Semantic Link

A Magic Cauldron to Unlock Power BI with Python

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About me

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Agenda

- 🔗 What is semantic link?
- ❓ Terminology
- ✔️ General features of semantic link
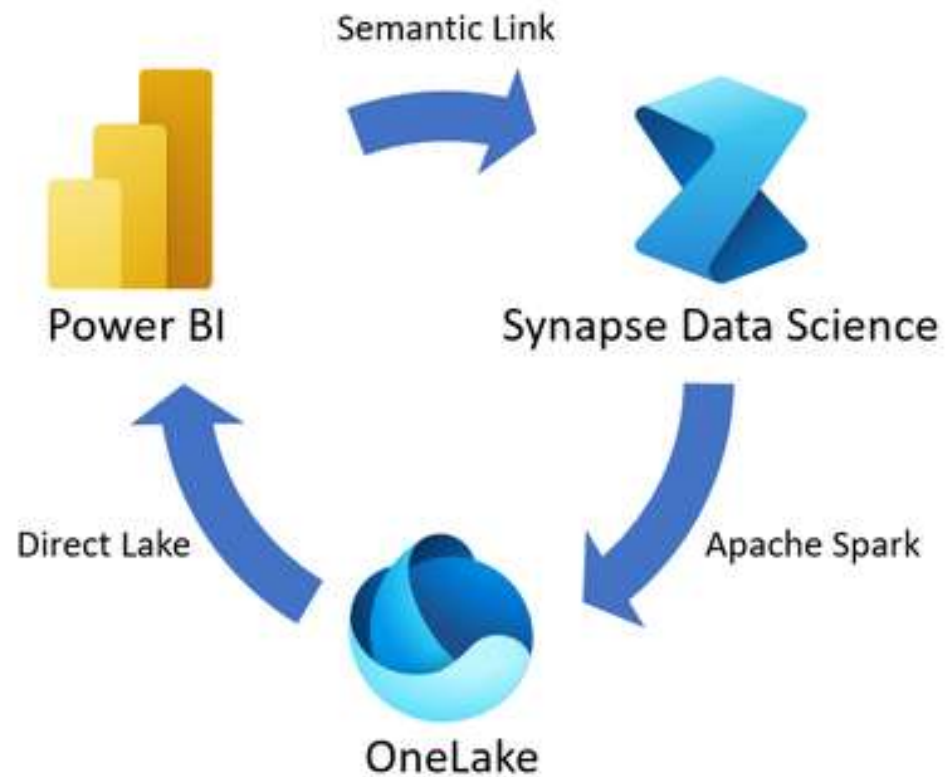- ✳️ Semantic Link Labs
- 🖥️ Common use cases & demo
- 🌐 Resources

What is semantic link?

What is semantic link?

Terminology
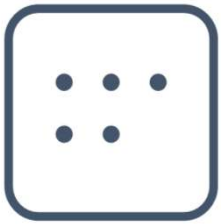
General features of semantic link

Semantic Link Labs

Common use cases & demo

Resources

Terminology

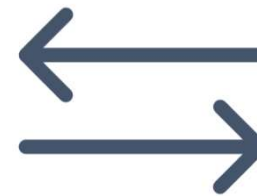| Semantic model	Fabric notebooks	Python	Spark

PySpark	Libraries	APIs

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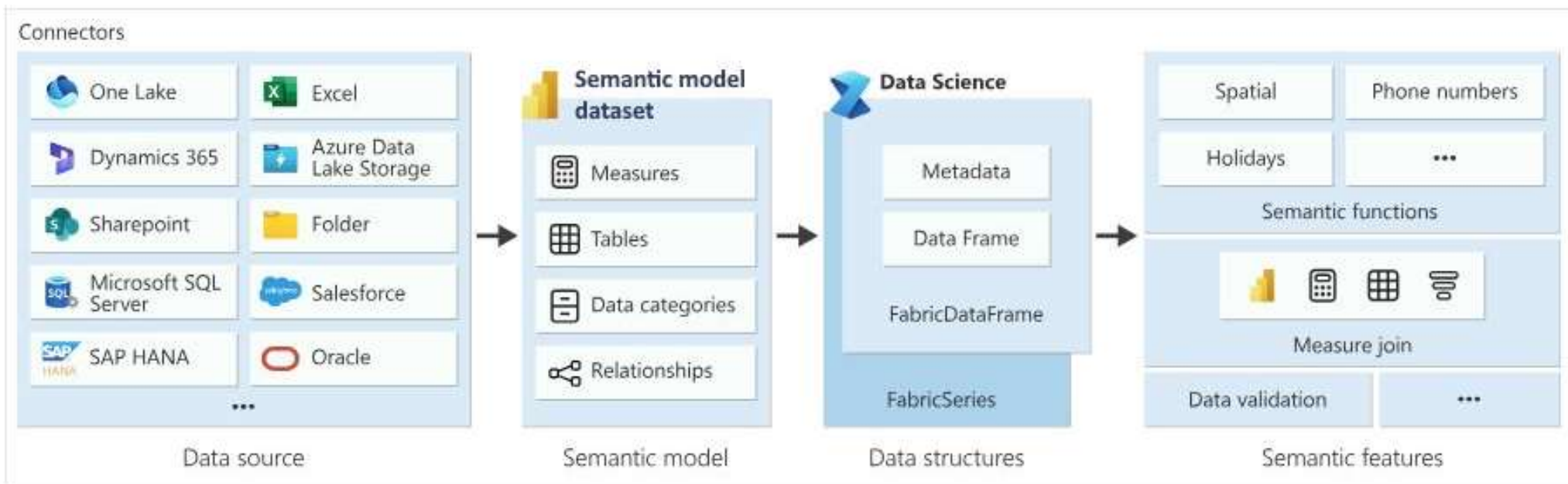Resources

General features of semantic link

Evaluate DAX Queries

Get Metadata

Actions

Connectors		Semantic model dataset	Data Science	Semantic features	
One Lake	Excel	Measures	Metadata	Spatial	Phone numbers
Dynamics 365	Azure Data Lake Storage	Tables	Data Frame	Holidays	...
Sharepoint	Folder	Data categories	FabricDataFrame	Semantic functions	
Microsoft SQL Server	Salesforce	Relationships	FabricSeries	Measure join	
SAP HANA	Oracle			Data validation	...
...					
Data source		Semantic model	Data structures	Semantic features	

Install semantic link

- For **Spark 3.4** and above, semantic link is available in the default runtime when using Fabric, and there's no need to install it.

- For **Spark 3.3** or below, or to update to the latest version of semantic link, run the following command:
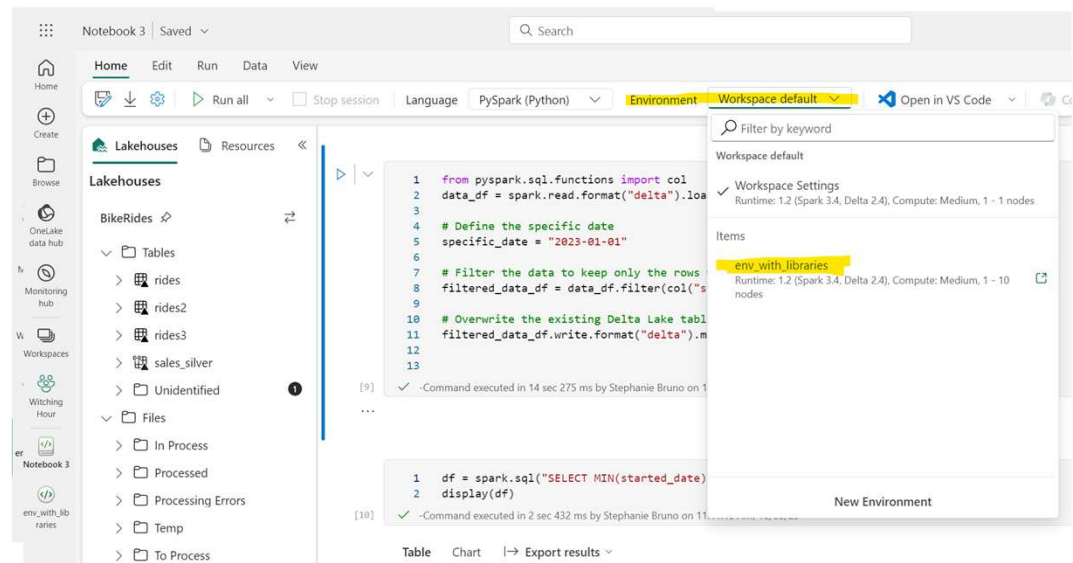
Pip install

Pip is the package installer for Python. Within a notebook, install semantic link in a code cell.

```
1    %pip install semantic-link
```

Create an environment

Within a workspace, create a new environment. In the environment you can add libraries and configure Spark properties. Once the environment is created, you can set a notebook to use it.

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Semantic Link Labs

- Developed by Michael Kovalsky, a member of the Fabric CAT.

- Python library designed for use in Microsoft Fabric notebooks

- Extends the capabilities of Semantic Link offering additional functionalities

- Not installed automatically

- Open source with community contributions

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

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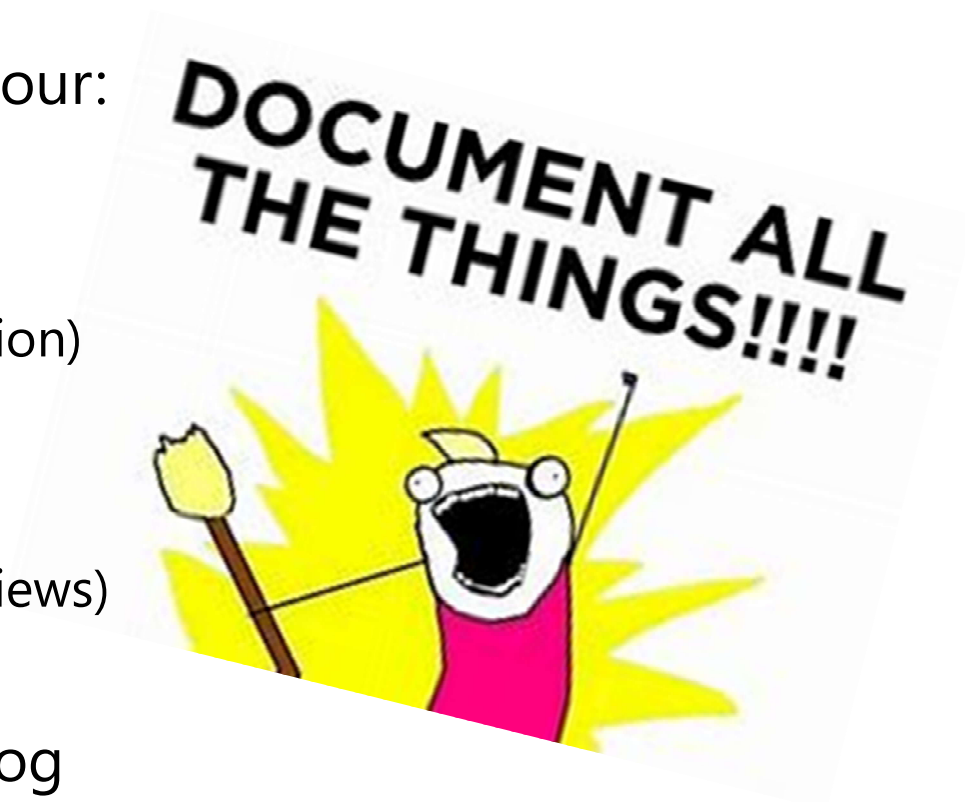- 🖥 Common use cases & demo
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Common use cases – aka why?

- Documenting tenant (semantic model catalog)
- Saving a snapshot of semantic model data
- Data Science
- Data Quality
- Rest APIs
- Report analysis
- So much more!

Documenting the tenant

✓ Generate a dataset catalog of your:

- Tables

- Relationships

- Measure (including the expression)

- Calculated columns

- Hierarchies

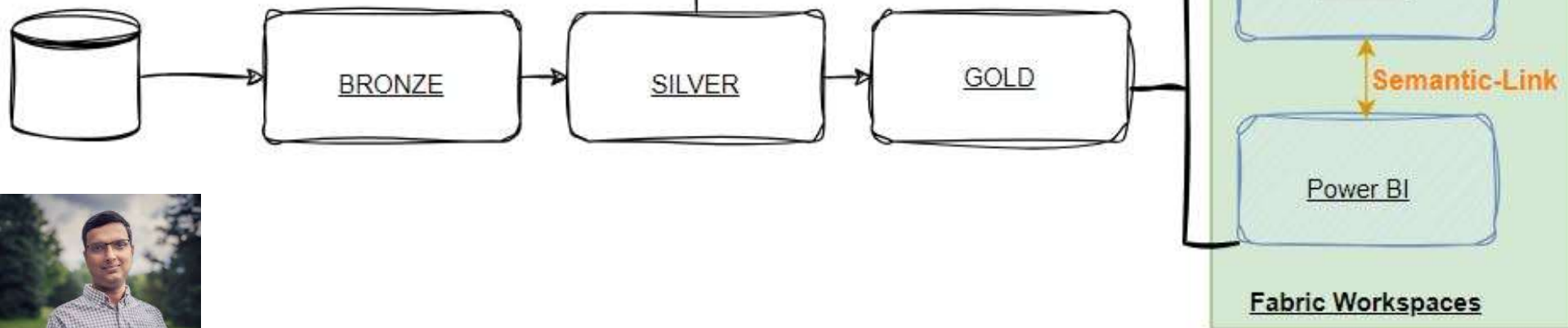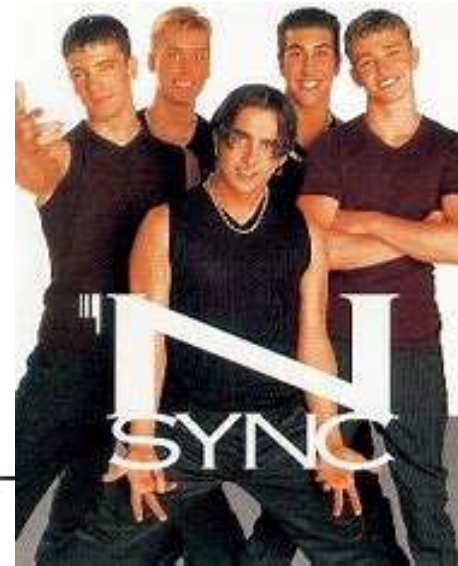- DMV (Dynamic Management Views)

✓ Execute DAX against your catalog

Snapshot

- You need to keep regular histories of what the data looked like at different points in time.

- You can use the time travel feature of delta tables, but what if the required business logic is one step down the line, in the semantic model?

- With semantic link, it's easy to get a table into a FabricDataFrame and save it to a lakehouse.

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Data Science

Keeping everyone in sync!

https://fabric.guru/

Data Quality

- Lots of options here!
- Built-in semantic link methods
- Compare the output of a SQL query with the output of a DAX query
- Use the Great Expectations library

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Rest APIs

- Automation of repetitive development tasks
- Governance, i.e. enforcing best practice definition
- Use FabricRestClient to access Fabric REST endpoints. <u>Sempy uses the environment details to authenticate the user automatically.</u>
- Make POST requests too

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Demo

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Common use cases & demo

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Resources

- [What is semantic link (preview)? - Microsoft Fabric | Microsoft Learn](#)

- [Fabric Semantic Link and Use Cases](#) by Sandeep Pawar

- [Best practice rules to improve your model’s performance | MicrosoftPower BI-blog | Microsoft Power BI](#)

- [How to use notebooks - Microsoft Fabric | Microsoft Learn](#)

- [Microsoft Fabric REST API references - Microsoft Fabric REST APIs | Microsoft Learn](#)

- [Microsoft Fabric REST APIs for automation and embedded analytics - Microsoft Fabric REST APIs | Microsoft Learn](#)

- [Fabric API quickstart - Microsoft Fabric REST APIs | Microsoft Learn](#)

- https://fabric.guru/using-fabricrestclient-to-make-fabric-rest-api-calls

- [Use Fabric Notebook to monitor Power BI semantic models - Phil Seamark on DAX](#)

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Thank you!

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