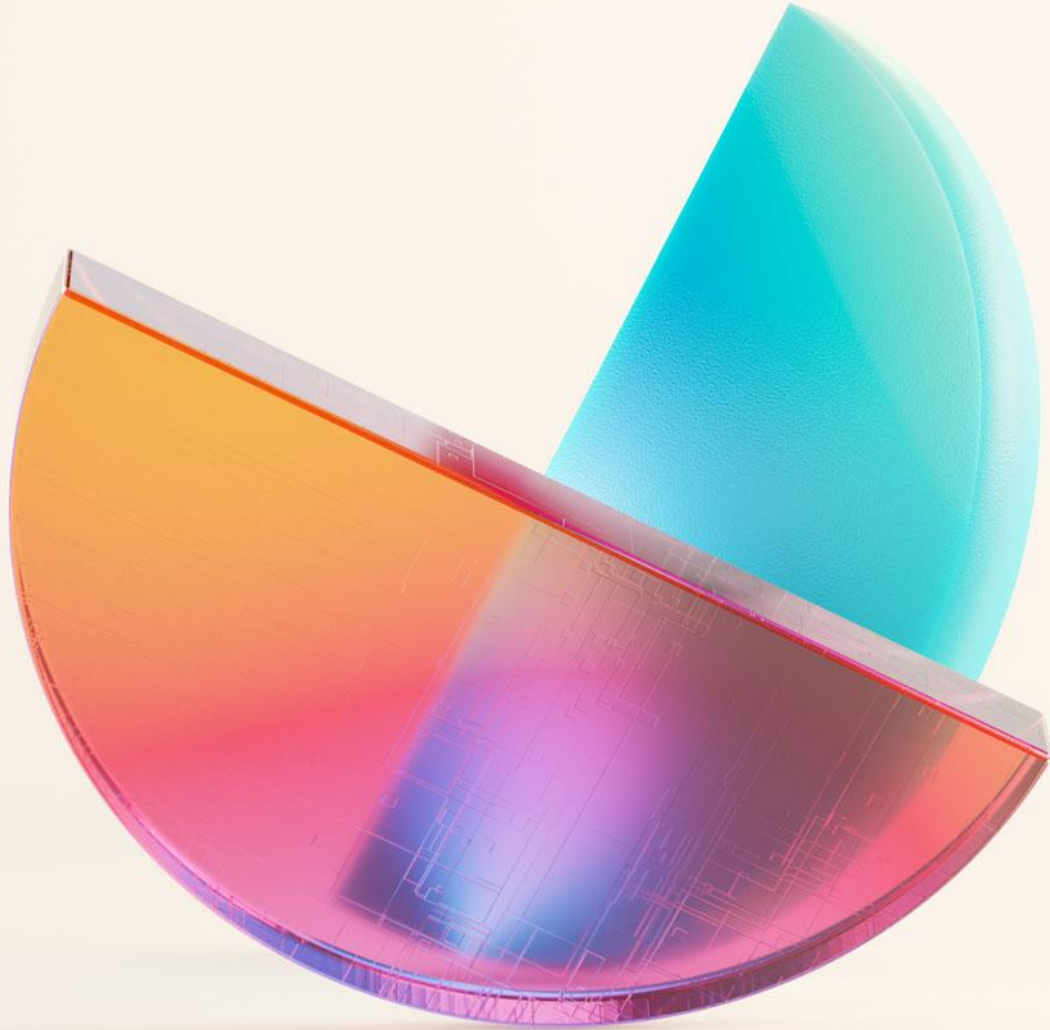




Microsoft Fabric Community Conference



Take your Power BI solutions to the next level with Microsoft Fabric

Marc Lelijveld & Pawel Potasinski

Marc Lelijveld

Technical Evangelist | Solution Architect
Macaw Netherlands



@MarcLelijveld



[linkedin.com/in/MarcLelijveld](https://www.linkedin.com/in/MarcLelijveld)



Data-Marc.com

FAVORITE STUFF:



Pawel Potasinski

Chief Technology Officer
InfiniteDATA Services



@PawelPotasinski

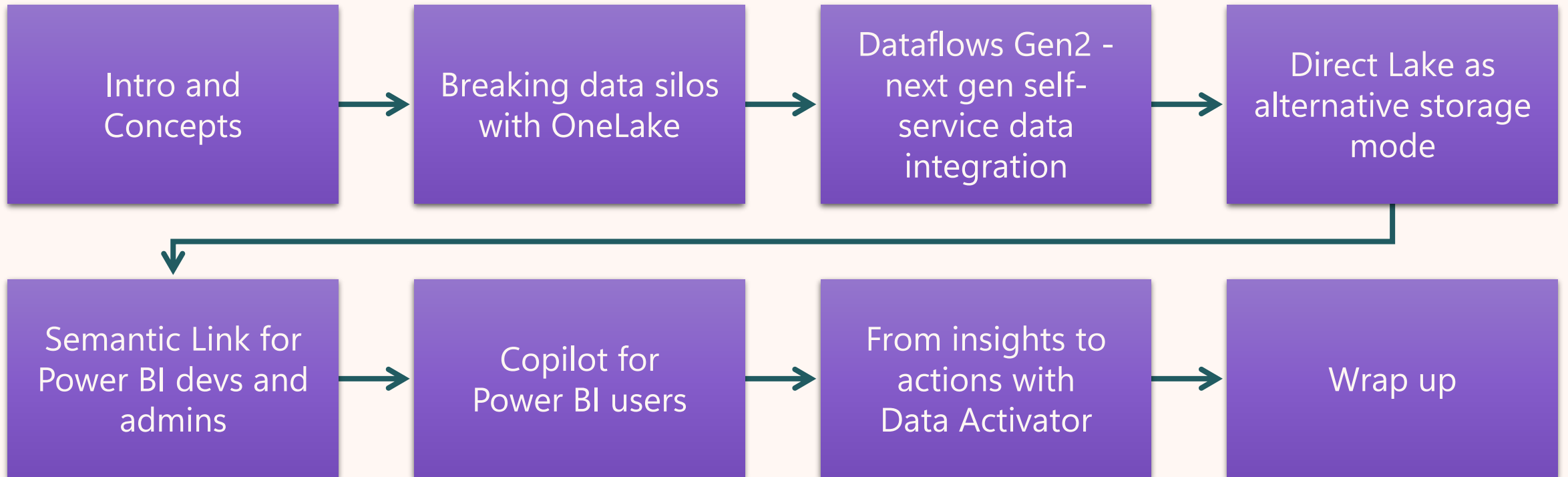


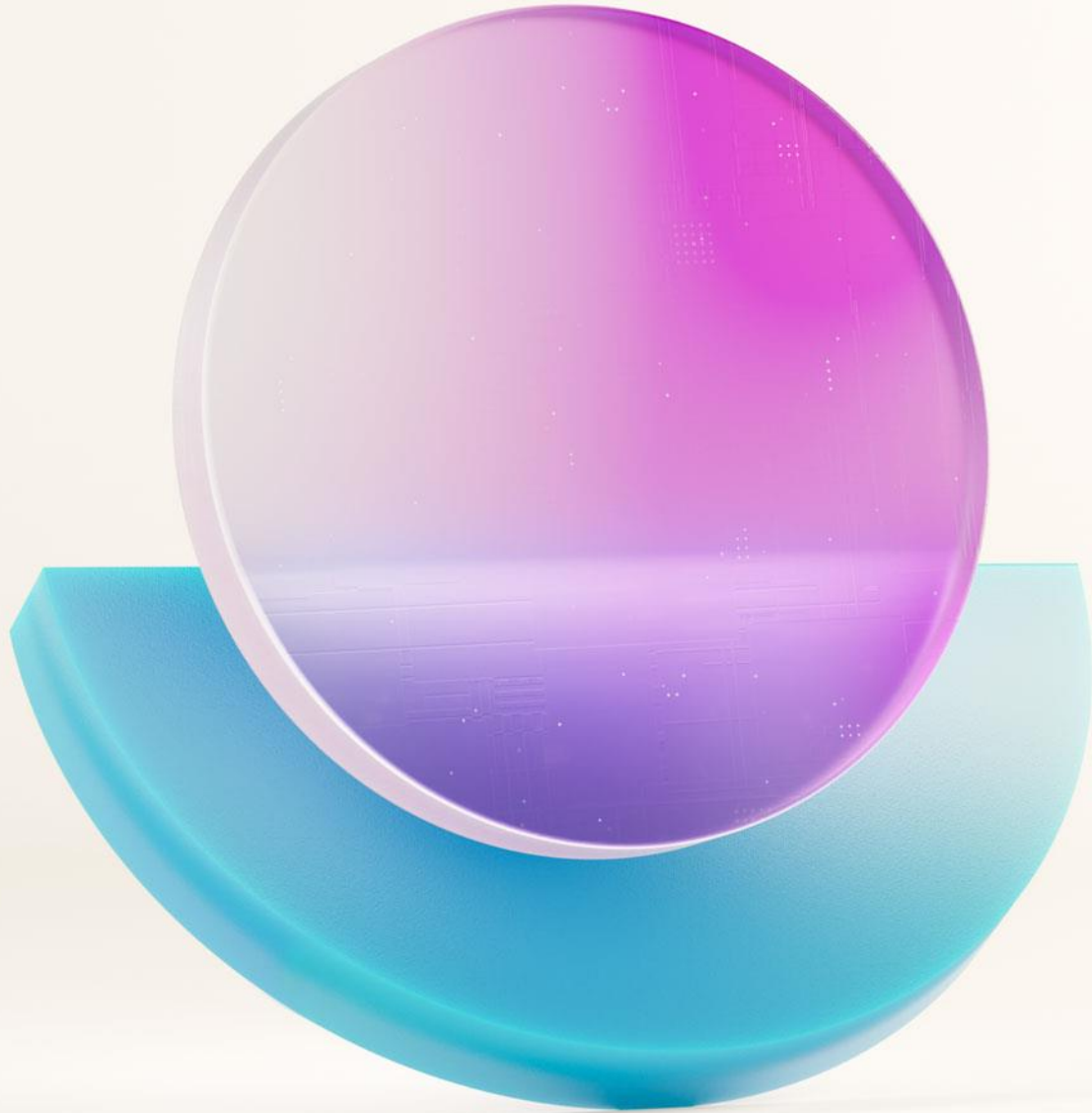
[linkedin.com/in/PawelPotasinski](https://www.linkedin.com/in/PawelPotasinski)

FAVORITE STUFF:



Agenda





Intro & Concepts

Power BI personas



Citizen Developer
(Business User)



Power BI Developer



Power BI Administrator

What is Fabric for Power BI people?



Data
Factory



Data
Engineering



Data
Warehousing



Data
Science



Real-Time
Intelligence



Power BI



Databases



Industry
Solutions



AI

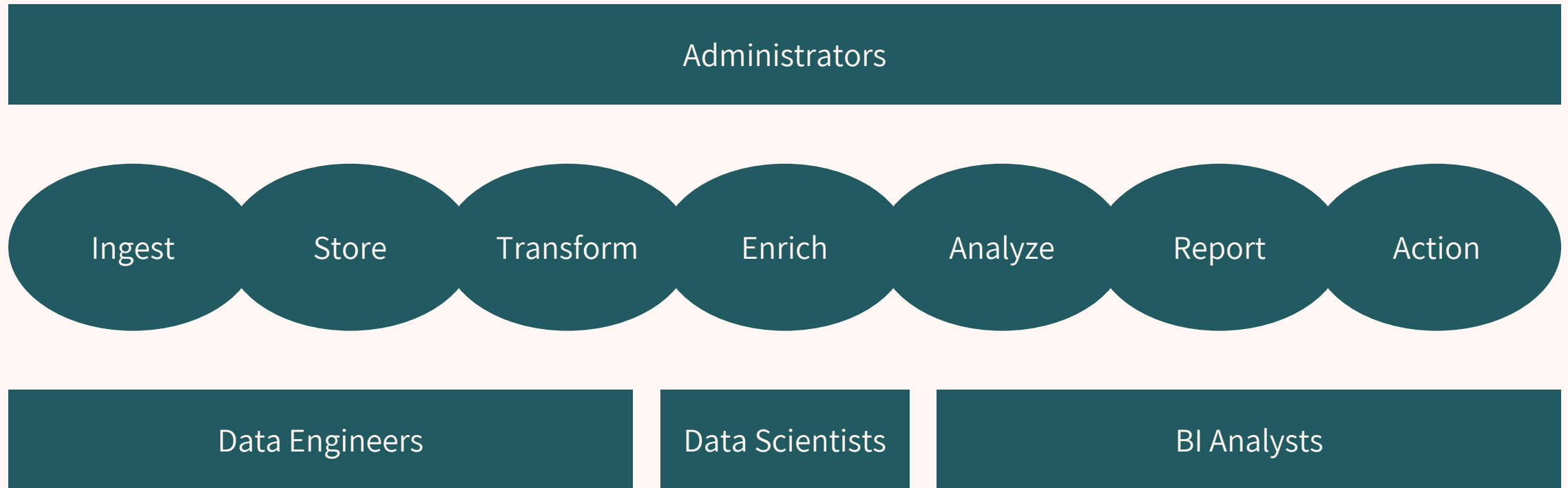


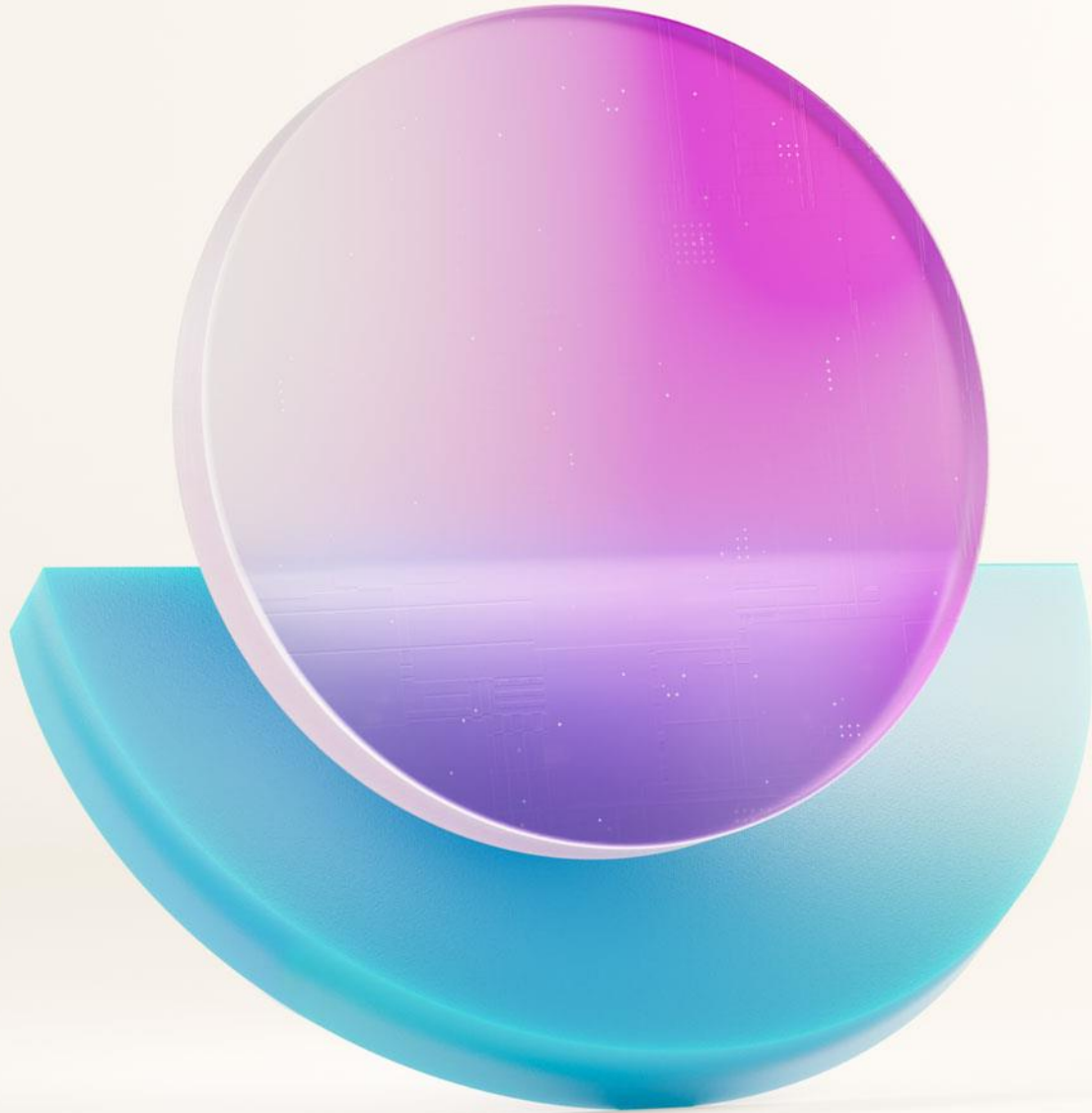
OneLake



Purview

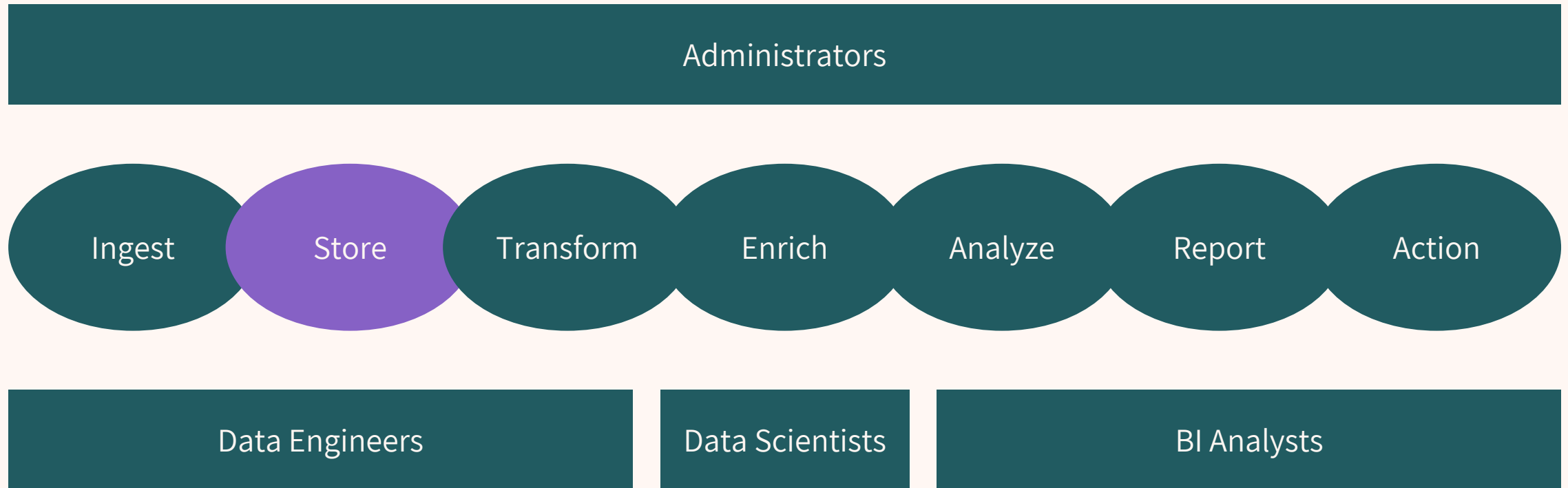
The flow of work



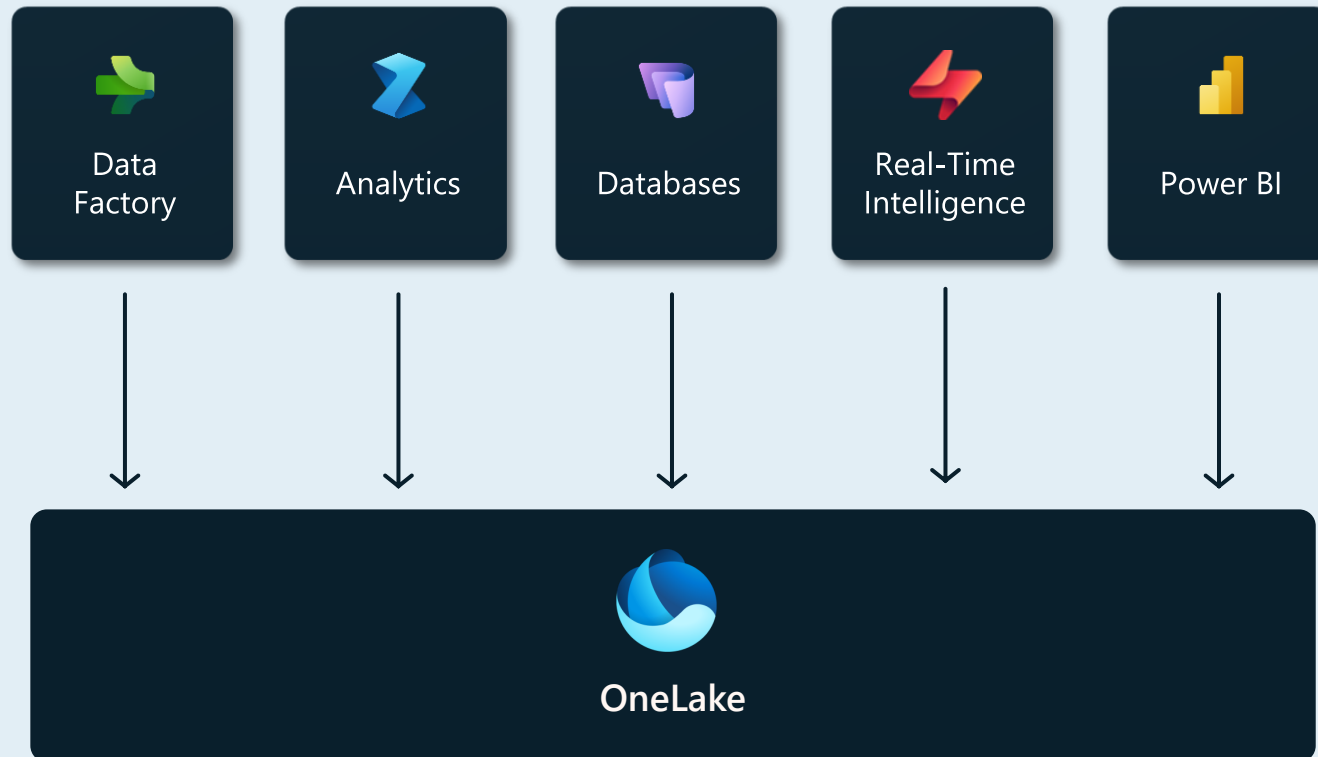


Breaking data silos with OneLake

Positioning of OneLake



OneLake is the OneDrive for data



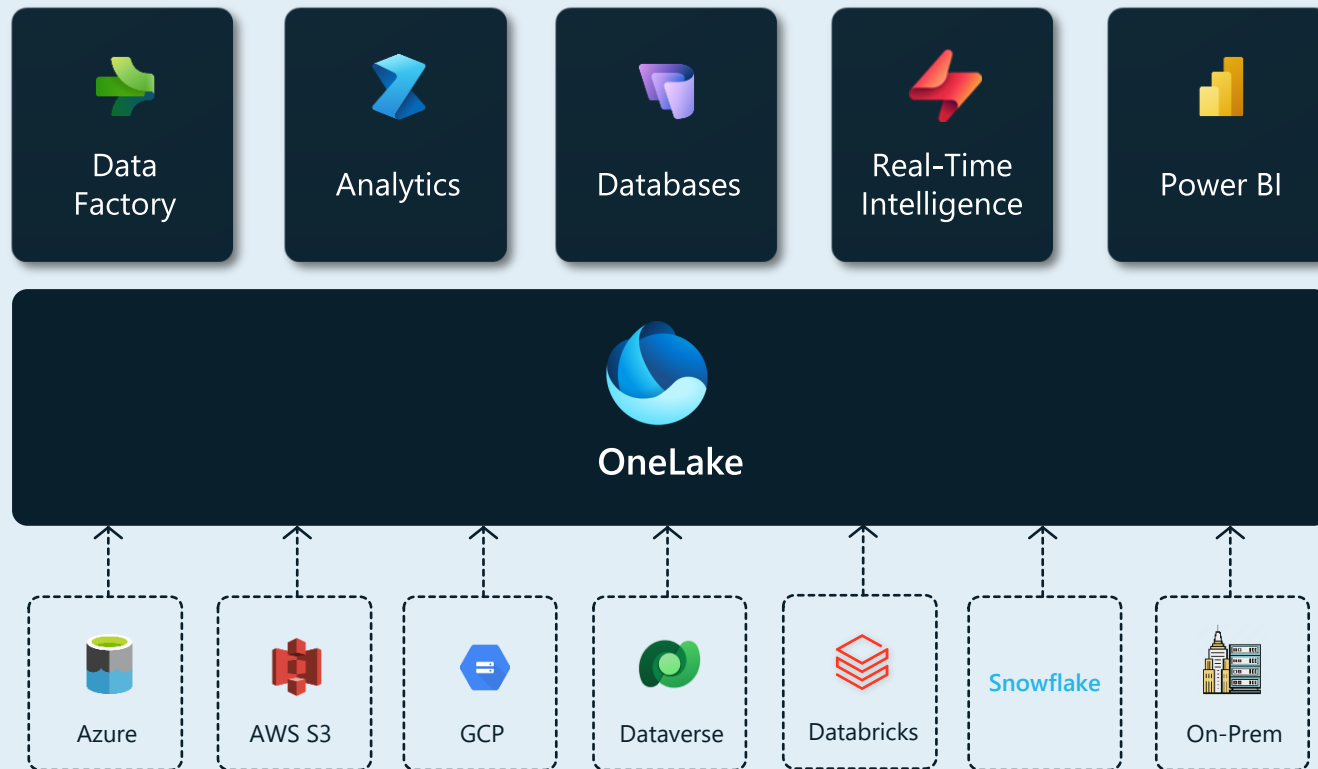
Single SaaS lake for the whole organization

Single open format used by all workloads to store and query data

Automatically indexed for discovery, MIP labels, lineage, PII scans, sharing, governance and compliance

Unifying data in OneLake

Cross-cloud shortcuts & mirroring

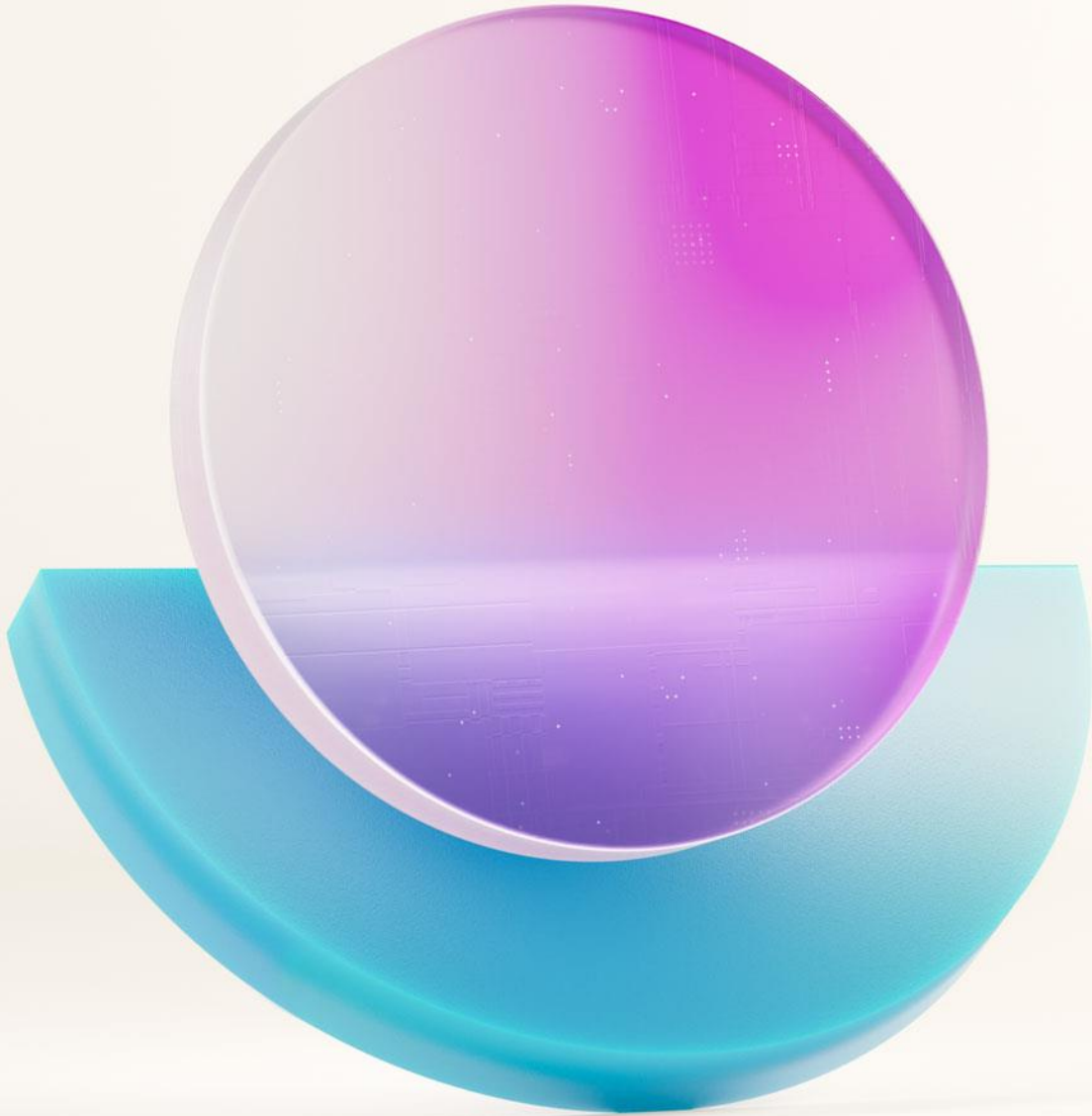


First **multi-cloud**
SaaS data lake

Shortcuts for existing
data **cross clouds and**
on-premises

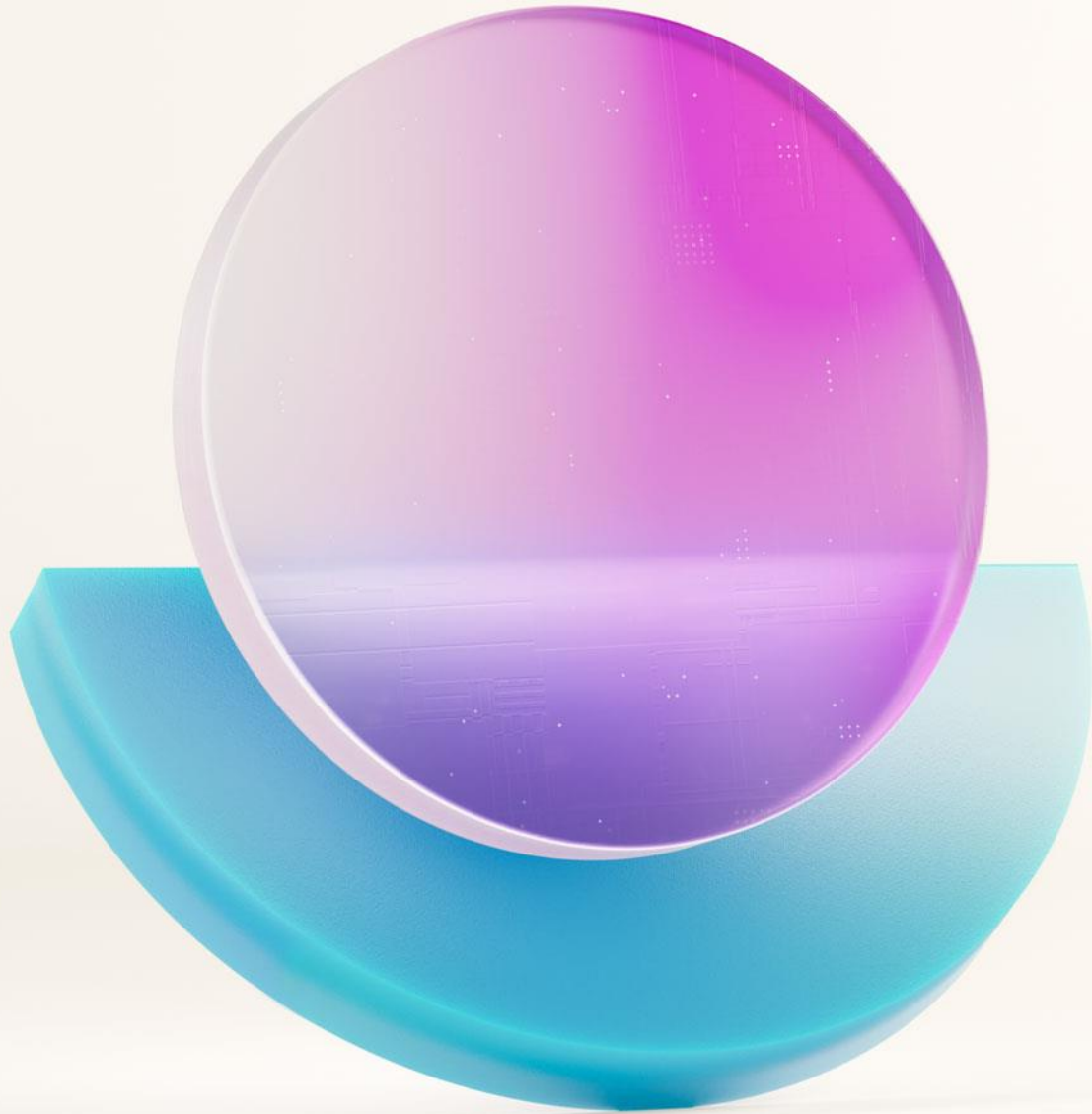
Mirroring to add
whole databases into
the OneLake data estate

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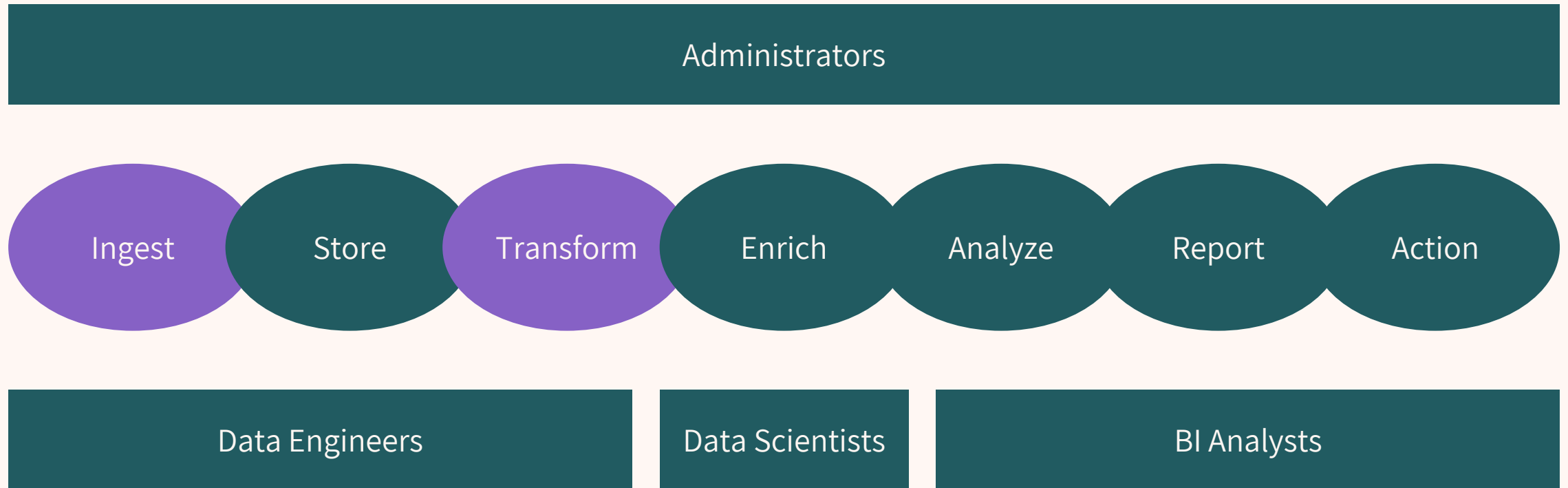
DEMO

OneLake



Dataflows Gen2 - next gen self- service data integration

Positioning of Dataflows



Ingest data - when to use which option?



Pipeline

Simple copying.
Minor data type adjustments possible.
No code.



Dataflow

Data transformations possible.
Low code, use PowerQuery interface.



Notebook

Data transformations possible.
Use code.



Shortcut

No data transformations.
Limited connectors available.
No data duplication.



Mirroring

No data transformations.
Limited connectors available (custom extensions possible).
Data duplication.

Dataflows Gen2 (vs Gen1)

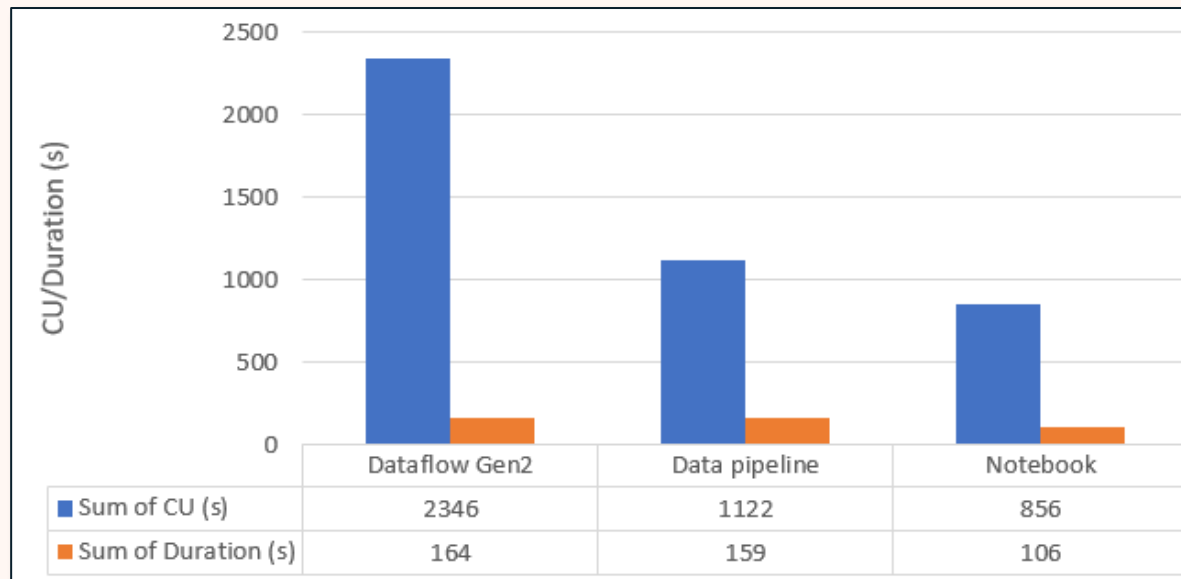


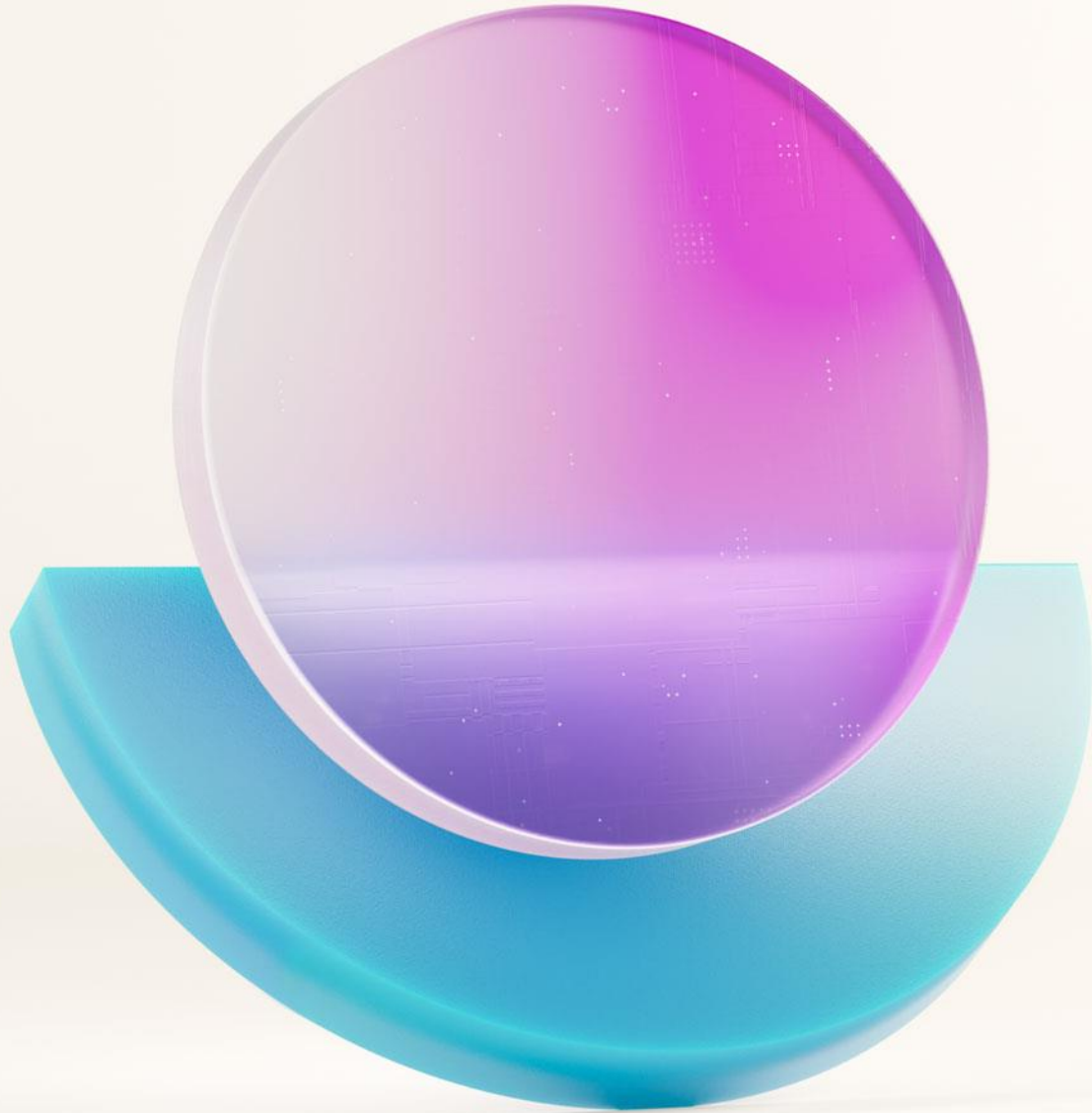
- ✓ Data destinations (lakehouse, warehouse, SQL database, ...)
- ✓ Can be orchestrated using data pipelines
- ✓ High-scale compute
- ✓ Shorter authoring path
- ✓ AutoSave, save as draft and background publishing
- ✓ New refresh history and monitoring
- ✓ Incremental refresh
- ✗ DirectQuery via Dataflows connector
- ✗ AI insights support

Dataflows Gen2 – the price of convenience



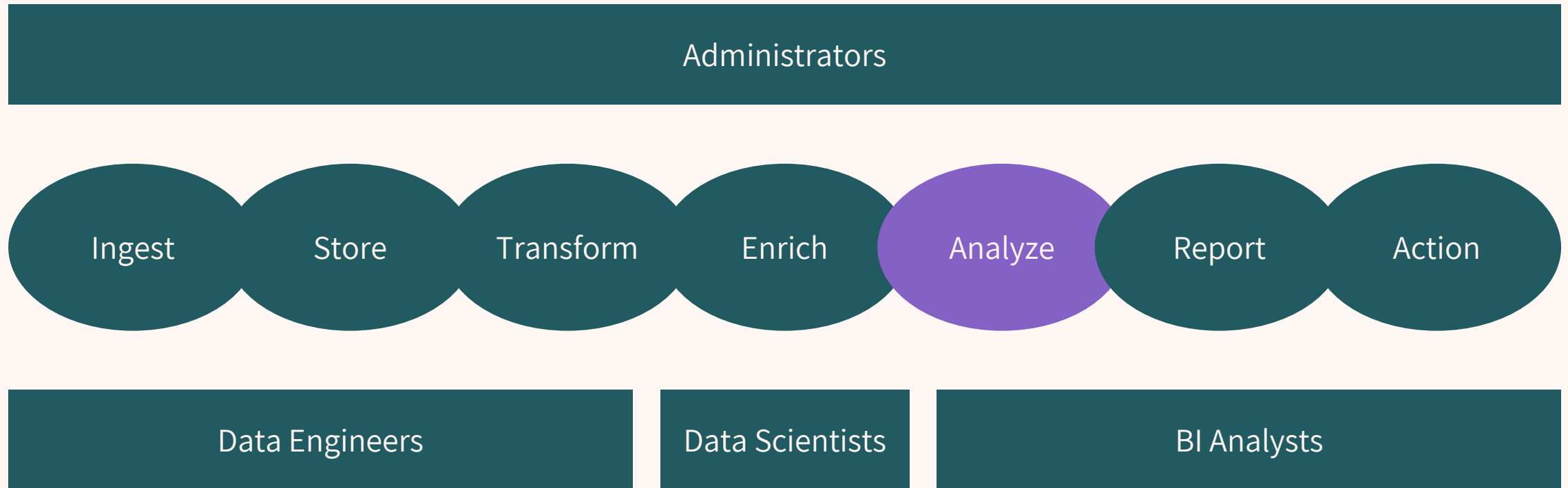
- More CU consumption due to complex architecture
- Less performance optimization knobs
- Example: FT SKU, loading 2 parquet files (~200MB) into a lakehouse



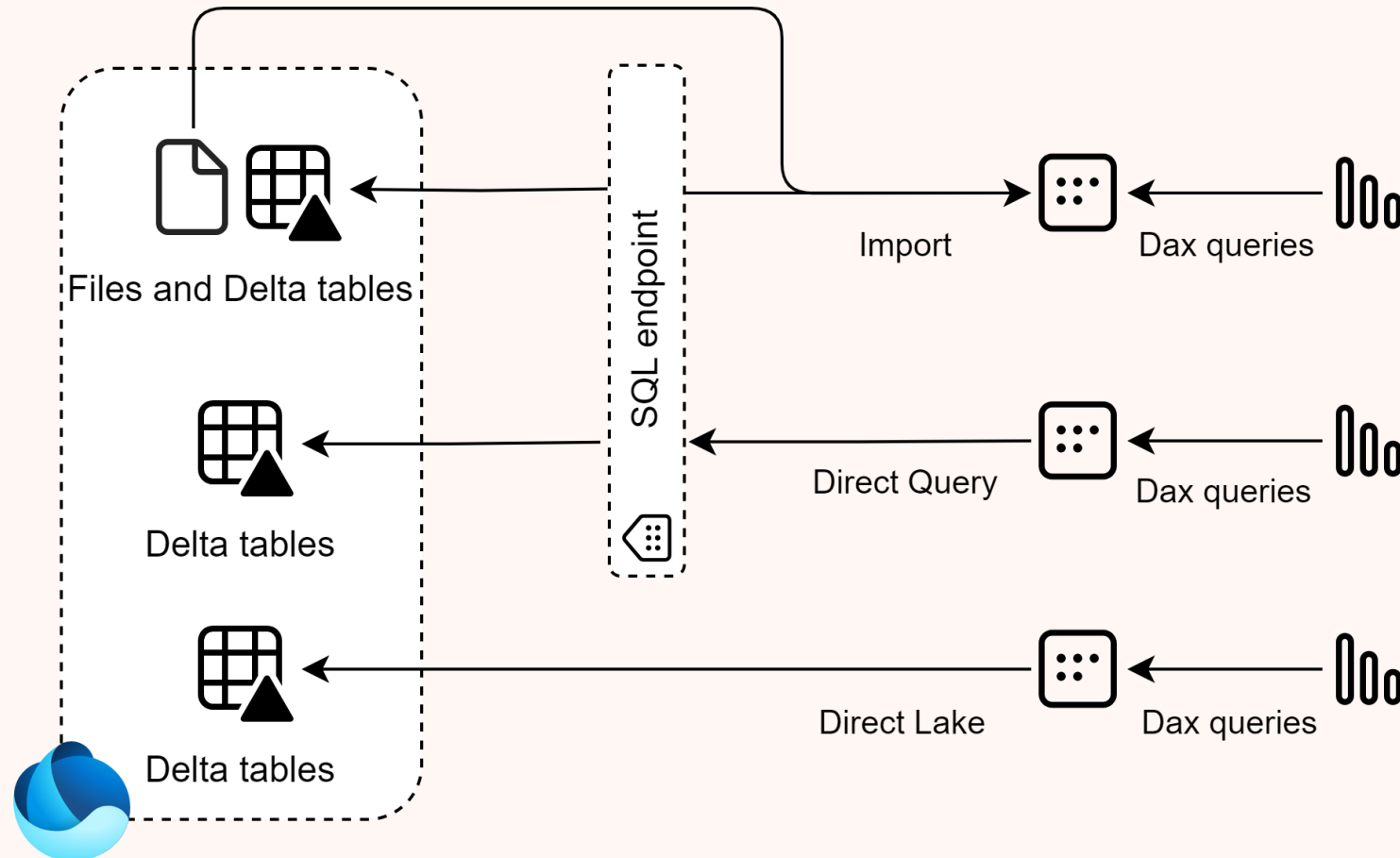


Direct Lake as
alternative
storage mode

Positioning of Direct Lake capability



Introducing Direct Lake

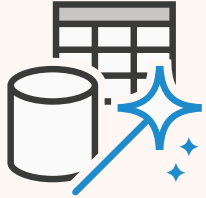


Latent & duplicative but fast

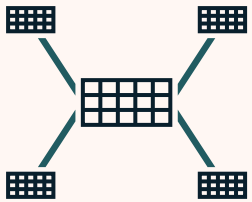
Slow, but real time

**Considered being
Best of both worlds**

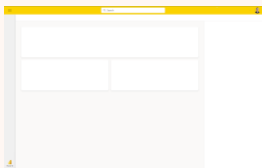
Direct Lake overview



No Power Query or other data transformation options

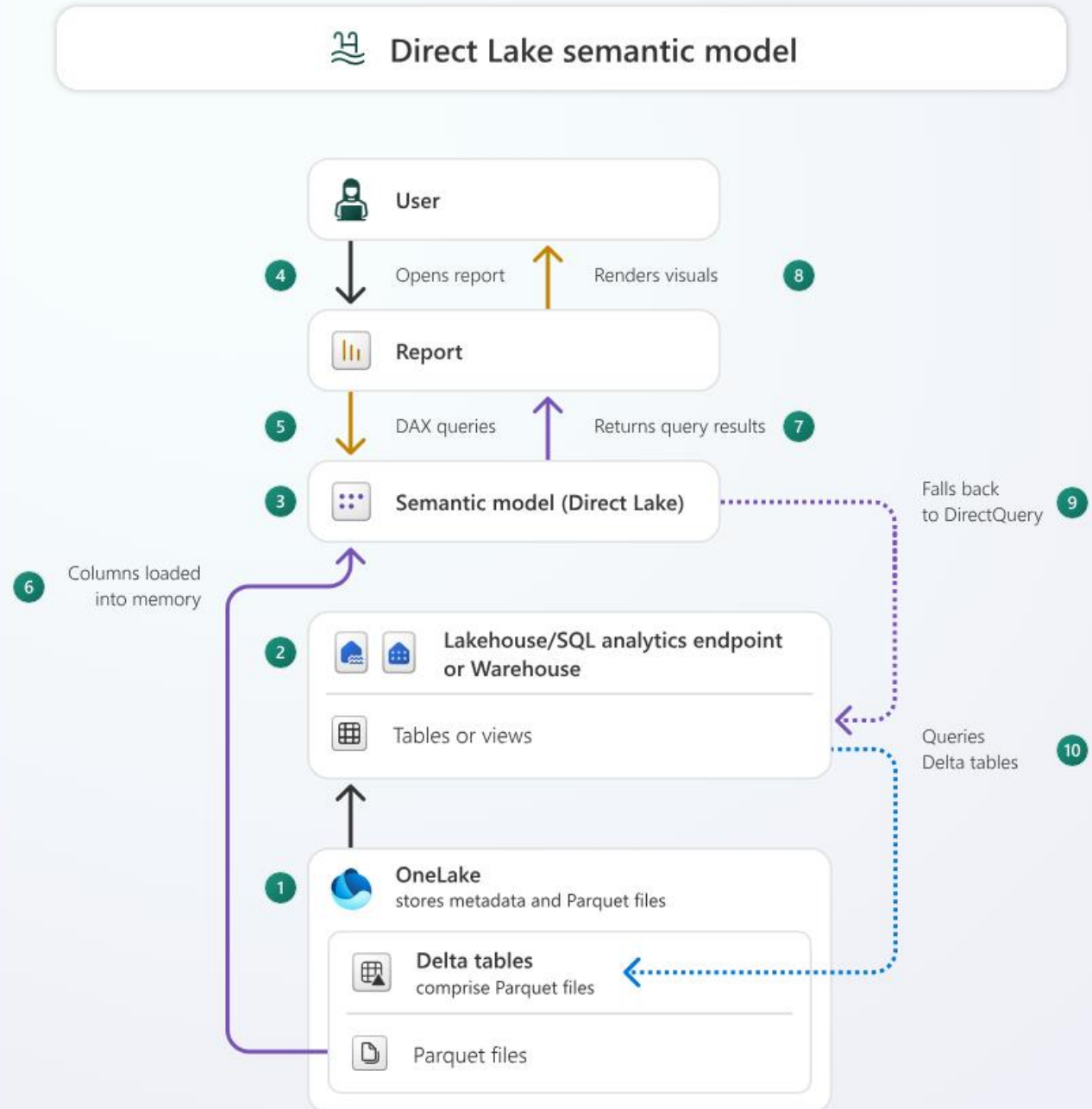


General best practice to have a star schema still applies



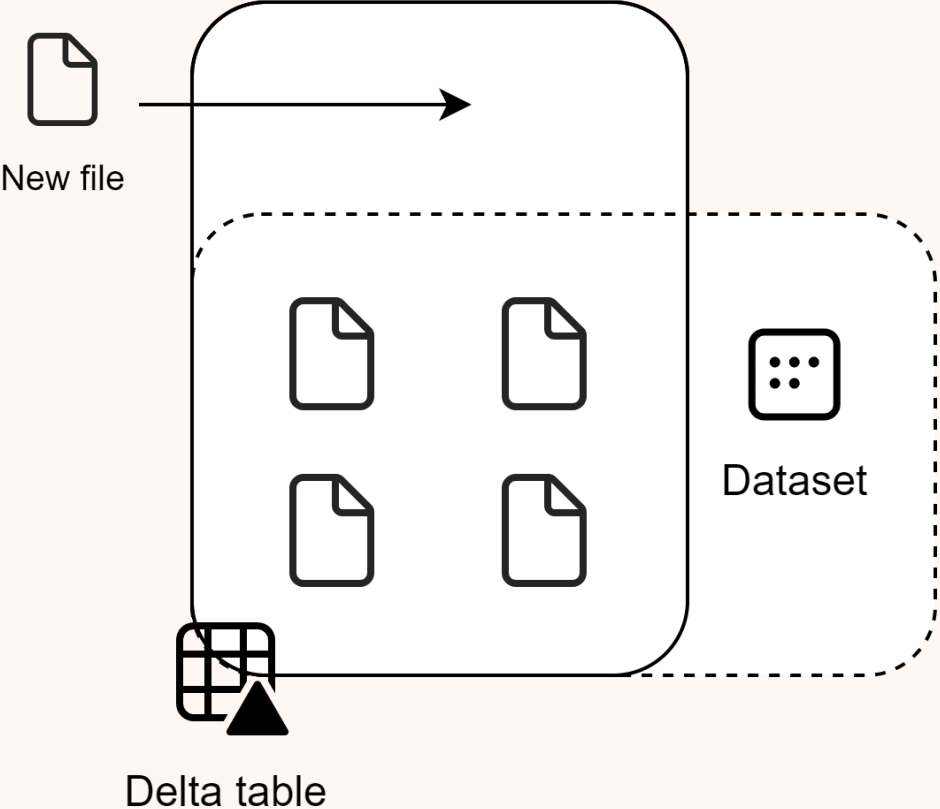
Web (browser) experience only to develop new data models

You can edit from Desktop –desktop acts like a browser

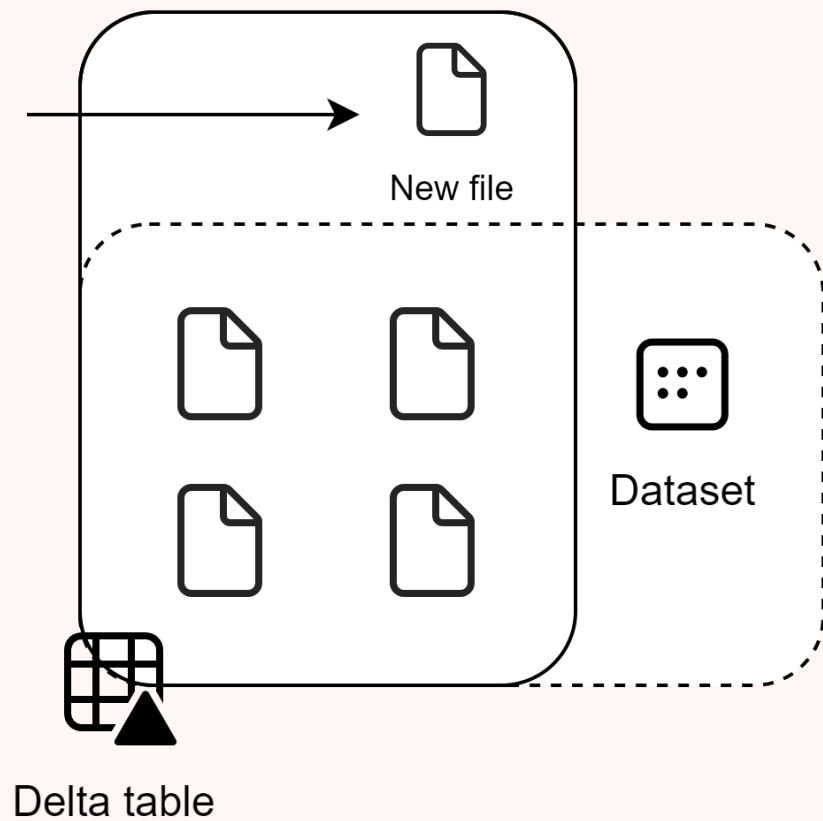


Direct Lake is only applicable to Fabric

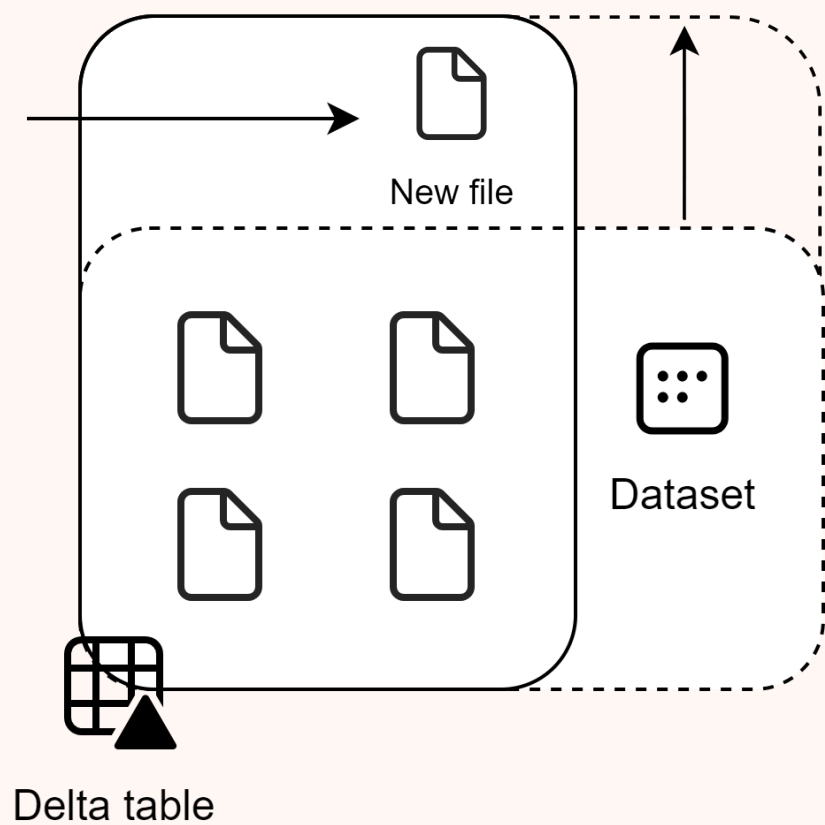
Framing



Framing



Framing



Automatic update (Refresh)

- Meta data updates
- Frequency of data updates (framing)
- Capacity impact with regards to caching + flushes the cache (partly)
- Date Integrity – keep data in sync (Fact updated but Dim not etc)

▢ Refresh

Keep your Direct Lake data up to date

Configure Power BI to detect changes to the data in OneLake and automatically update the Direct Lake tables that are included in this dataset. [Learn more](#)



Off

But wait...

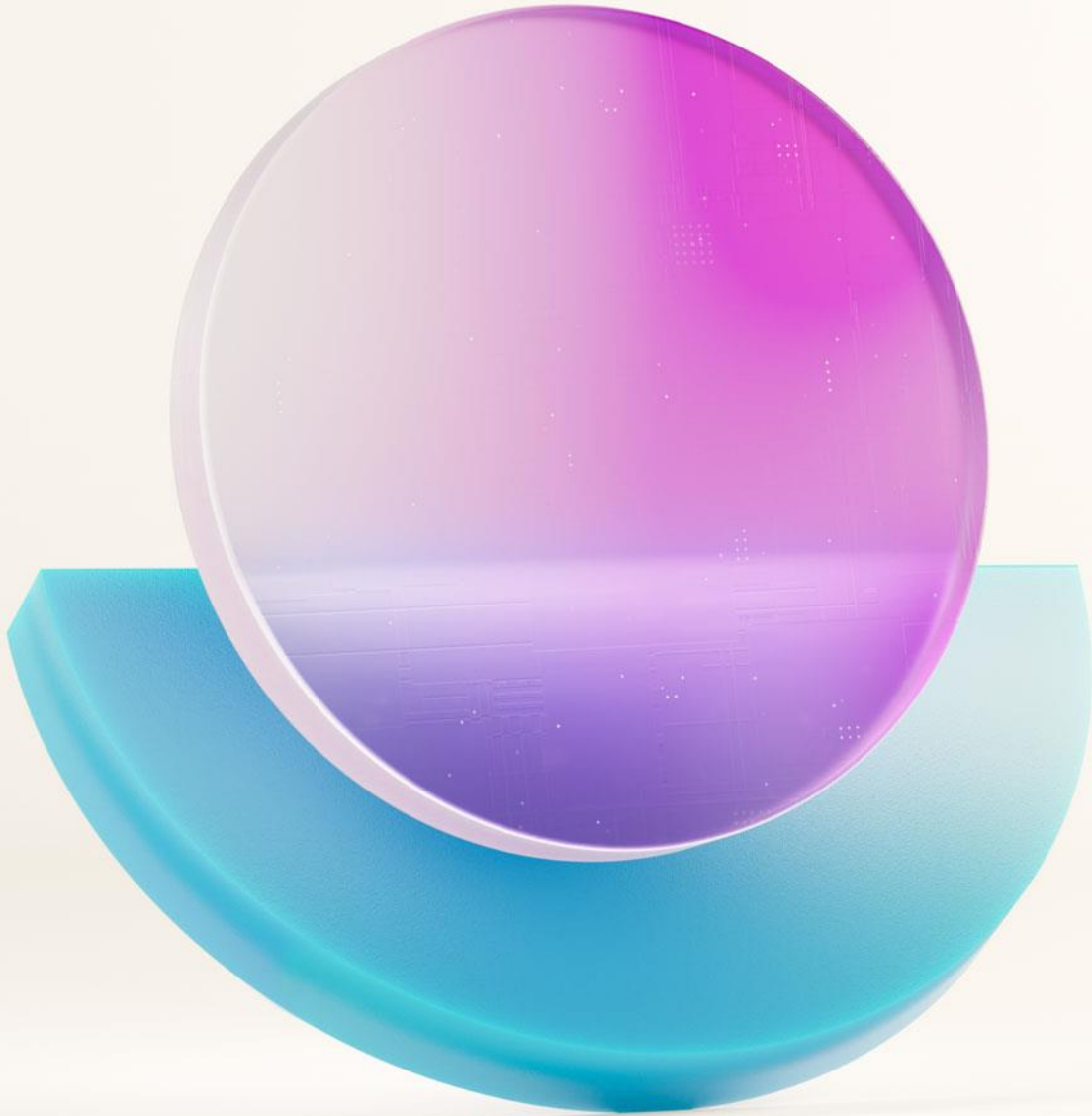
Previously, all your data got evicted from cache after reframing.

But now;

- Data does not necessarily get evicted, if the segments in which the data was loaded did not change at the source.
- Behavior dependent on row groups (partitioning) of delta tables.

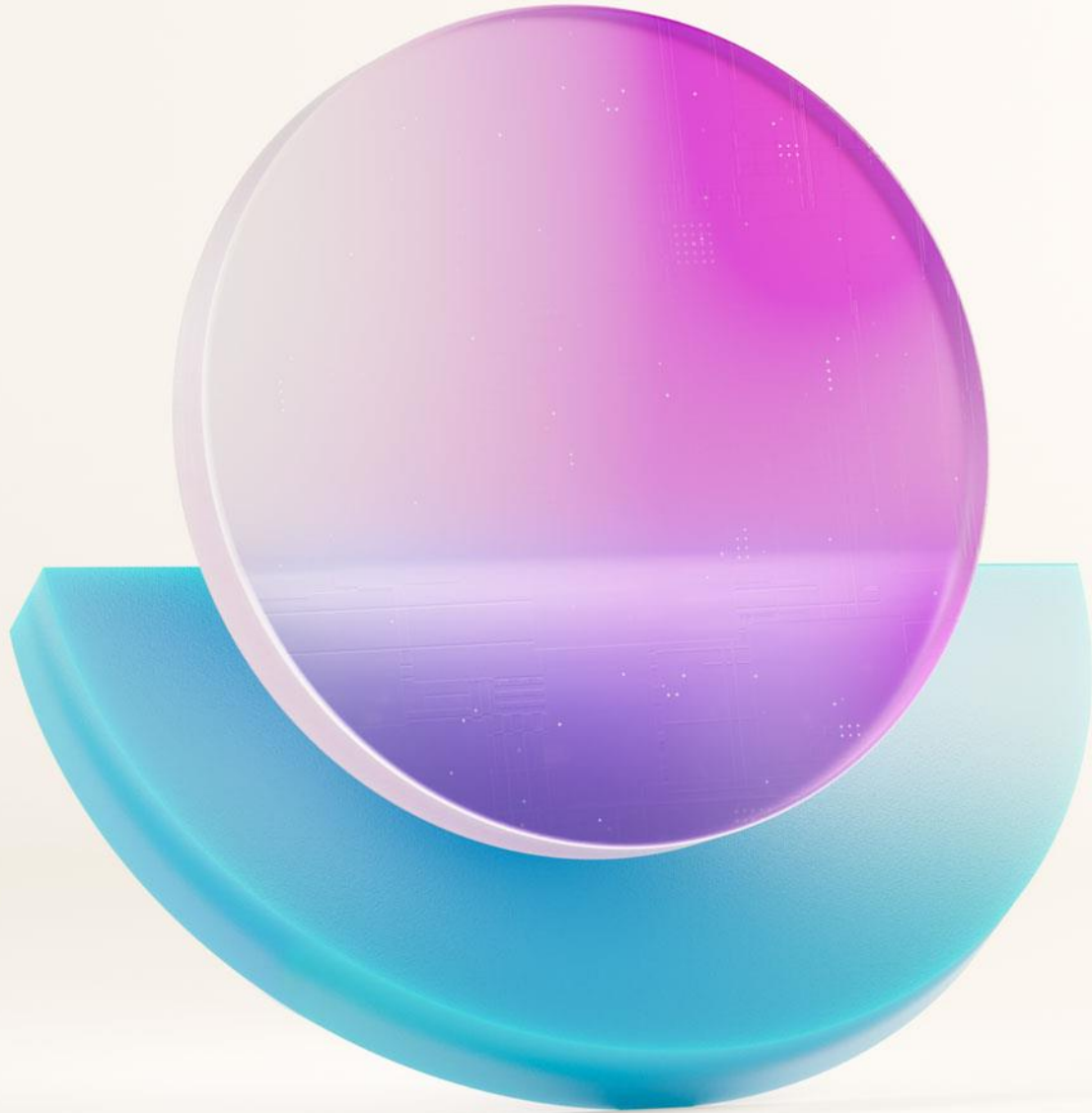
Forced eviction can be triggered by ProcessClear + ProcessFull commands.

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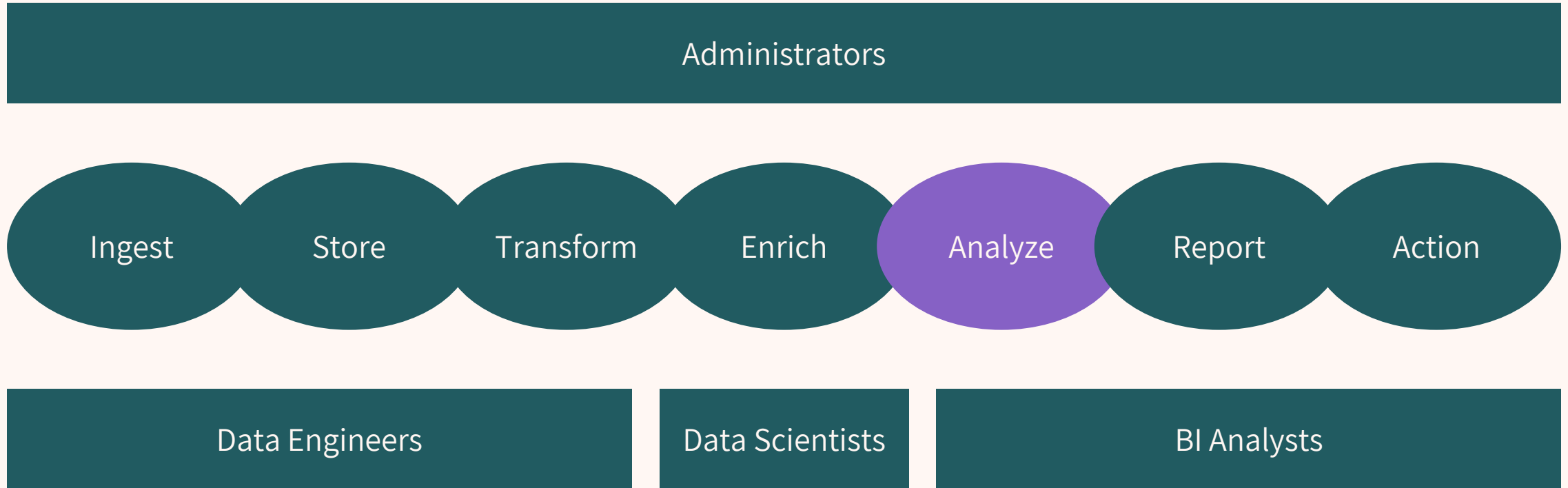
DEMO

Direct Lake



Semantic Link for Power BI devs and admins

Positioning of Semantic Link

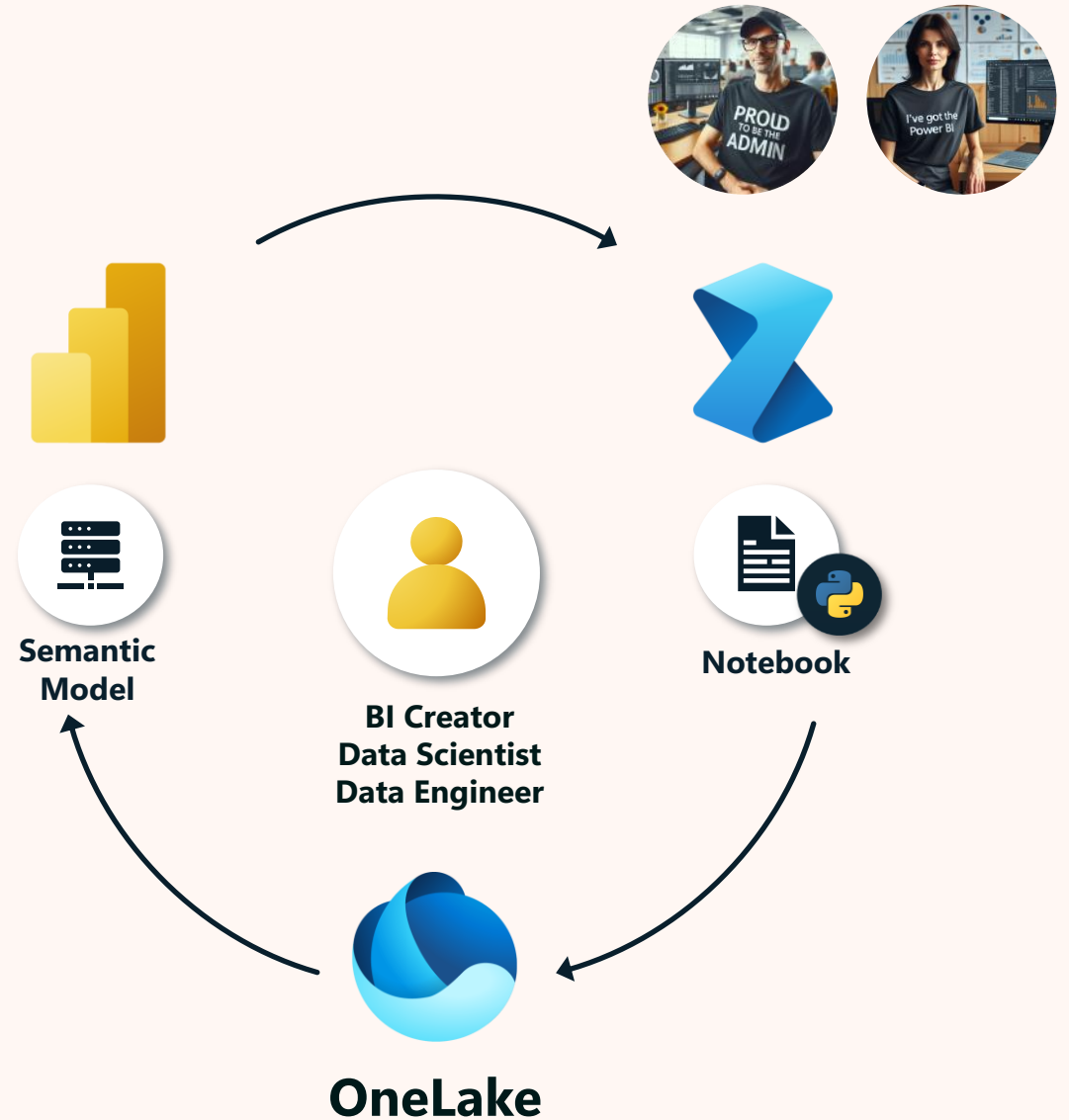


Semantic Link

Python data access for Power BI

- Support for Pandas and Spark
- Evaluate Power BI measures
- Read Power BI tables
- Validate and test your data
- Automate Power BI (e.g. refresh)

...and propagate metadata to unlock more options!



Semantic Link – Power BI use cases



Power BI general

- Documenting Power BI items
- Move Power BI items across workspaces
- Detect broken reports
- Rebind reports
- Set a report theme
- Migration of report-level measures to the semantic model
- Tenant Settings tracking

Semantic Models

- Best Practice Analyzer
- Vertipaq Analyzer
- Semantic model edits (TOM)
- Metadata translations
- Semantic model refresh
- Visualize a refresh
- Semantic model backups
- Run DAX with impersonation
- Manage Query Scale Out

Direct Lake

- Migration to Direct Lake
- Check Direct Lake guardrails
- Warm the cache for Direct Lake
- Analyze Delta tables for Direct Lake
- Fallback to DirectQuery diagnostics
- Update connection of a Direct Lake semantic model

Capacities

- Migration from P SKUs to F SKUs
- Migration from FT SKUs to F SKUs
- Capacity management

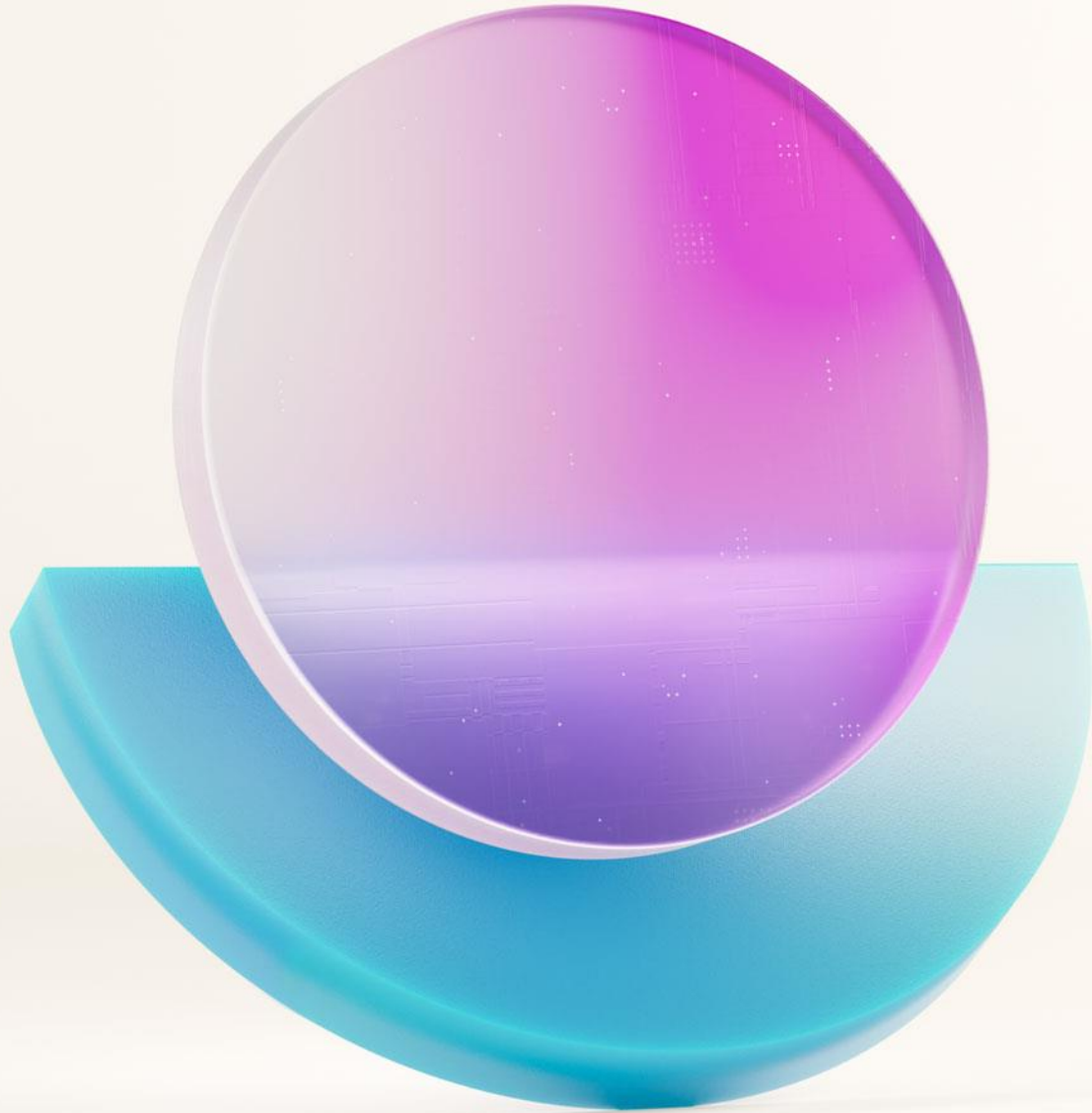
And more...

Semantic Link Labs



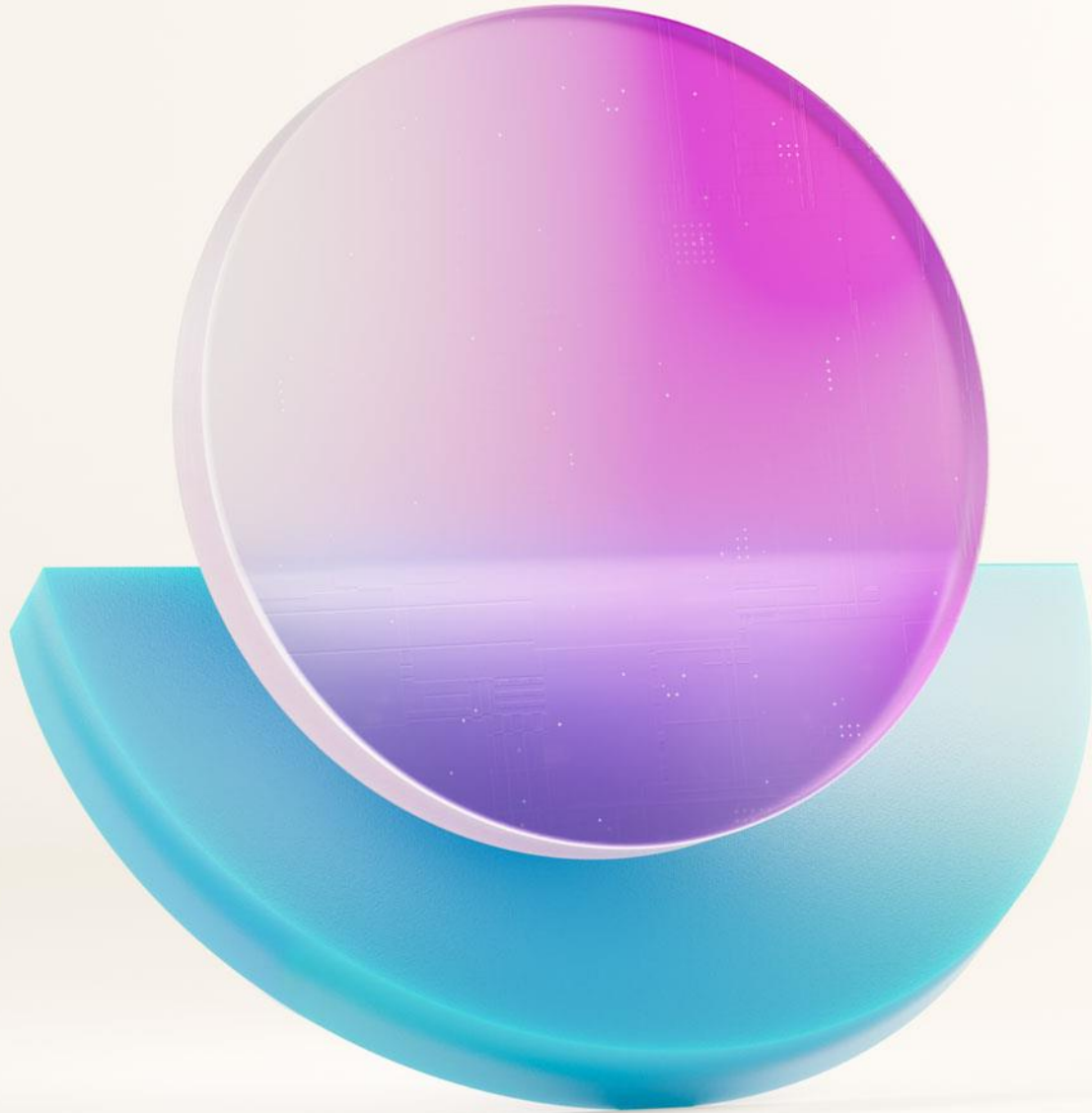
- Initiated by Michael Kovalsky (Fabric CAT)
- Open-sourced python library on GitHub
- Extension to Semantic Link
- Programmatic access to Fabric items
- Wrapper functions for easy use of Power BI and Fabric APIs
- Full access to TOM (100+ functions)
- You **DO NOT** need to be a python expert!

<https://github.com/microsoft/semantic-link-labs>



DEMO

Semantic Link



Copilot for Power BI users



Microsoft Fabric

The unified data platform for AI transformation



Data
Factory



Analytics



Databases



Real-Time
Intelligence



Power BI



Industry
Solutions



Partner
workloads



AI



OneLake



Microsoft Purview

Copilot in Fabric



Data Factory

Get intelligent code generation to transform data with ease and code explanations to help you better understand complex tasks.



Data Warehouse

Write and explain T-SQL queries, or even make intelligent suggestions and fixes while you are coding.



Data Engineering & Data Science

Quickly generate code in Notebooks to help work with Lakehouse data and get insights.



Databases

Write and explain T-SQL queries, or even make intelligent suggestions and fixes while you are coding.



Real-Time Intelligence

Translate questions into KQL queries that you can execute.



Power BI

Quickly create report pages, natural language summaries, and generate synonyms.

Copilot in Fabric



Which copilot are we talking about...?



Copilot accelerated
experiences

Help me build stuff



AI-driven
insights

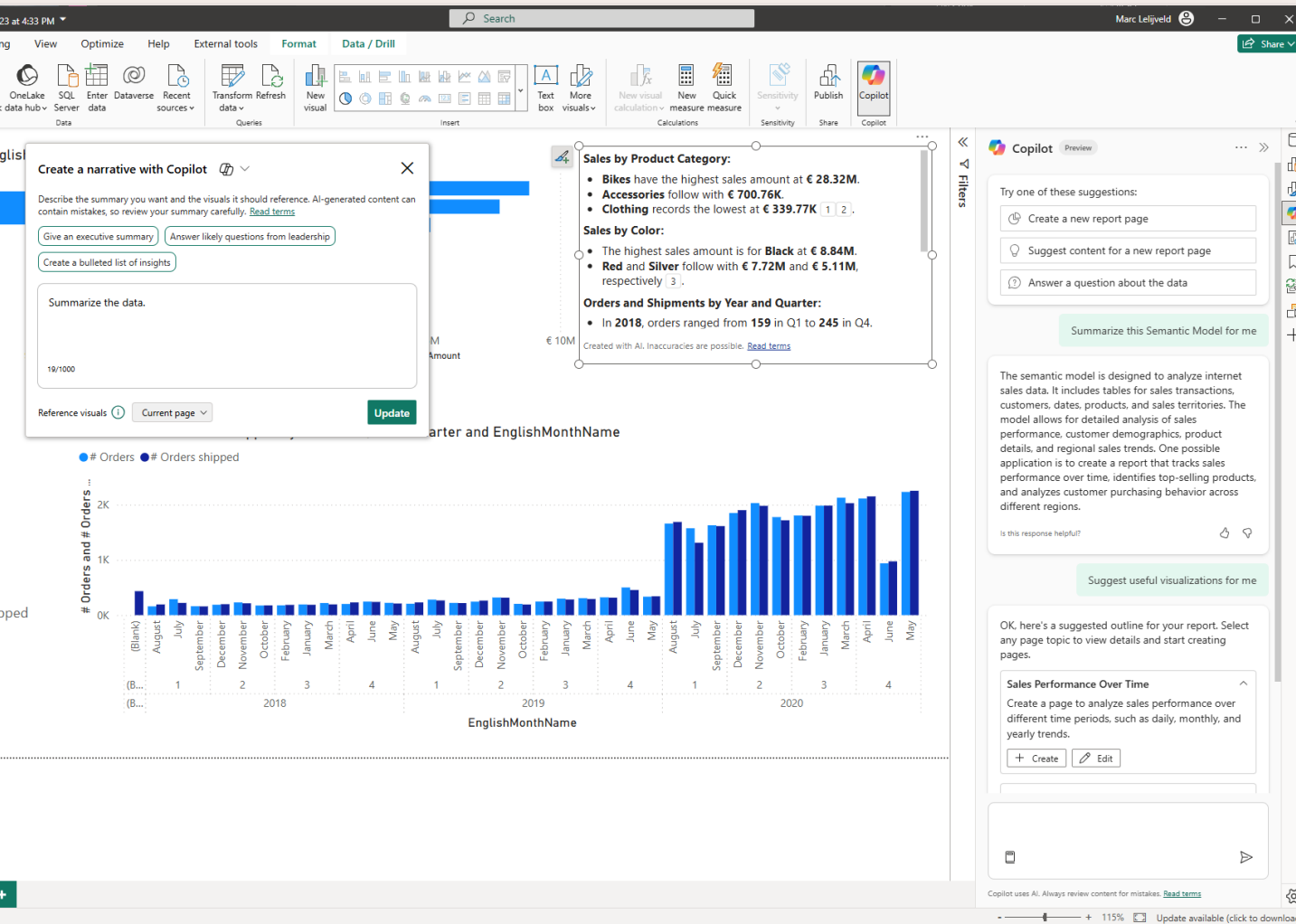
Summarize and find insights



Custom generative AI
for your data

Custom configured and build

Copilot – Power BI use cases



How can copilot help you

- Summarize semantic model
- Suggest report content
- Create report page
- Create summary visual (Smart narrative)
- Add synonyms to model
- Add descriptions to measures
- Write DAX (& DQV)

... *and more!*



Data Agents on top of Semantic Models



Build custom generative AI experiences for your data with Data Agents *(previously known as AI Skills)*



Allow your users to talk to data in Fabric



Create, curate and configure a data expert on your data domain



Share Data Agents with other creators and consumers in Fabric

The screenshot displays the 'ChatWithYourData' application interface. On the left, a sidebar contains navigation options: Home, OneLake, Apps, Monitor, Workspaces, AI Skills, and ChatWithYourData. The main area is titled 'Home' and includes a search bar and buttons for 'AI instructions', 'Example queries', 'Clear chat', 'Publish', and 'Revert to published version'. Below these is an 'Explorer' pane showing a tree view of data sources: 'sampledata' (expanded) contains 'dbo' (expanded), which lists 'customer', 'date', 'product', and 'sales'. Each of these is further expanded to show a list of fields: 'customer' (Customer, OrderDate, OrderQuantity, Product, SalesAmount, SalesOrder, ShipDate, Store), 'date' (OrderDate), 'product' (Product), and 'sales' (SalesAmount, SalesOrder, ShipDate, Store). The right pane shows a chat conversation. It starts with a prompt: 'If you need further details or another specific breakdown, please let me know!'. Below this, it indicates '1 step completed' and shows a 'Step 1. analyze_database' section. This section includes a 'Restated question' and a 'Query code and output' section. The query code is a SQL statement:

```
SELECT s.OrderDate, s.SalesAmount, c.Country
FROM [dbo].[sales] s
JOIN [dbo].[customer] c ON s.CustomerID = c.CustomerID;
```

 The output is a table with columns 'OrderDate', 'SalesAmount', and 'Country', containing 10 rows of data. At the bottom, there is a text input field with the placeholder 'Ask a question to test the AI skill's response' and a 'Send' button. A 'Sample questions' link is also visible.

ChatWithYourData

Home

AI instructions Example queries Clear chat Publish Revert to published version

Explorer

+ Data source

sampledata

dbo

- customer
- date
- product
- sales

Customer OrderDate OrderQuantity Product SalesAmount SalesOrder ShipDate Store

If you need further details or another specific breakdown, please let me know!

1 step completed 12 sec

Step 1. analyze_database

Restated question

Show sales over time with a specific breakdown including the country the customers are from

Query code and output

OrderDate	SalesAmount	Country
2020-09-29 00:00:00	8.99	Germany
2020-10-29 00:00:00	65.94	Germany
2020-11-06 00:00:00	29.99	Germany
2021-10-09 00:00:00	8.99	United States
2021-10-11 00:00:00	34.99	Germany
2022-10-11 00:00:00	4.99	Germany
2020-11-06 00:00:00	9.99	Germany
2021-11-06 00:00:00	4.99	Germany
2022-11-20 00:00:00	19.96	United States
2022-11-21 00:00:00	9.98	Germany

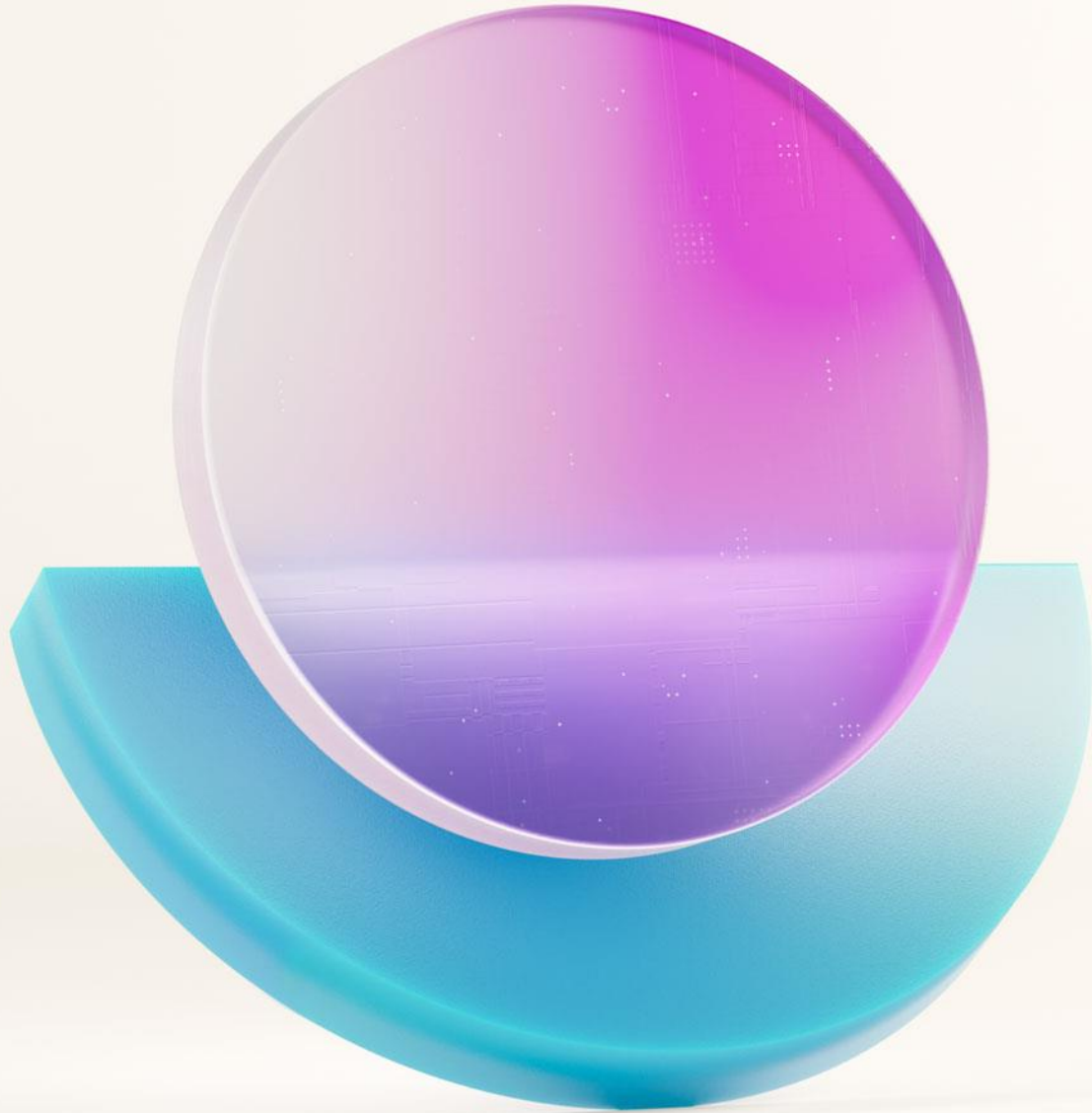
Sql

```
SELECT s.OrderDate, s.SalesAmount, c.Country
FROM [dbo].[sales] s
JOIN [dbo].[customer] c ON s.CustomerID = c.CustomerID;
```

Ask a question to test the AI skill's response

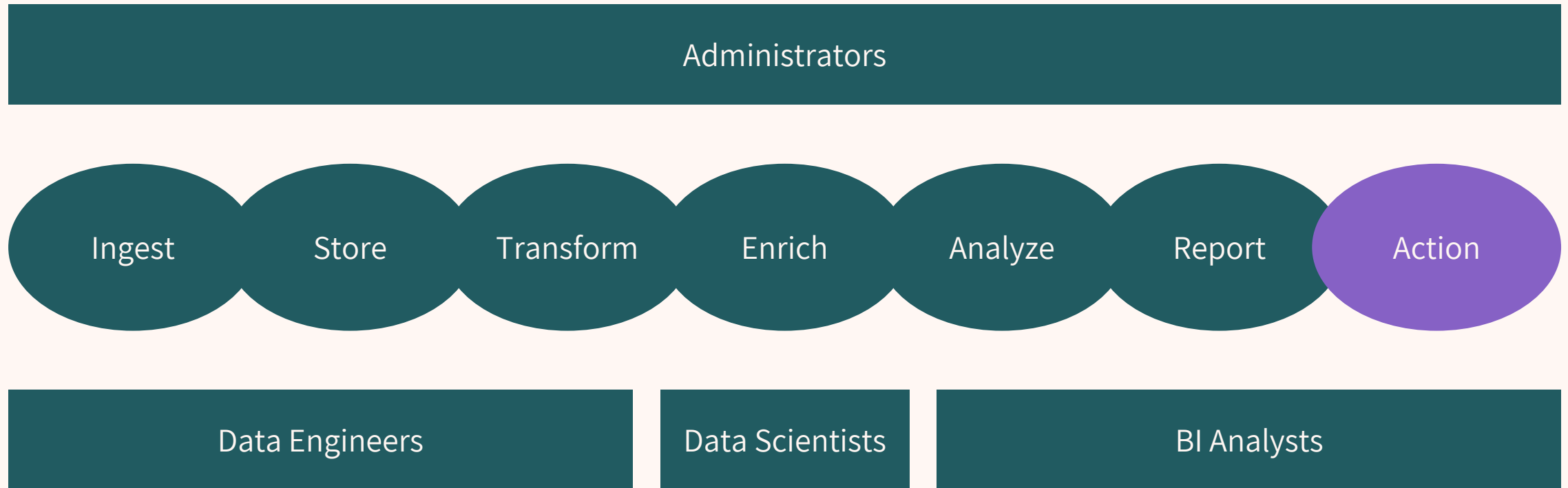
Sample questions

Created with AI. Mistakes are possible. Review terms



From insights to
actions with Data
Activator

Positioning of Data Activator



Data creates value when it drives timely action



Finance: request payment for overdue invoices

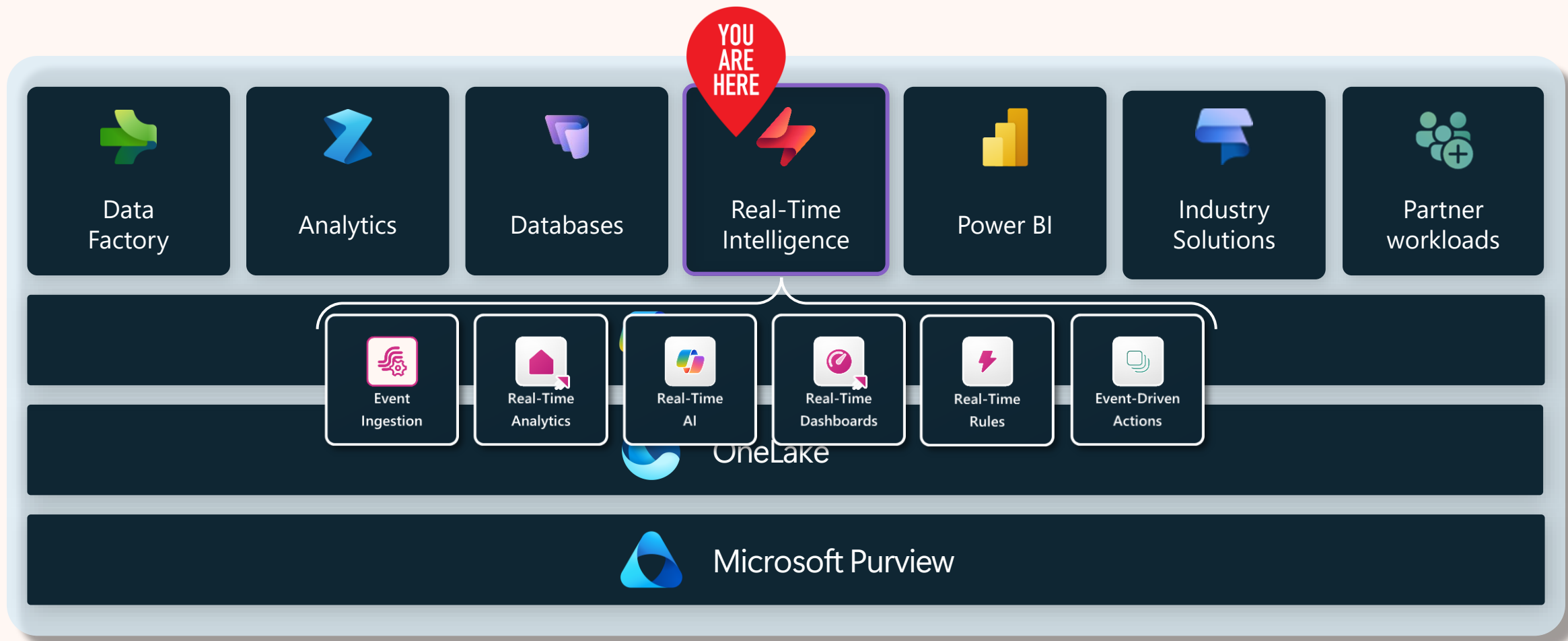


Logistics: if package status stalled, start investigation

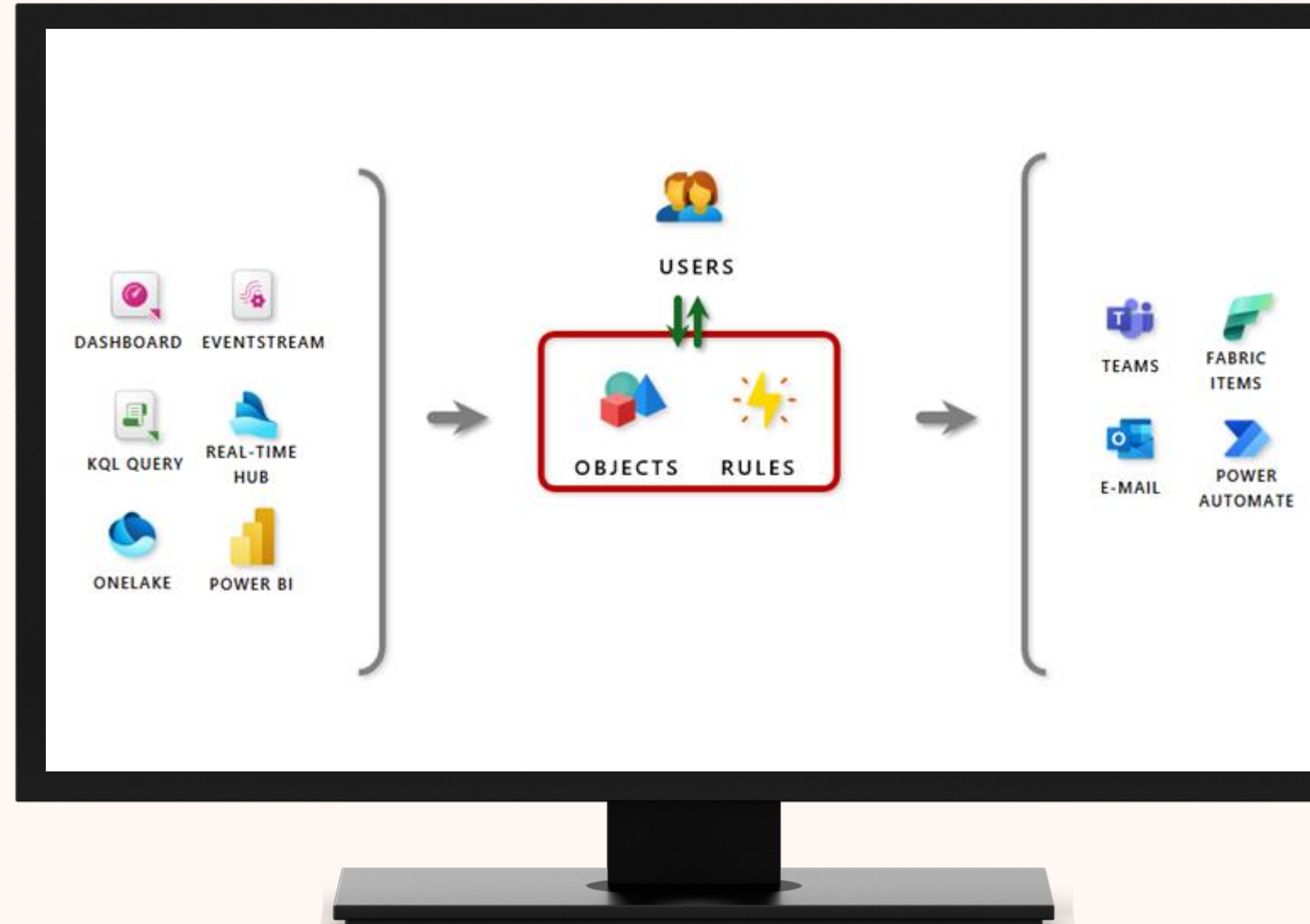
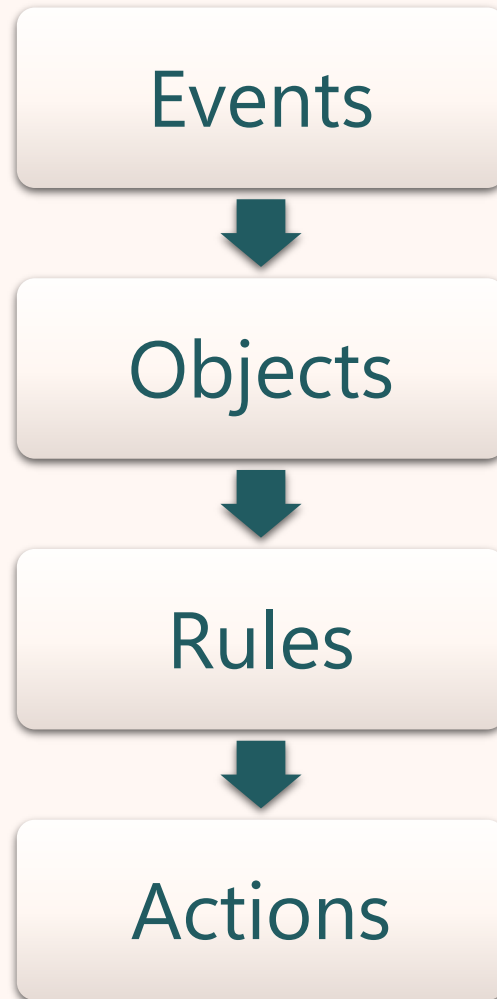


Transportation: detect low tire pressure in vehicles

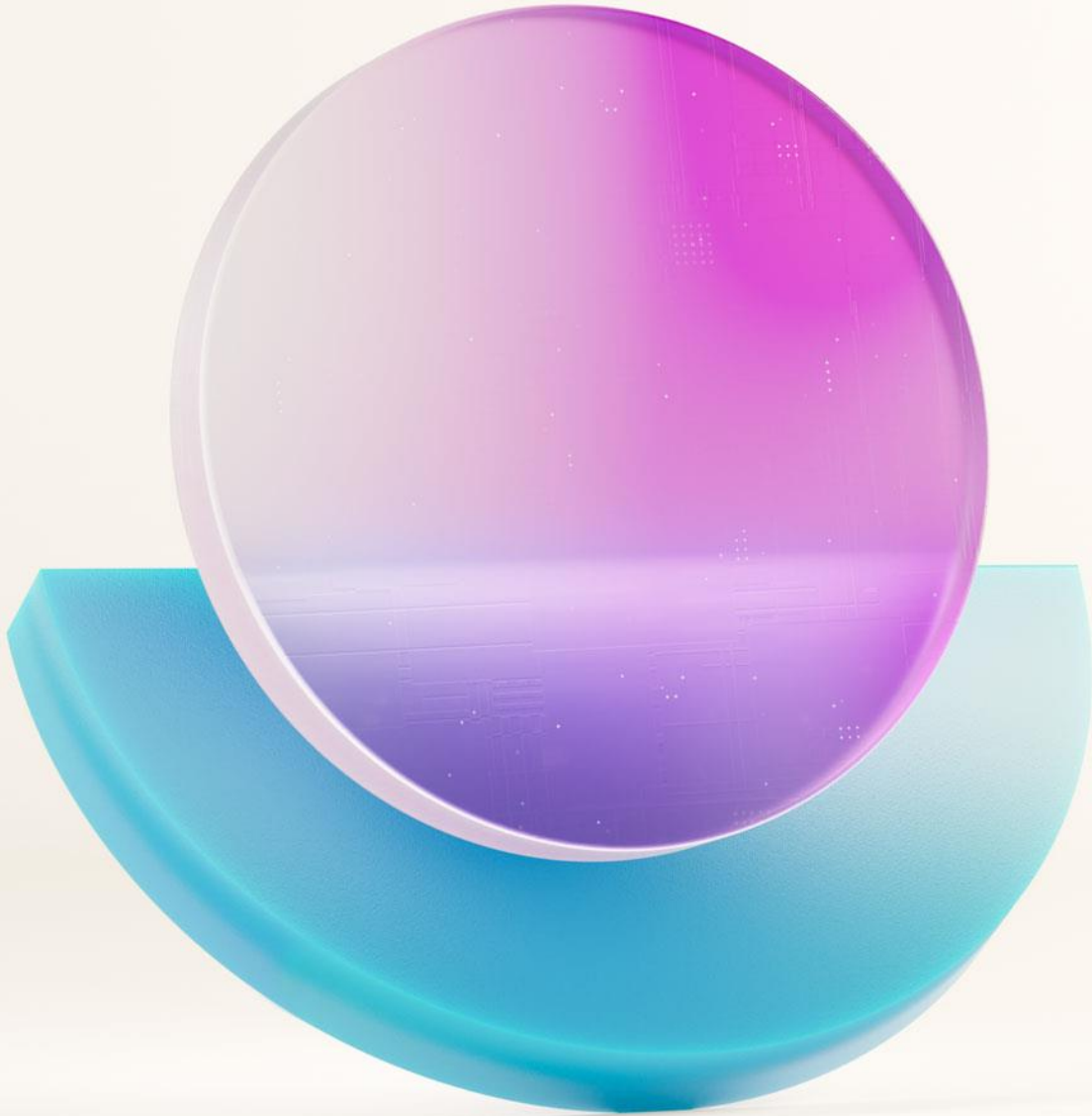
Data Activator in Microsoft Fabric



How Data Activator works?

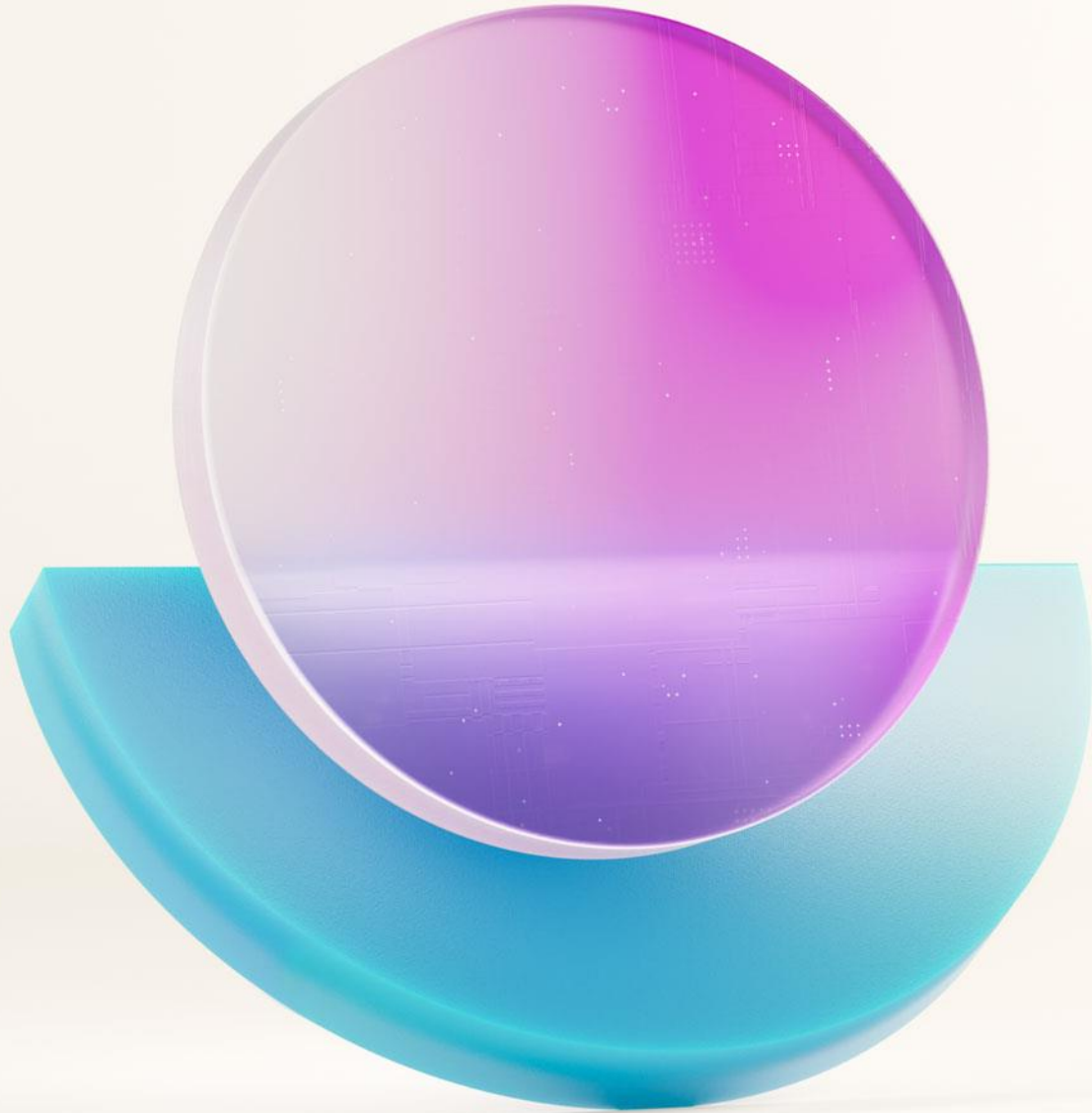


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DEMO

Data Activator



Wrap up

Wrap up

- Fabric brings many new **capabilities**
- Many of these capabilities are **new for Power BI folks**
- **Not necessarily**, you need to embrace all of this
- With Fabric, you build end-to-end solutions with your **existing skill set**
- It does open **new learning opportunities** in a familiar interface

As Power BI dev, musts:

- Explore Semantic Link to **monitor and optimize** your semantic models

Resources

- Fabric OneLake
<https://learn.microsoft.com/en-us/fabric/onelake/onelake-overview>
- All about Direct Lake
<https://learn.microsoft.com/en-us/fabric/fundamentals/direct-lake-overview>
- Copilot in Fabric
<https://learn.microsoft.com/en-us/fabric/fundamentals/copilot-fabric-overview>
- Semantic Link
<https://learn.microsoft.com/en-us/fabric/data-science/semantic-link-overview>
- Activator
<https://learn.microsoft.com/en-us/fabric/real-time-intelligence/data-activator/activator-introduction>

Other related sessions to check out

Session: Deep Dive into Direct Lake

Power BI

 Tweet

 Share

 Share

 Email

Join Patrick Leblanc and Phil Seamark for a deeper dive to discover what makes Direct Lake so fast. This session will cover important elements of monitoring and optimizing your Fabric data platform to unlock the full potential of Direct Lake, such as how to interpret Delta Analyzer logs and what to look out for if things slow down.

PRESENTED BY:



Patrick LeBlanc
Principal Program Manager
Microsoft



Philip Seamark
Microsoft Fabric CAT team
Microsoft

Type
Session

Deep Dive into Direct Lake

by Patrick LeBlanc & Philip Seamark

Session: Optimizing and Automating Microsoft Fabric and Power BI with Semantic Link/Labs

Power BI

 Tweet

 Share

 Share

 Email

Semantic Link and Semantic Link Labs have become essential tools for Power BI developers and admins using Microsoft Fabric to simplify many previously technically-challenging tasks. This session will demonstrate how to leverage Semantic Link and its open-source extension, Semantic Link Labs, and integrate them into your workflows. By the end of this session, attendees will be equipped with practical tools to optimize their semantic models and reports as well as automate tasks previously thought impossible. No prior experience with Python or Semantic Link is required.

PRESENTED BY:



Markus Cozowicz
Principal Data Scientist
Microsoft



Michael Kovalsky
Principal Program Manager, Fabric CAT
Microsoft

Type
Session

Optimizing and Automating Microsoft Fabric and Power BI with Semantic Link/Labs

by Markus Cozowicz & Michael Kovalsky



Get Involved in the Fabric Community



aka.ms/FabricCommunity

Connect with community members, ask questions, and learn more about Fabric



aka.ms/FabricUserGroups

Find a user group that matches your interests in your area or online



aka.ms/SuperUsers

Spread your Fabric knowledge, insights, and best practices with others



aka.ms/MVP

Technology experts that share their knowledge and passion with the community