

Power BI and Azure Synapse Analytics

- Better together

De Power BI Gebruikersdagen worden mede mogelijk gemaakt door:



PLATINUM

delaware



ilionx

easydash

GOUD



creates.



Tabular Editor



Voorblijven. Niet bijblijven.

KASPAROV
FINANCE & BI

macaw



rockfeather

GET
RESPONSIVE

ZILVER

VICTA
BUSINESS INTELLIGENCE

Dynamic
People

Motion 10
AN HSO COMPANY

VisionBI
Smart Data Experts

VALID
STAY AHEAD

inergy

valcon

iqb's

Quanto
collective analytics

COMMUNITY

Kimura
data intelligence

ĐashData.

volda;
INFORMATIESPECIALISTEN

Power BI
Connector
by DAVISTA

AZURRO FINANCE



Fellowmind

MATHIAS HALKJÆR PETERSEN

Principal architect, Data & Analytics

Data enthusiast with a great passion for the synergy between data analytics and cloud data platforms. Principal Architect for Fellowmind working with building up our clients' data capabilities, implementing data platform technologies and all-in-all maximize the value they get out of their data.

- **Microsoft MVP**, Data Platform
- **MSc in Product Development and Innovation**
- **Certified Associate in Project Management (CAPM)®**
- **Sergeant**, Royal Danish Air Force
- Parent, Foodie, Casual Gamer, Tech-aficionado

FAVORITE TOOLS:



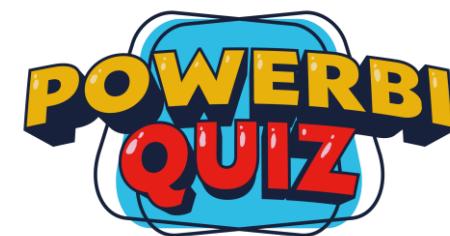
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Fellowwind

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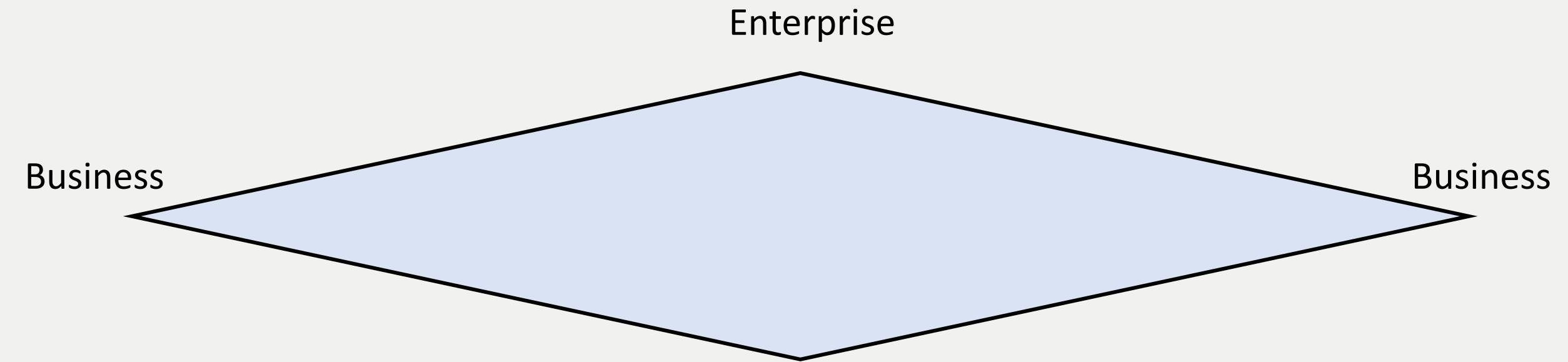
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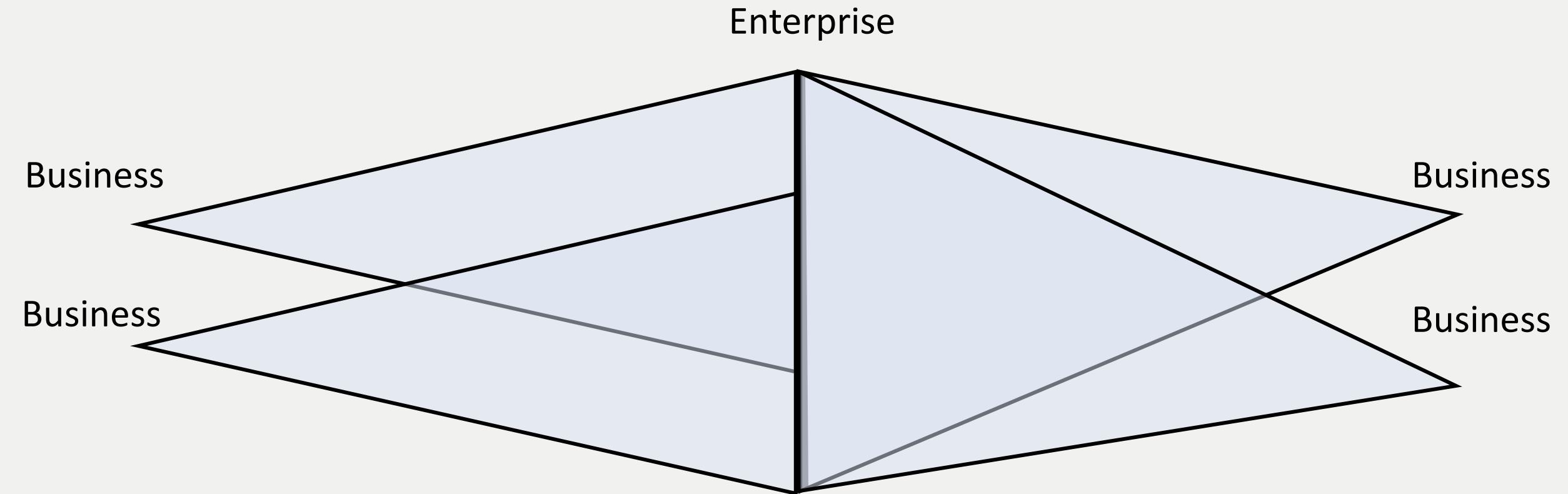
End-to-end analytics (History)



Enterprise conformity

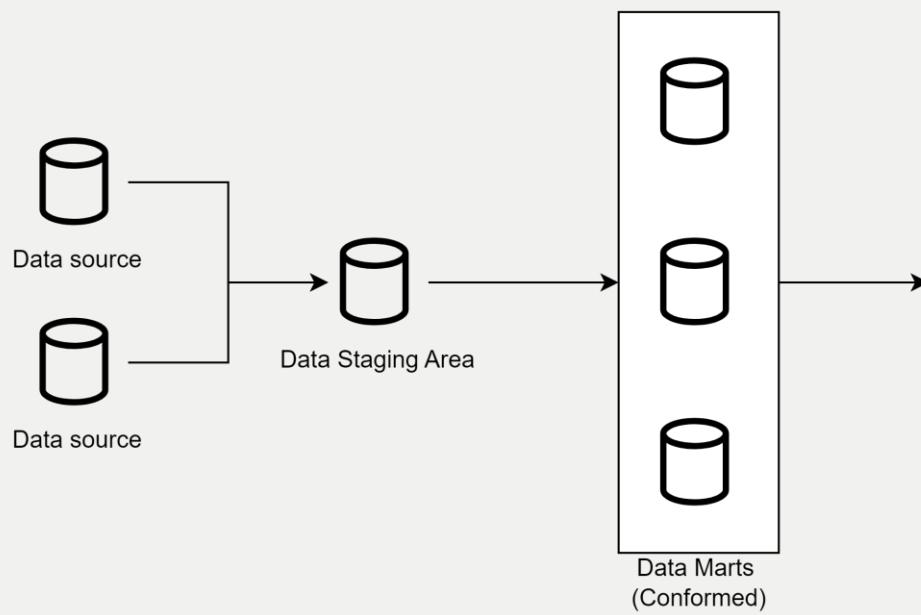


Enterprise conformity

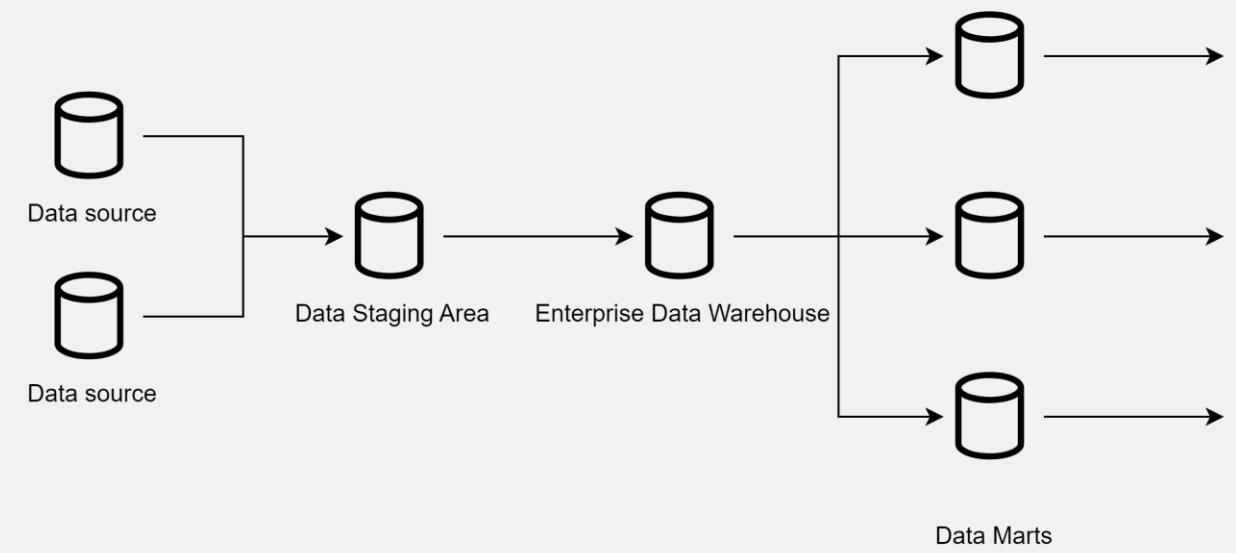


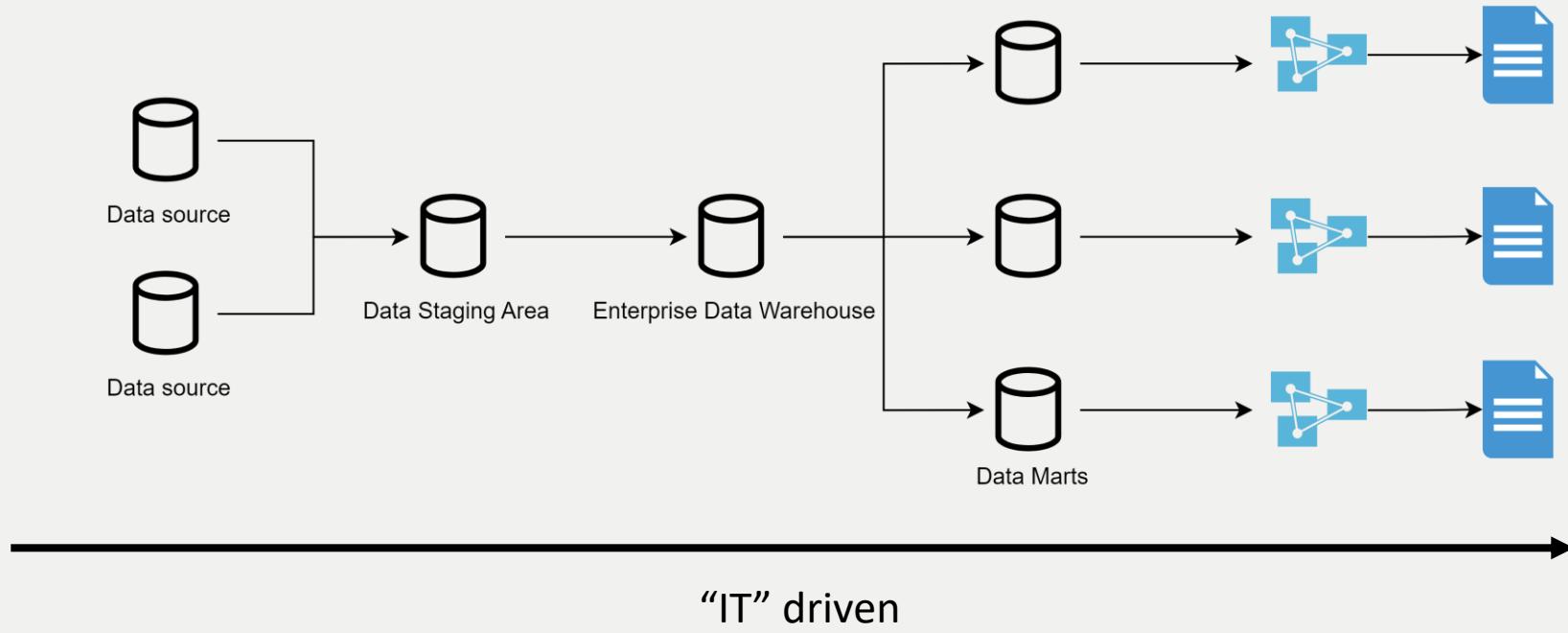
Data Marts

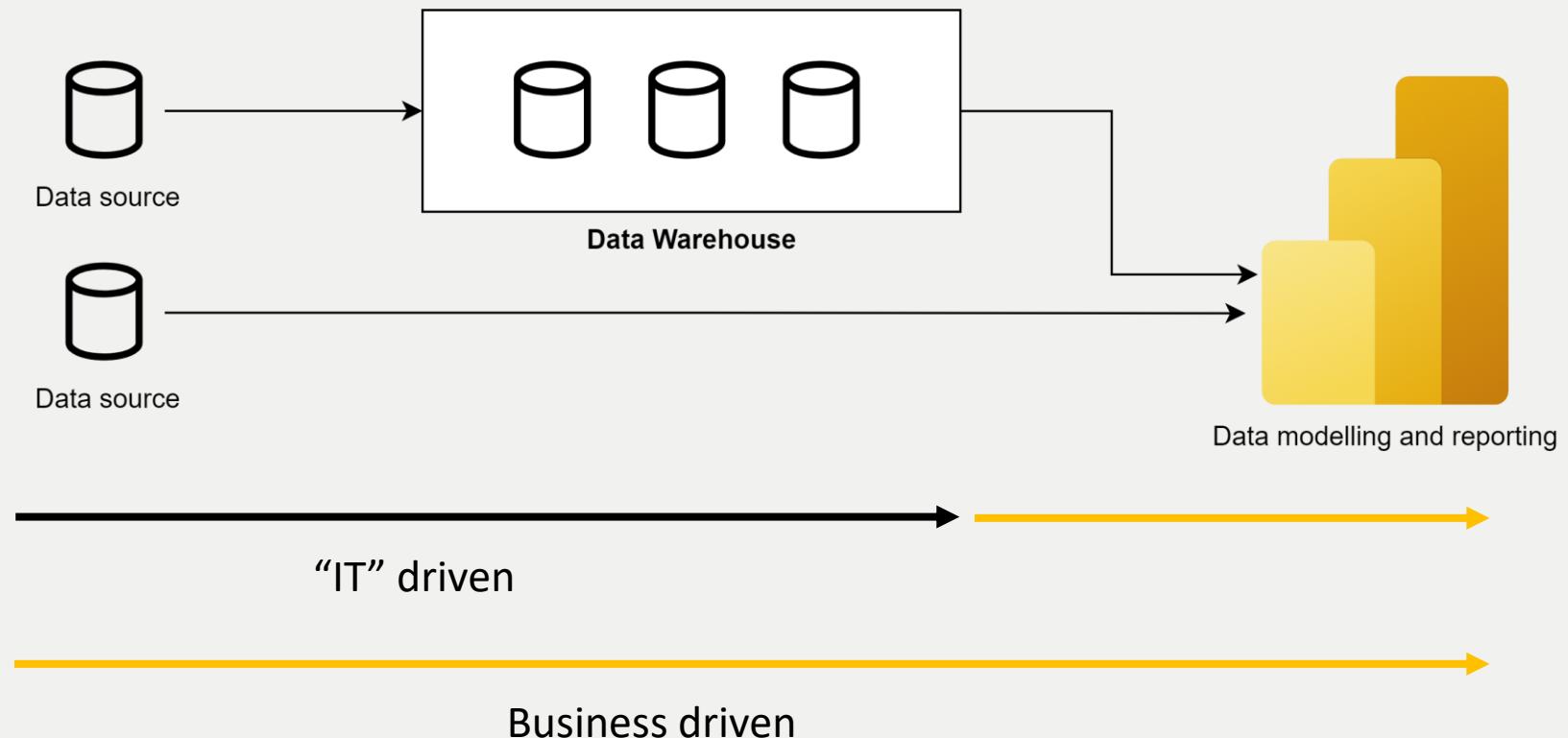
Dimensional Data Warehouse (Kimball)



Corporate information factory (Inmon)



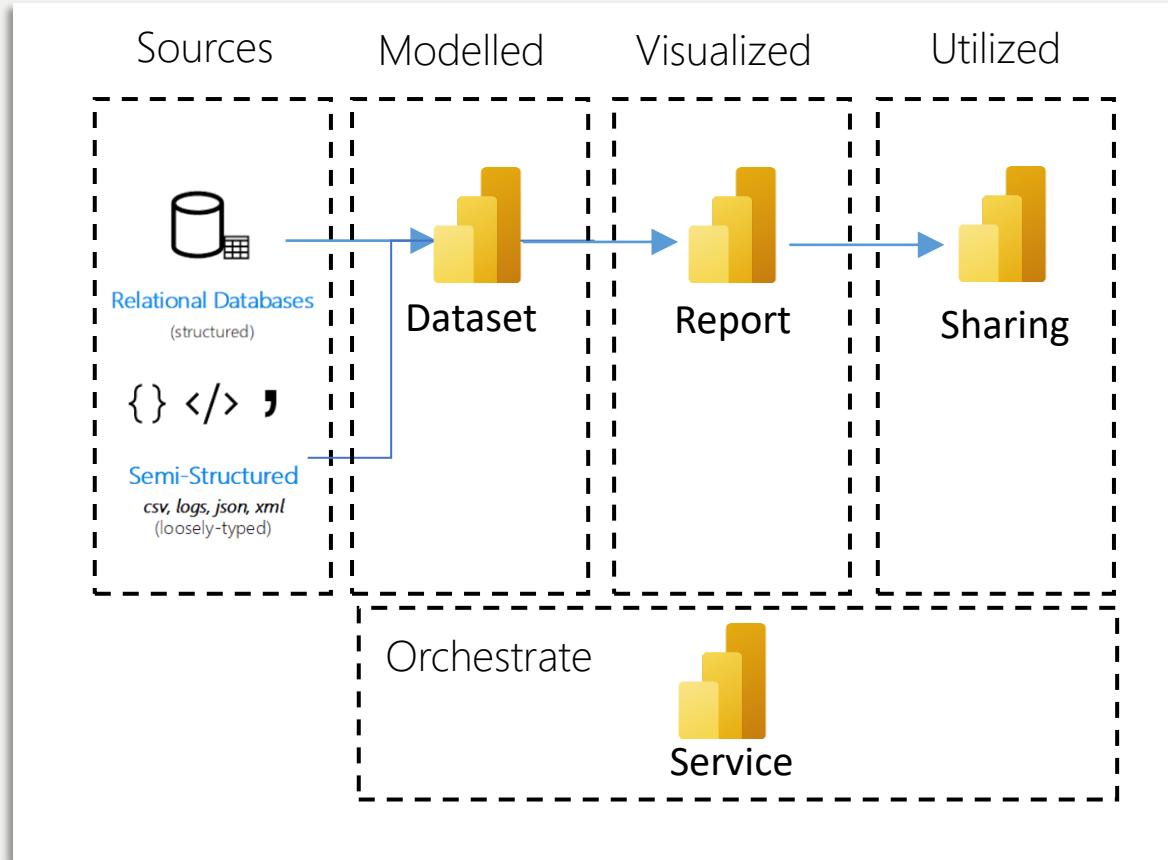




End-to-end analytics in Power BI



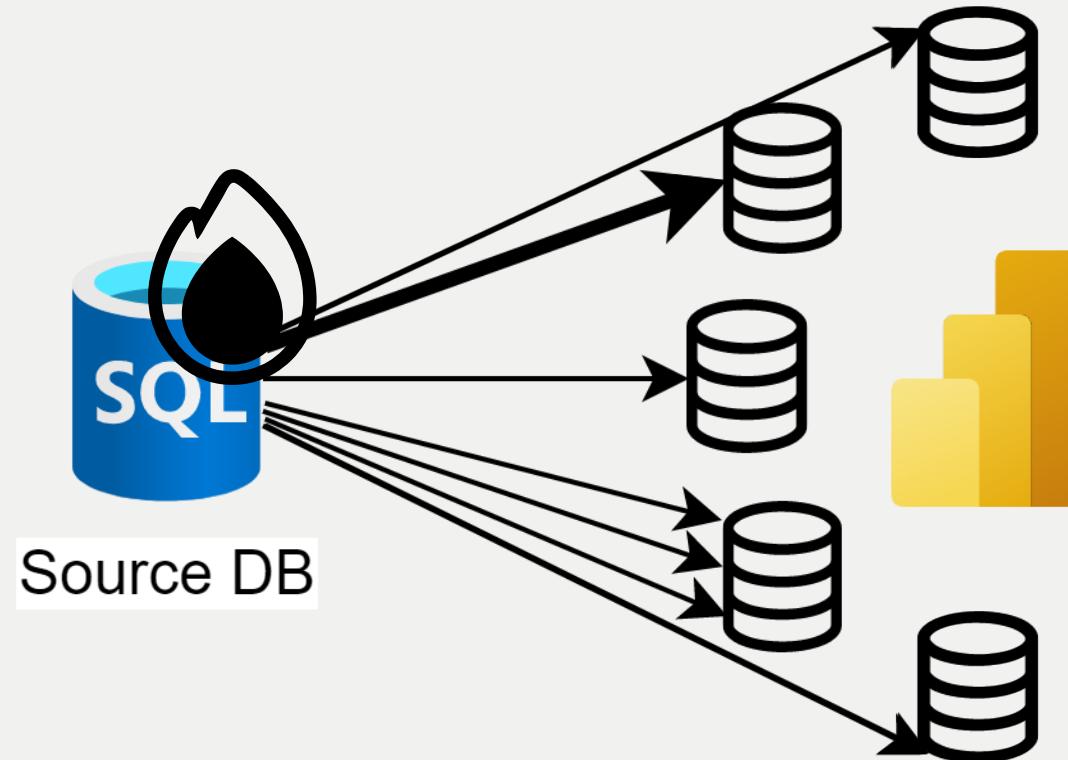
End-to-end analytics in Power BI (anno 2018)



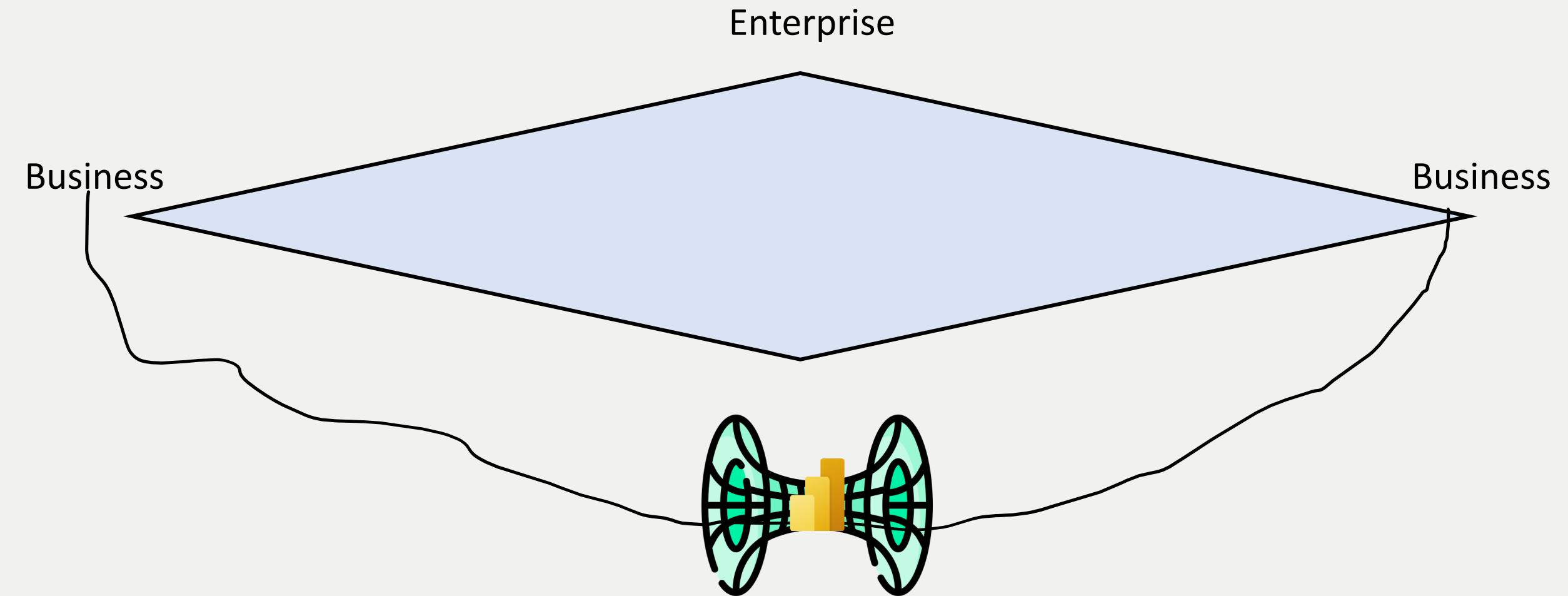


The missing pieces?

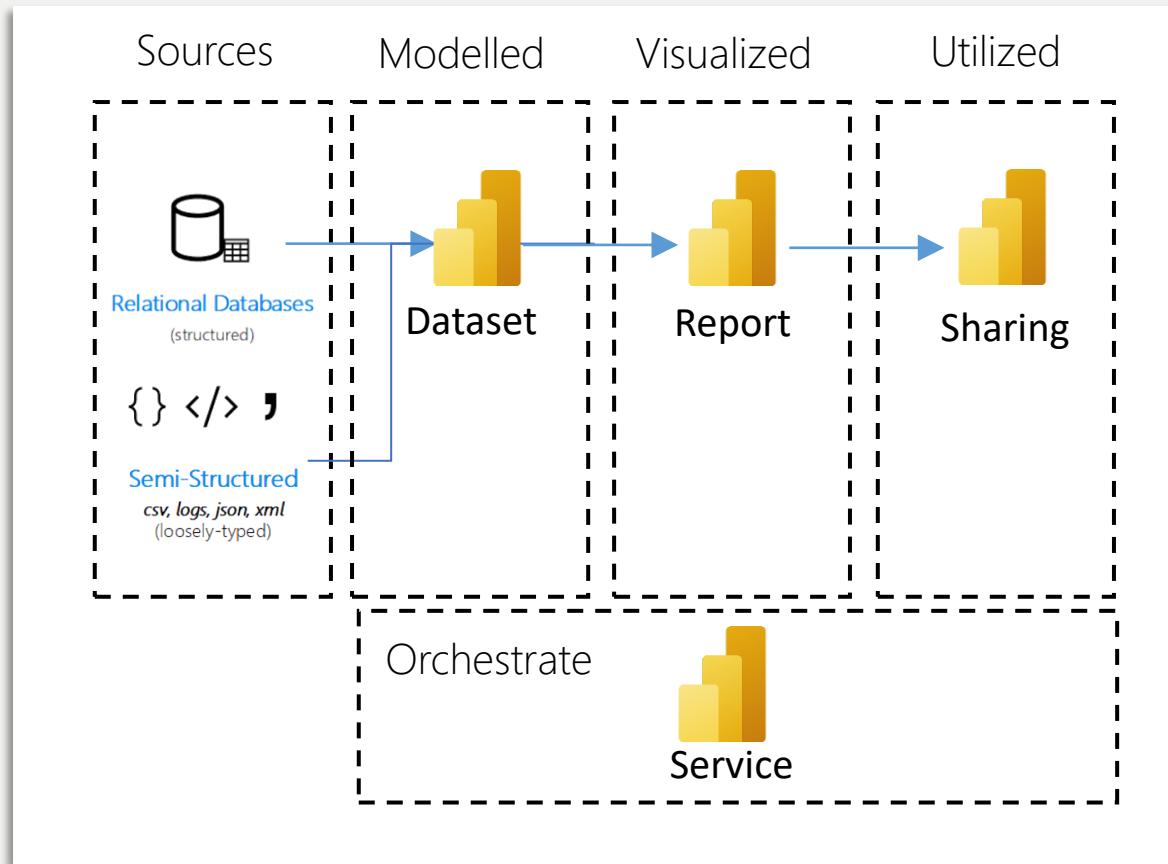
Source load minimization



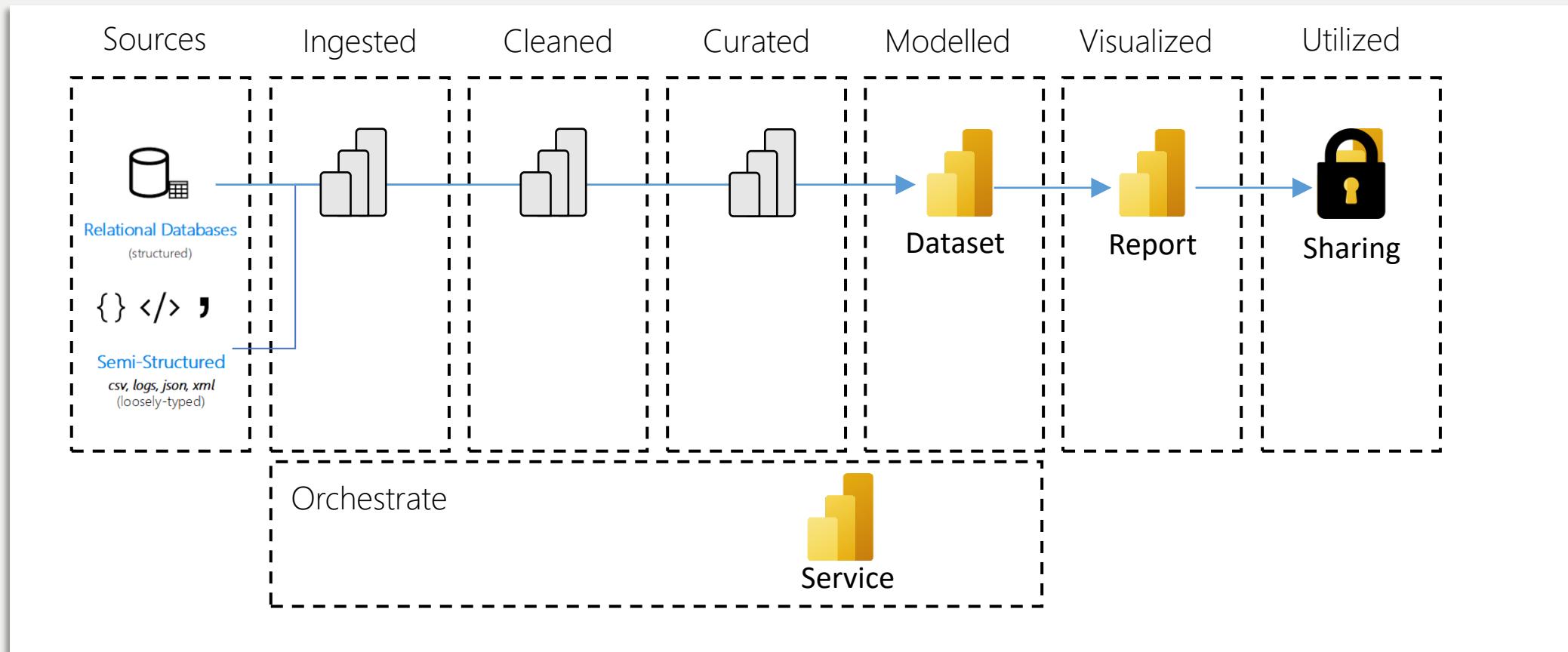
Enterprise conformity



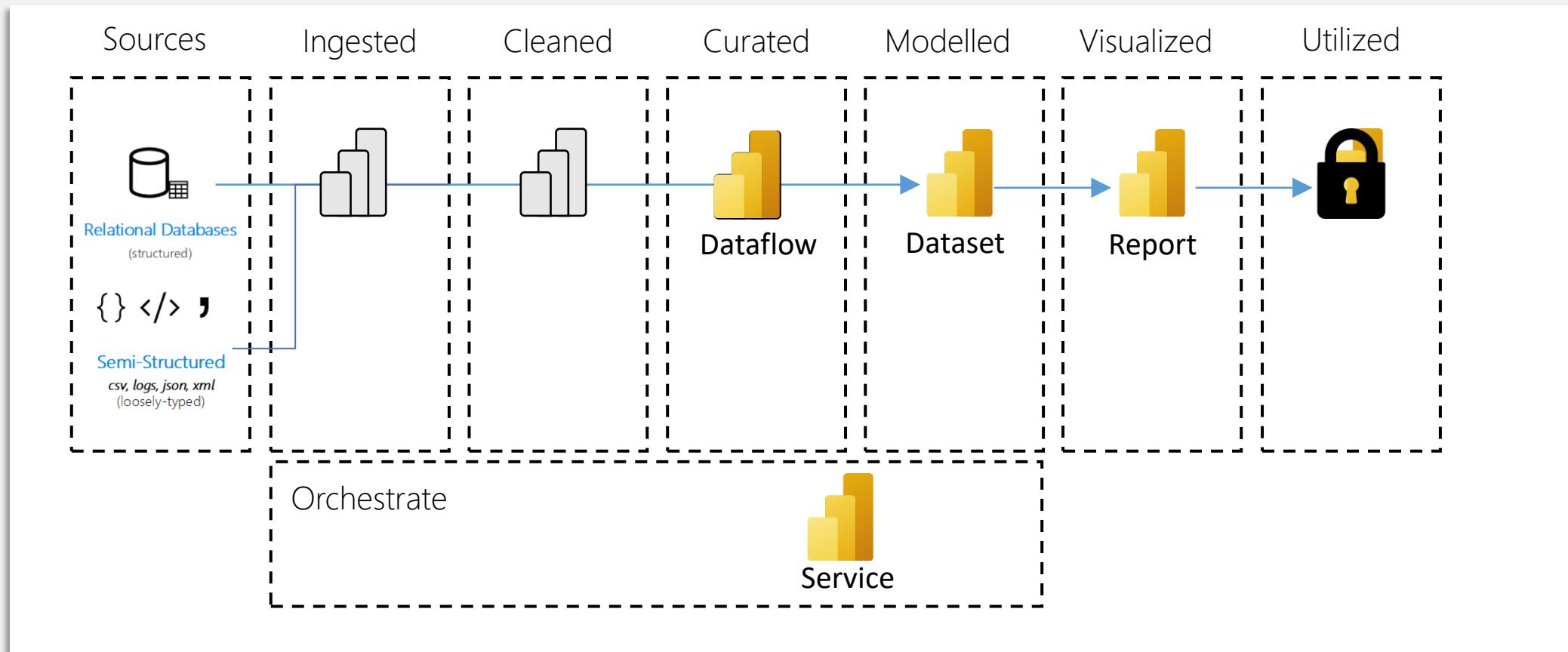
End-to-end analytics in Power BI



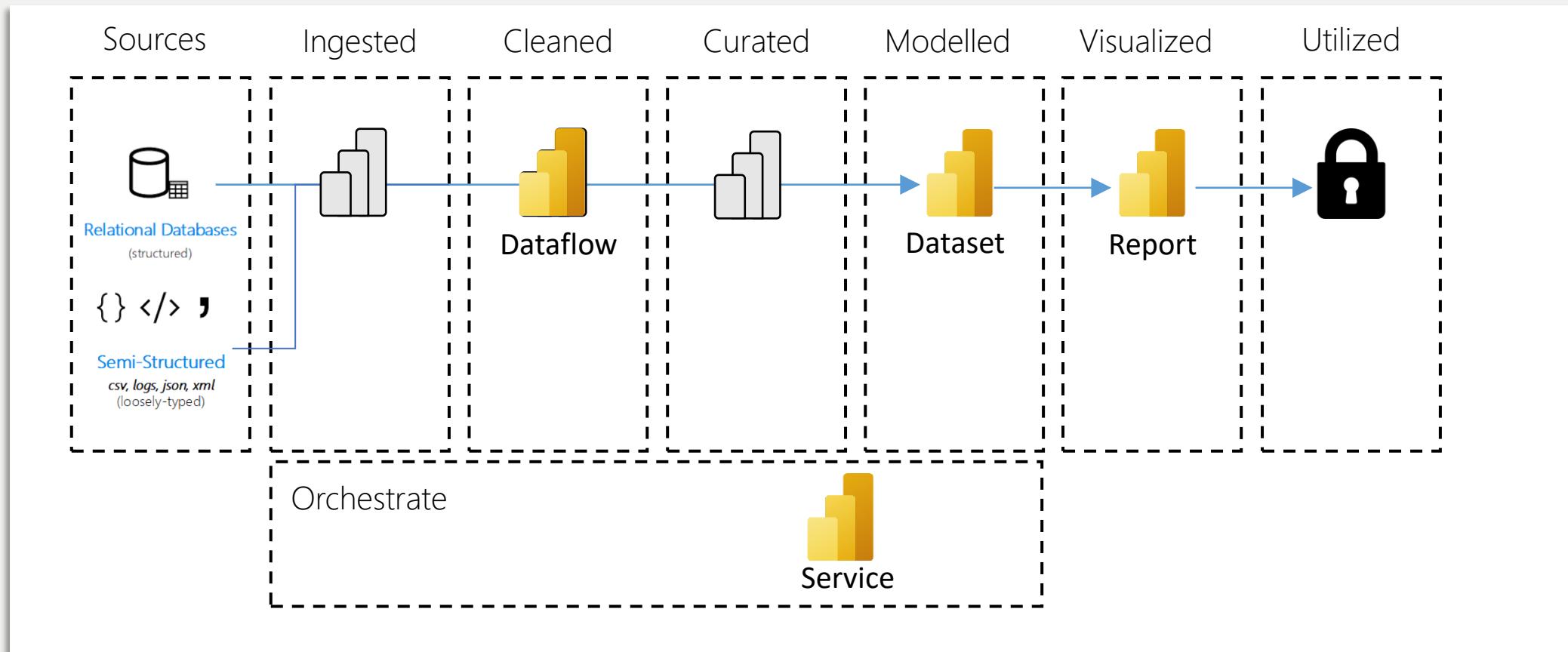
End-to-end analytics in Power BI



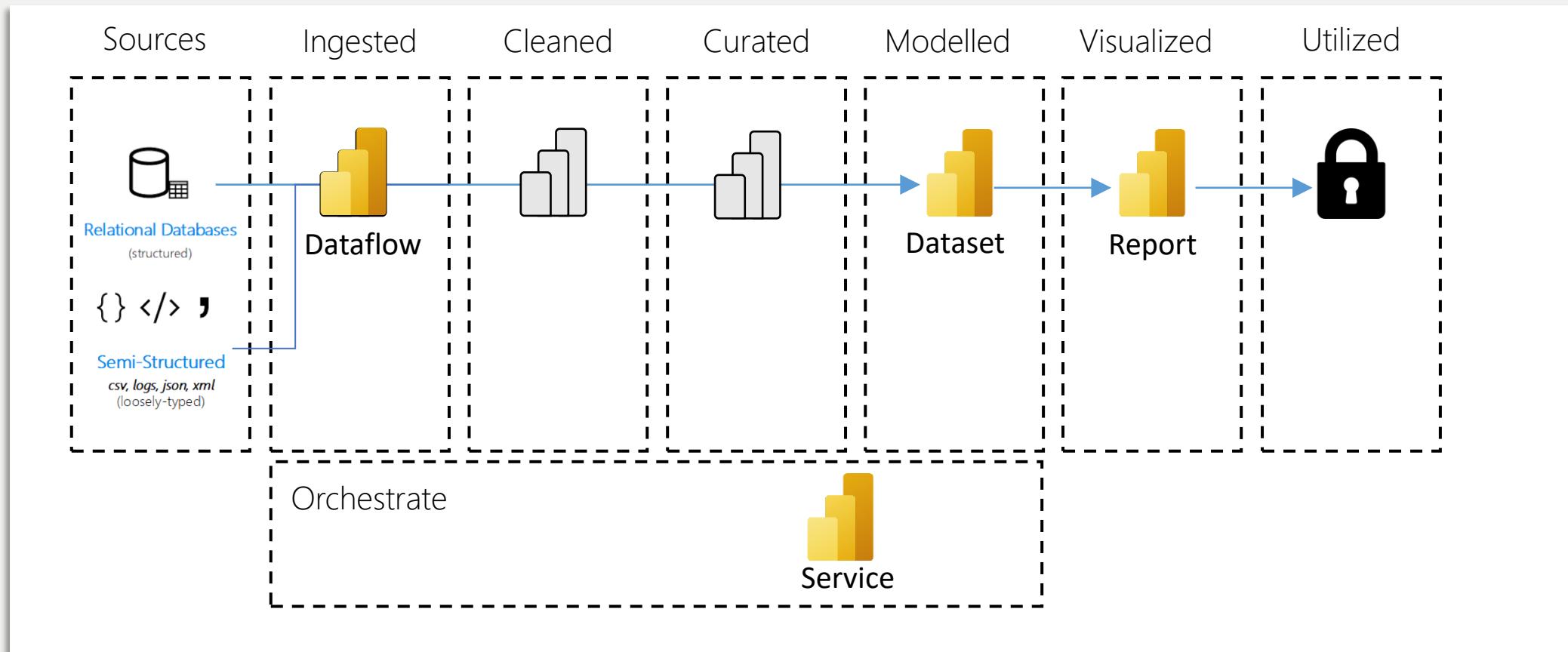
End-to-end analytics in Power BI



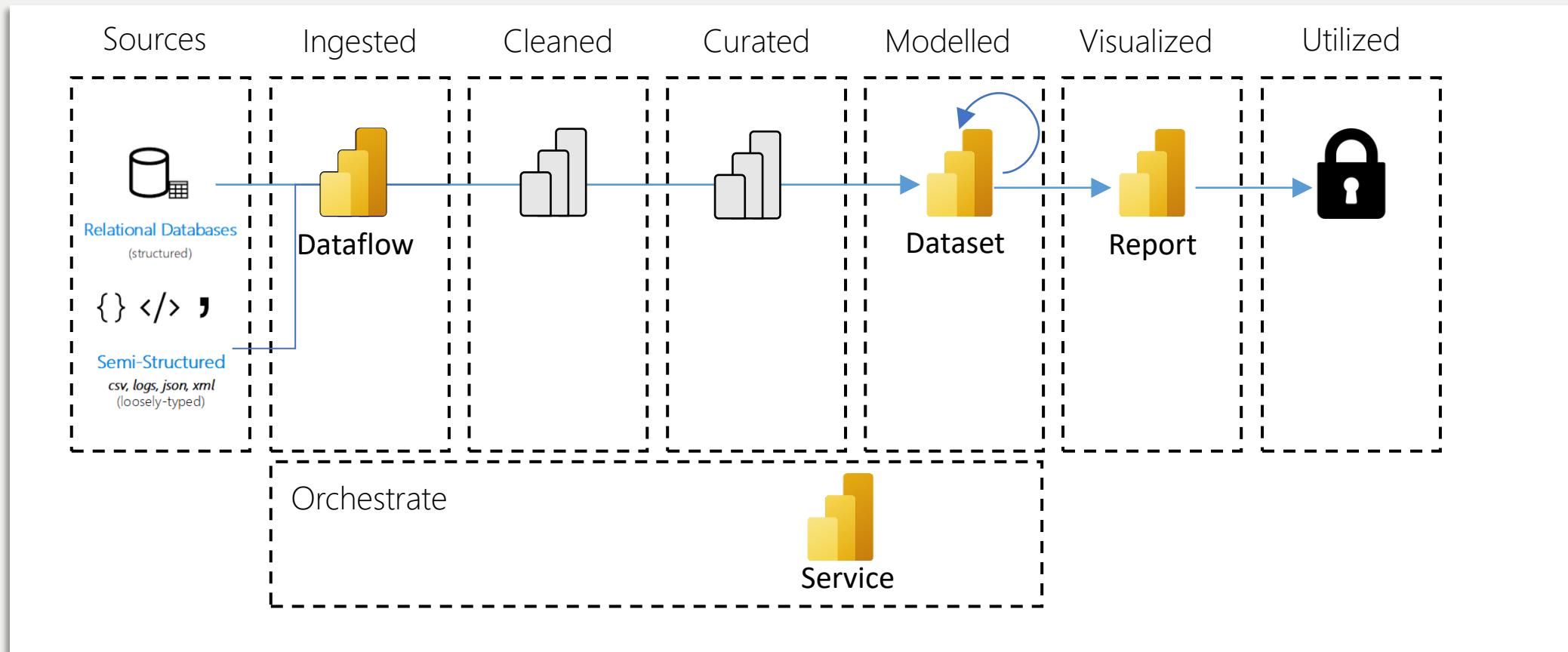
End-to-end analytics in Power BI



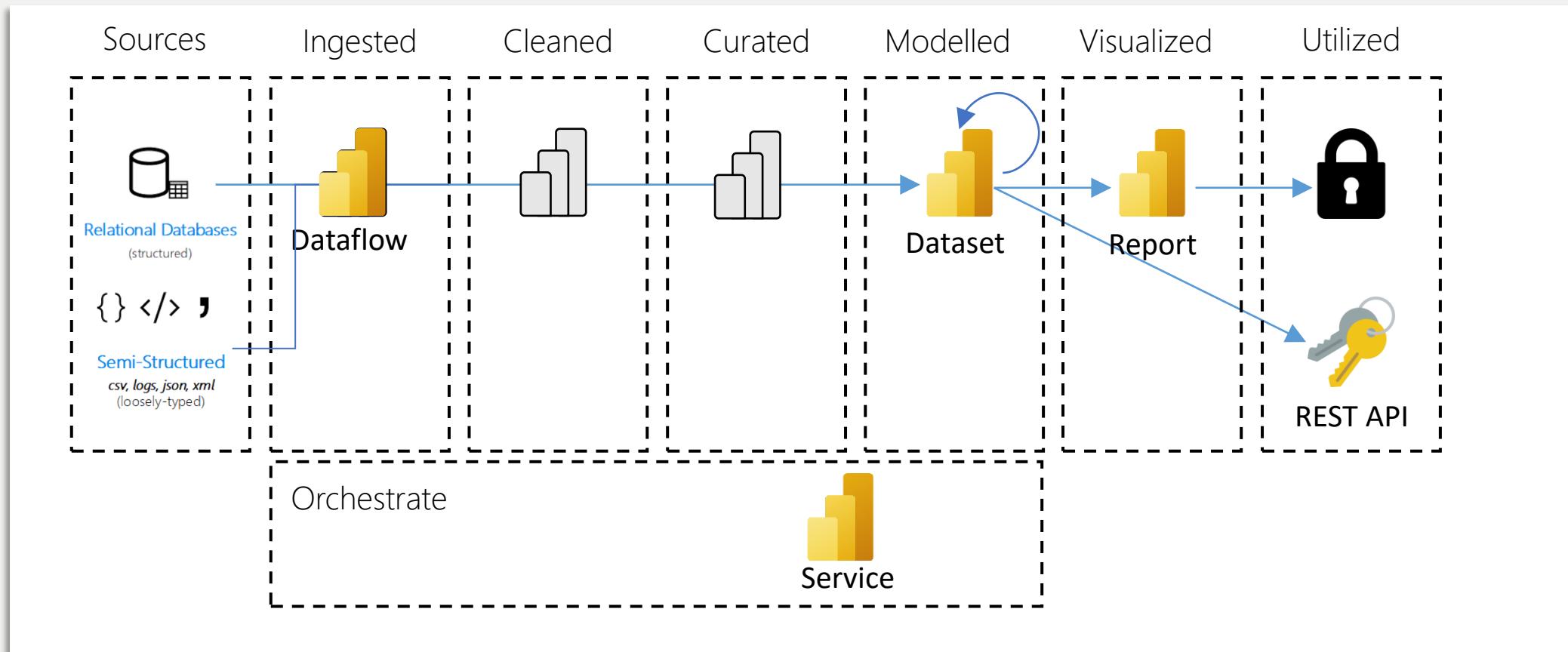
End-to-end analytics in Power BI



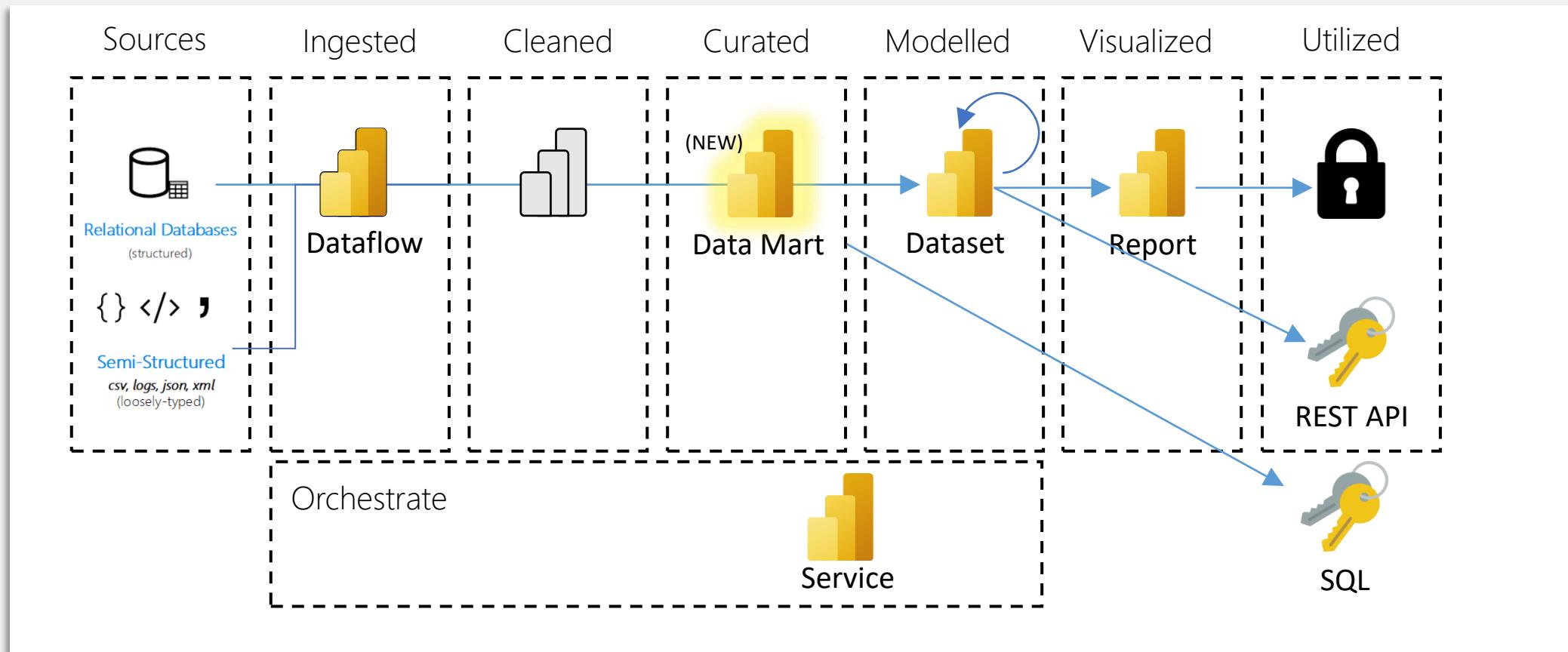
End-to-end analytics in Power BI



End-to-end analytics in Power BI



End-to-end analytics in Power BI



Power BI Datamart

Data management and serving

Dataflow

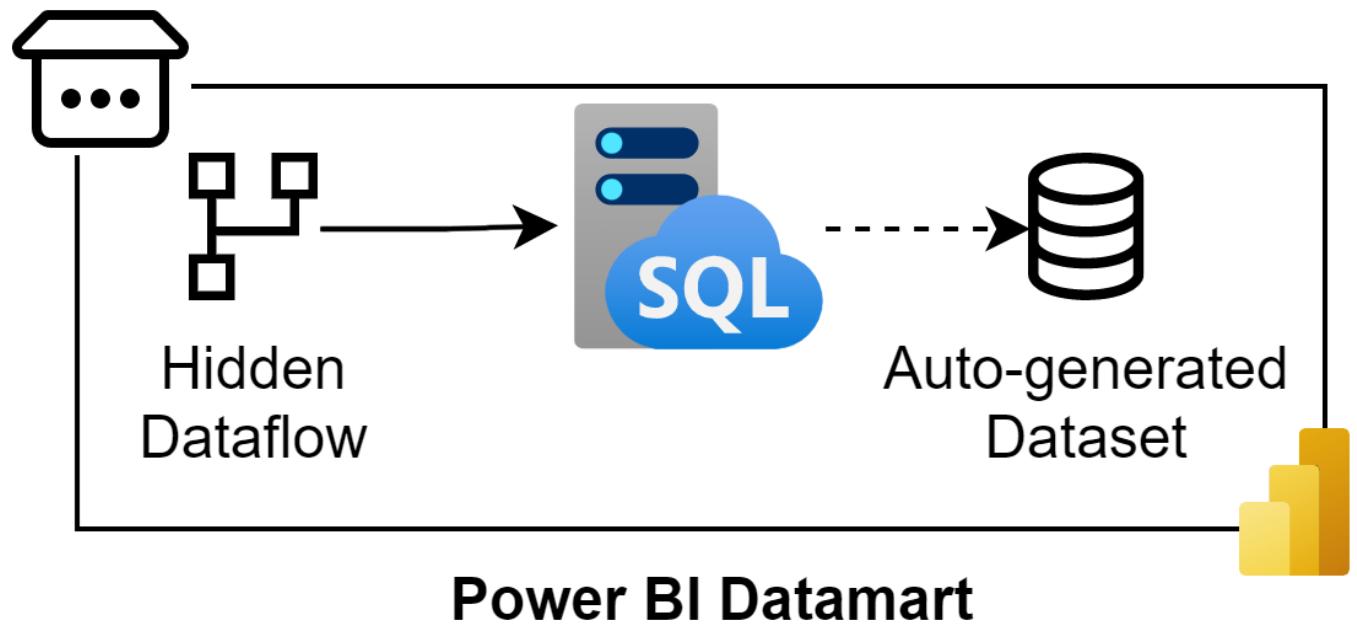
Ingest and transform data
Multiple data sources possible

Azure SQL Database

Fully managed analytical store
Users can build queries visually and using SQL
Can be accessed with SQL tools

Dataset

Built on top of Azure SQL DB
Uses DirectQuery
Can be enriched with relationships, measures and RLS

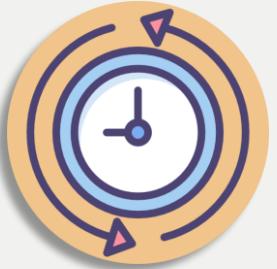


End-to-end analytics in Power BI

Limitations

- Out-of-sight transformation layer
- Not always the best tool for data warehouse tasks
- No logs or output from cleaning or quality checks
- Doesn't always handle HUMONGOUS data very well
- ~~Curated layer only accessible within Power BI~~
- ~~Overall data lock-in / Inflexible data share~~

Benefits



Historical data and
change tracking



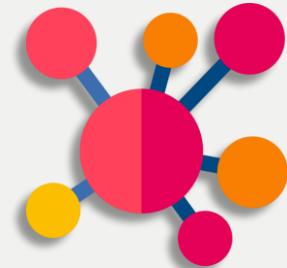
CI / CD and
Version control



Reverse ETL



Massive scale



Supports multiple
programming languages



AI capabilities

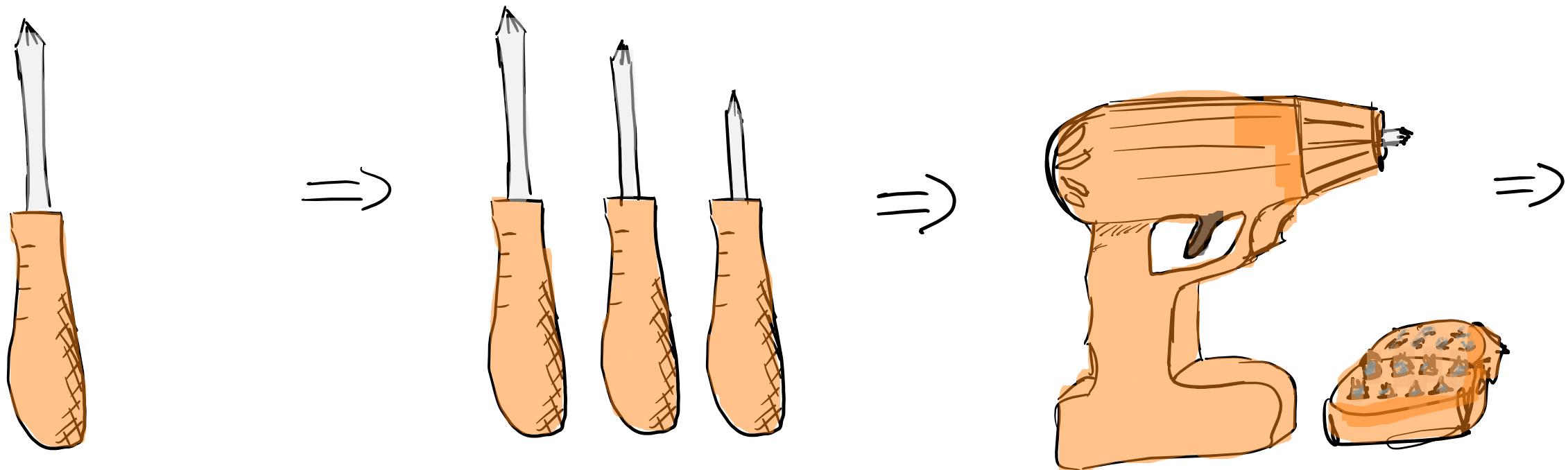
Demo



What is Azure Synapse Analytics?



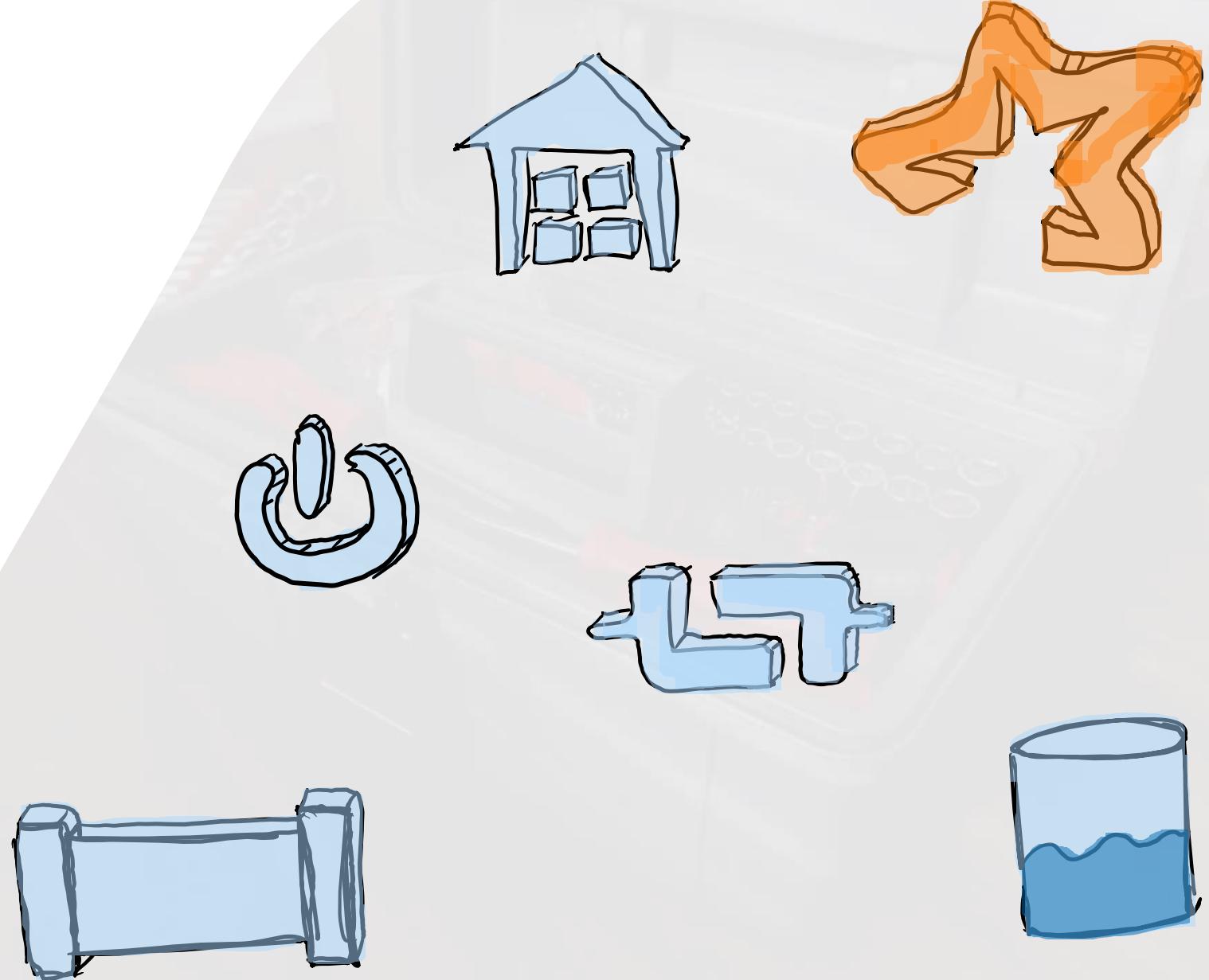
What is Azure Synapse



What is Azure Synapse



What is Azure Synapse



Resources

- Data Lake
- Serverless SQL
- Dedicated SQL pool (Former Azure SQL Data Warehouse)
- Databricks
- Mapping dataflows
- Synapse Pipelines (equivalent to Azure Data Factory)
- Synapse Link

And more...

Pricing

- \$0 initial cost
- Dedicated SQL pool starts at around \$1000/month
- Most, other services are pay per consumption
- Hard to estimate up front

Then what?

- Include the right expertise
- Controlled Experiments
- Proof-of-concepts
- Rolling wave estimations
- Azure Budgets and Cost Alerts

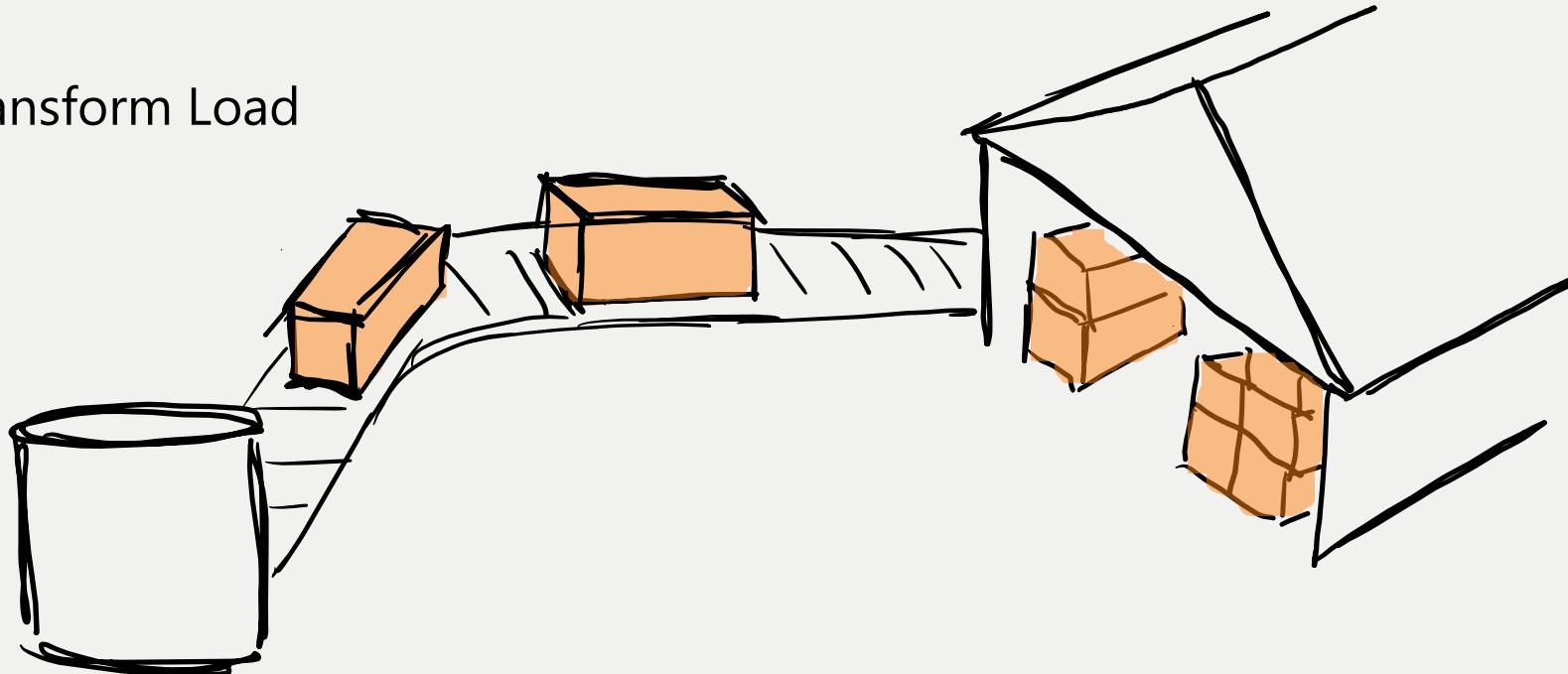


Let's talk Data Lake for a bit



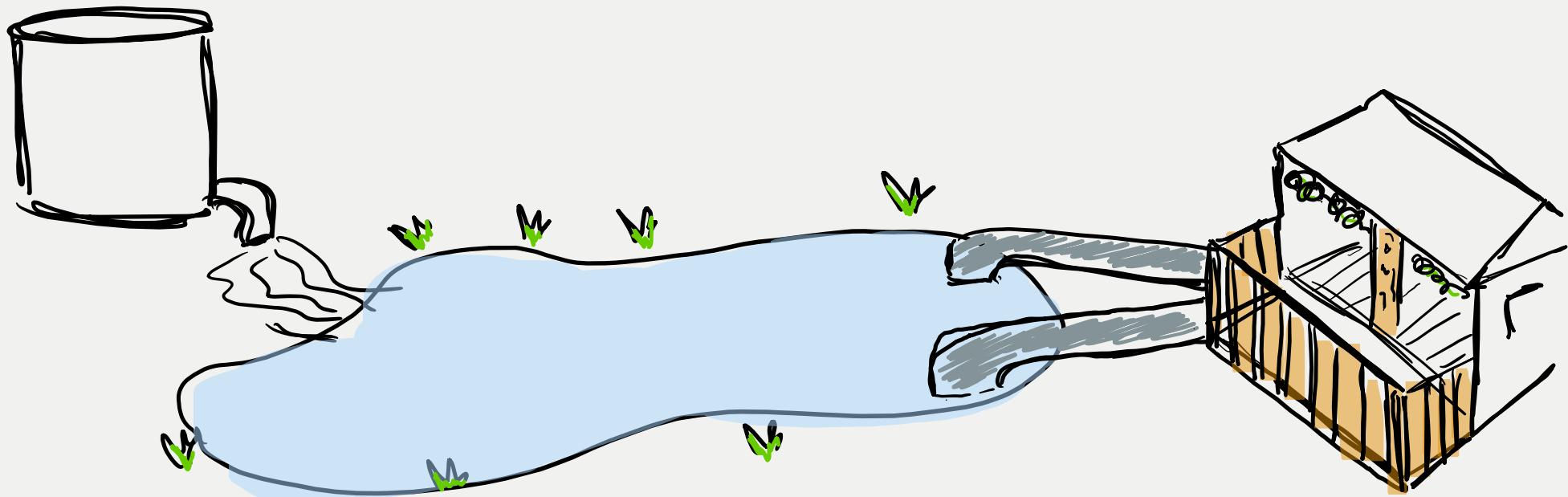
ETL

Extract Transform Load

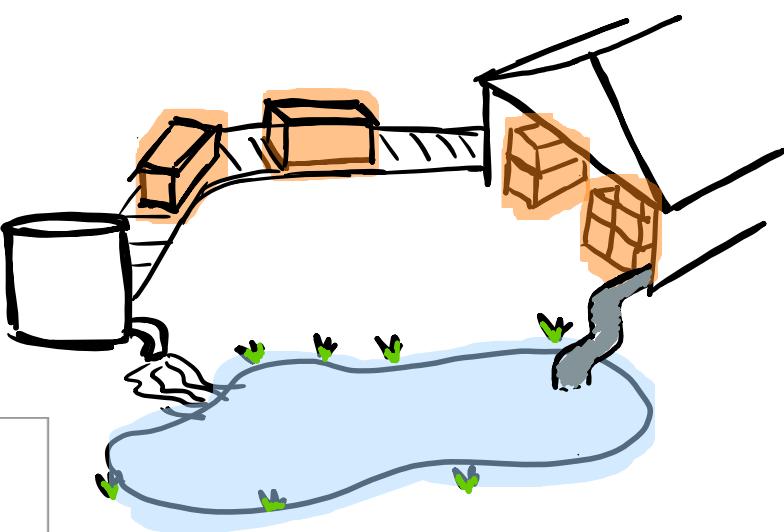
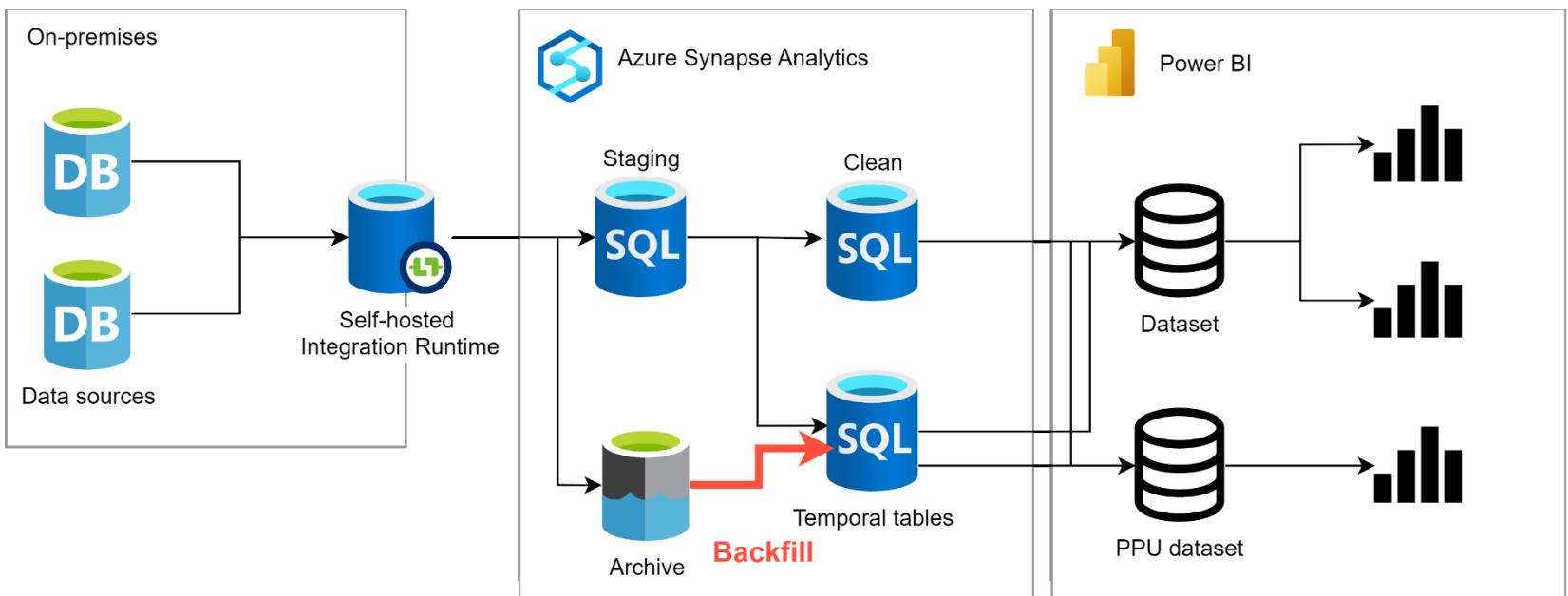


ELT

Extract Load Transform



Architecture



End-to-end analytics in Azure Synapse

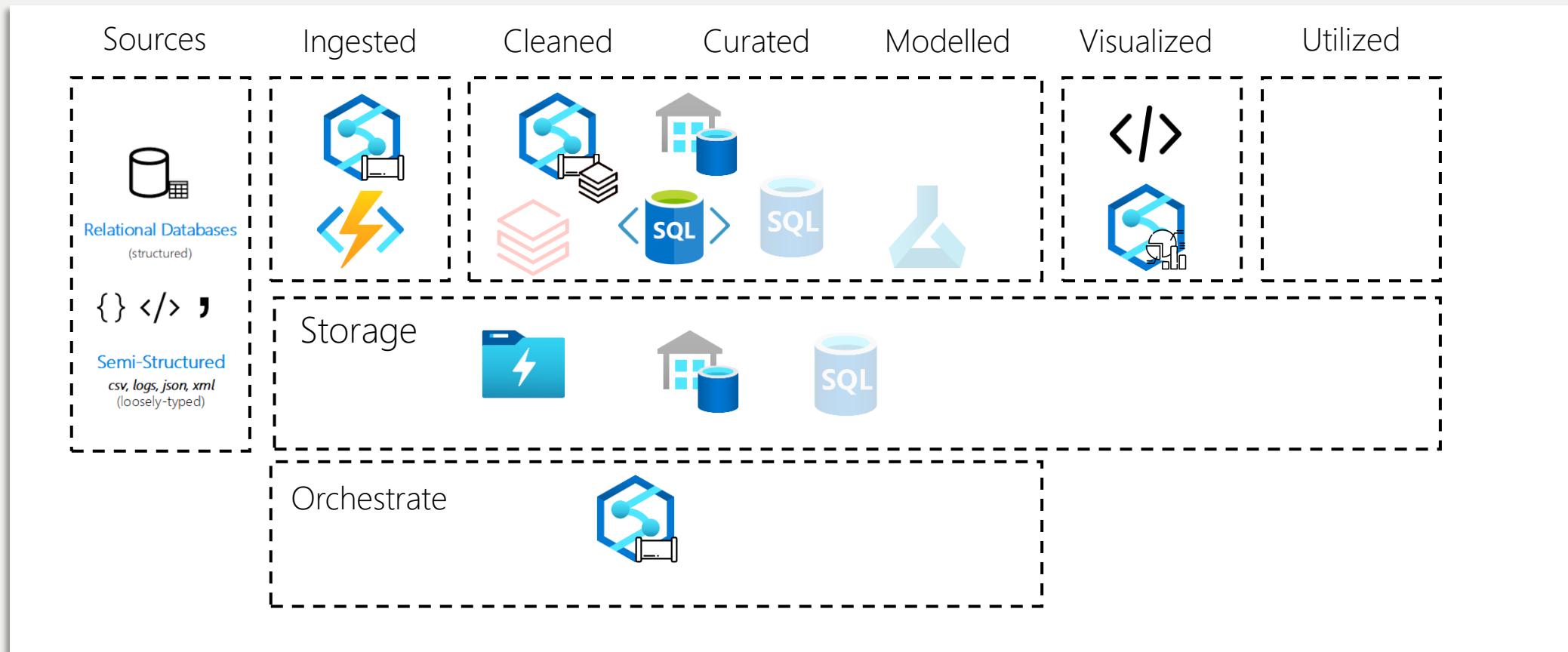


Transform

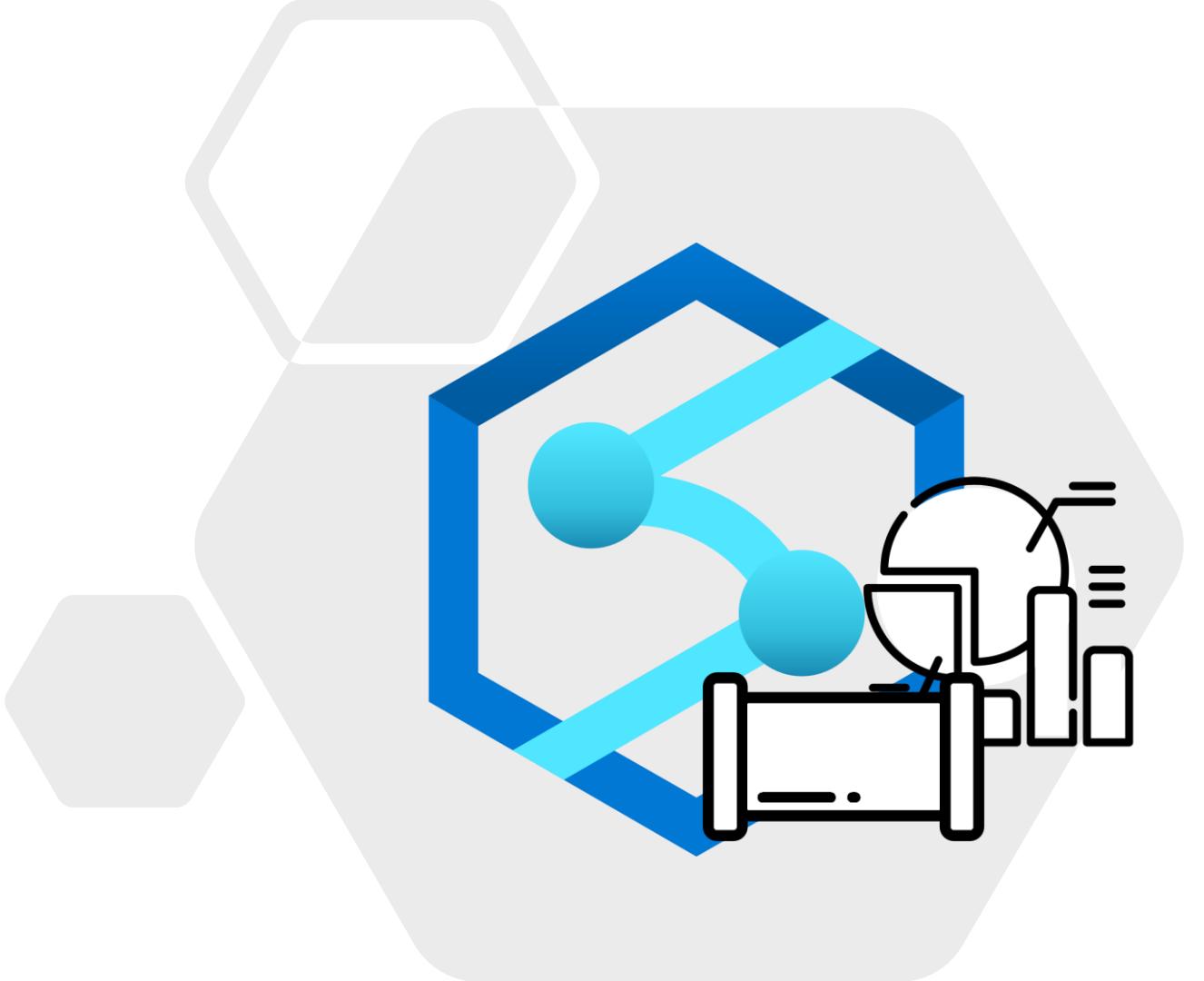
Architectural Archetypes (*and their tools*)

- **Logical Data Warehouse**
 - *Pipelines + Data Lake + Serverless SQL*
- **Classical Data Warehouse** (in the Cloud)
 - *Pipelines + Dedicated SQL Pool + Optionally Data Lake snapshots + Various transform options*
- **Data Lakehouse**
 - *Pipelines + Data Lake + Databricks (Spark)*
- **Hybrid**
 - *Infinite possibilities*

End-to-end analytics in Azure Synapse



Demo



Integrations

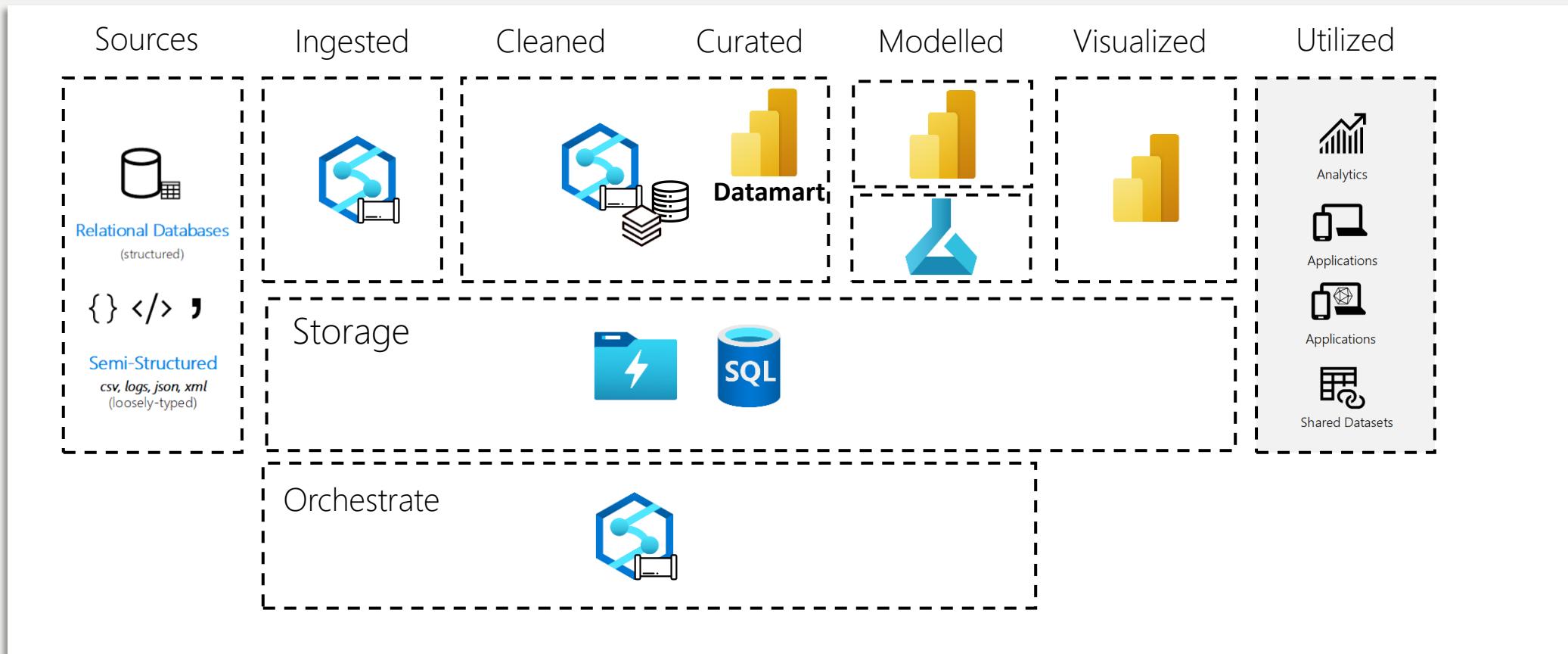
Power BI and Azure Synapse



Integrations

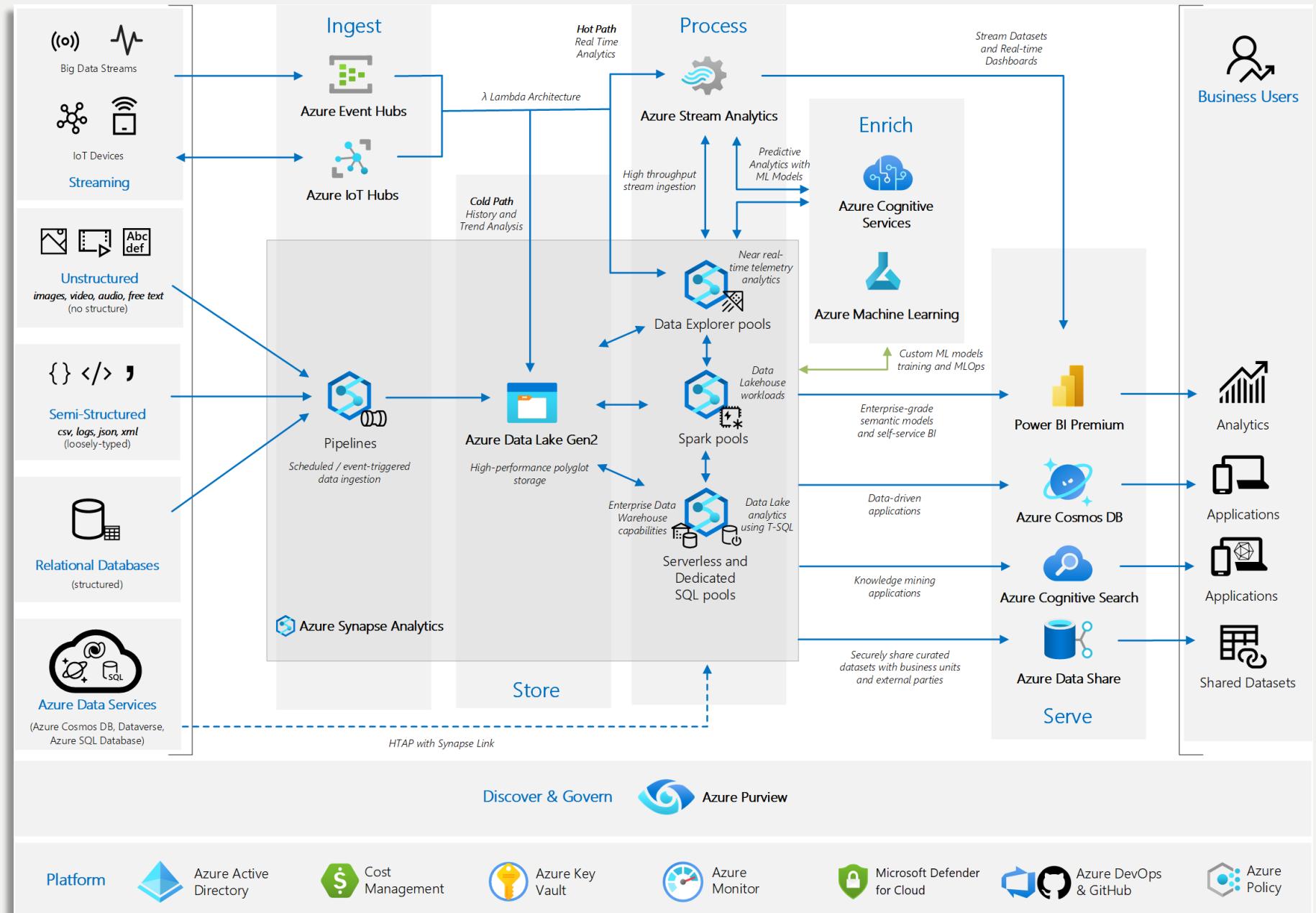
- Integrate Power BI in Azure Synapse
- Use Azure Synapse as a source
- Host Power BI workspace data in Data Lake

End-to-end analytics - Combined



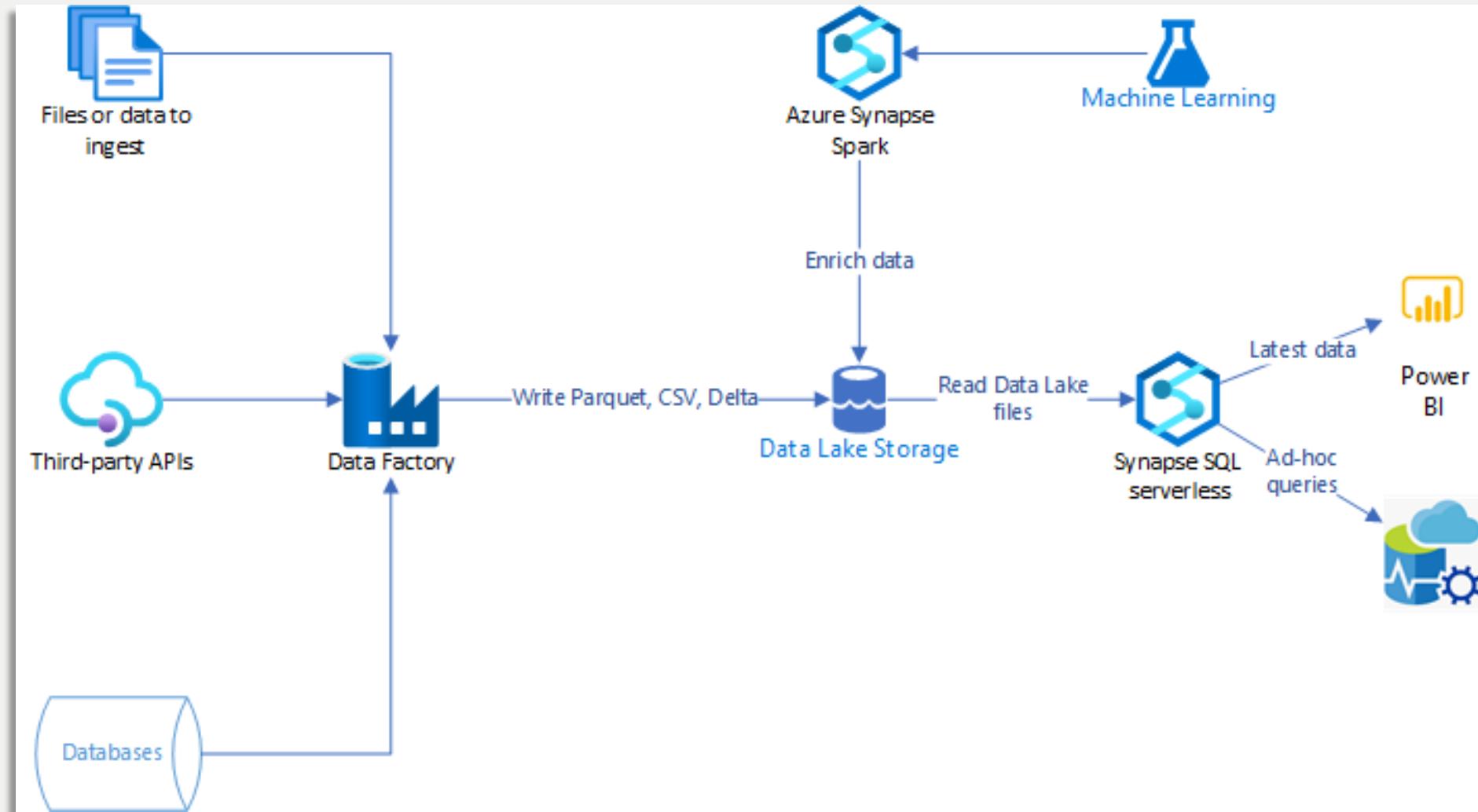
Example

End-to-end analytics
with Azure Synapse
Analytics



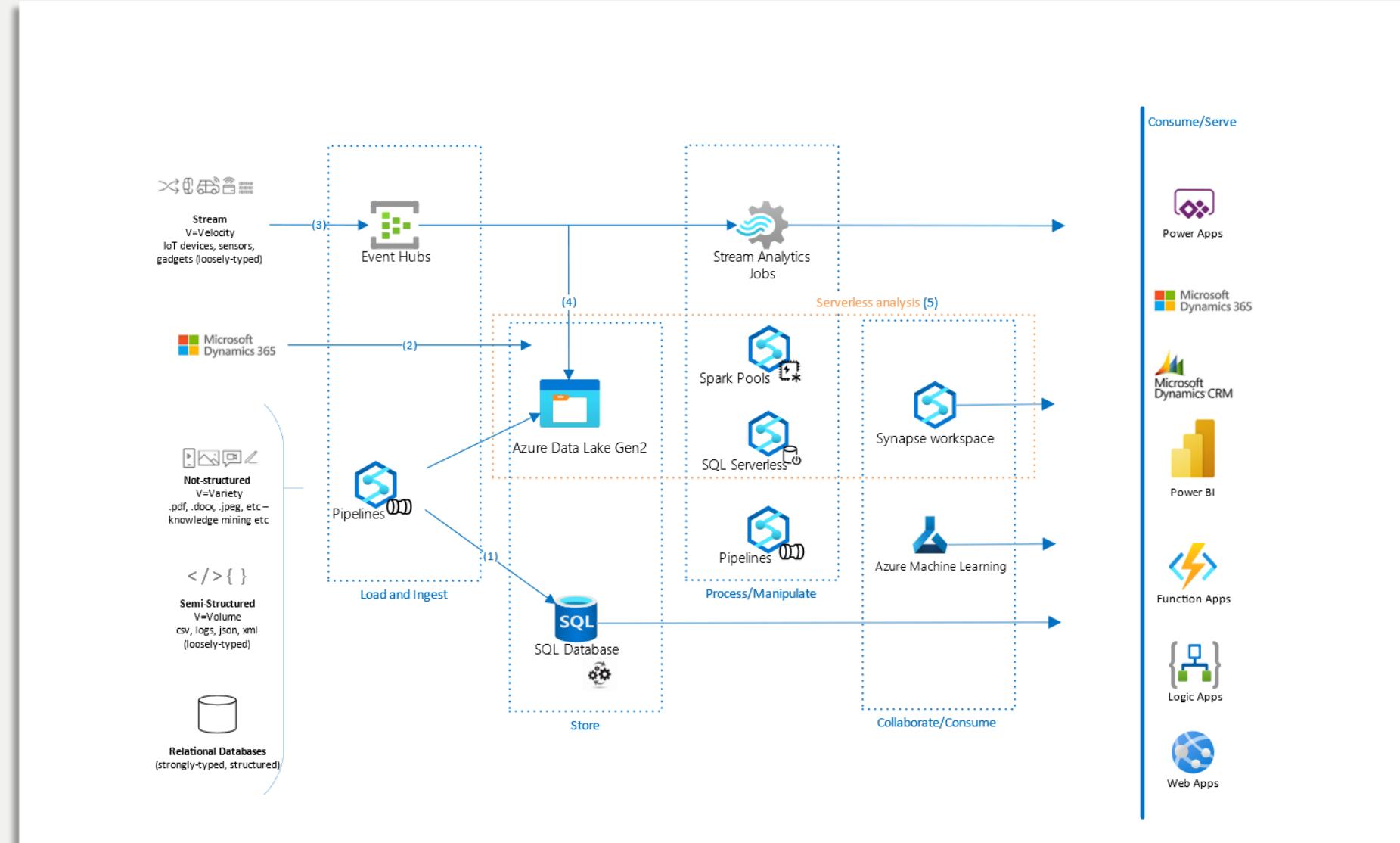
Example

Data lake queries via
Synapse serverless



Example

Modern data warehouse for small and medium business



Questions

