Microsoft | Microsoft Fabric

Fabric Workshop Intro to Fabric & Hands-on

Agenda

- Welcome
- Intro to Fabric
- Labs
- Lunch
- Labs, Q&A

About Lars

- Joined Microsoft in January 2014
- 7.5 years at Microsoft Denmark
- Part of Fabric (Power BI) CAT since September 2021

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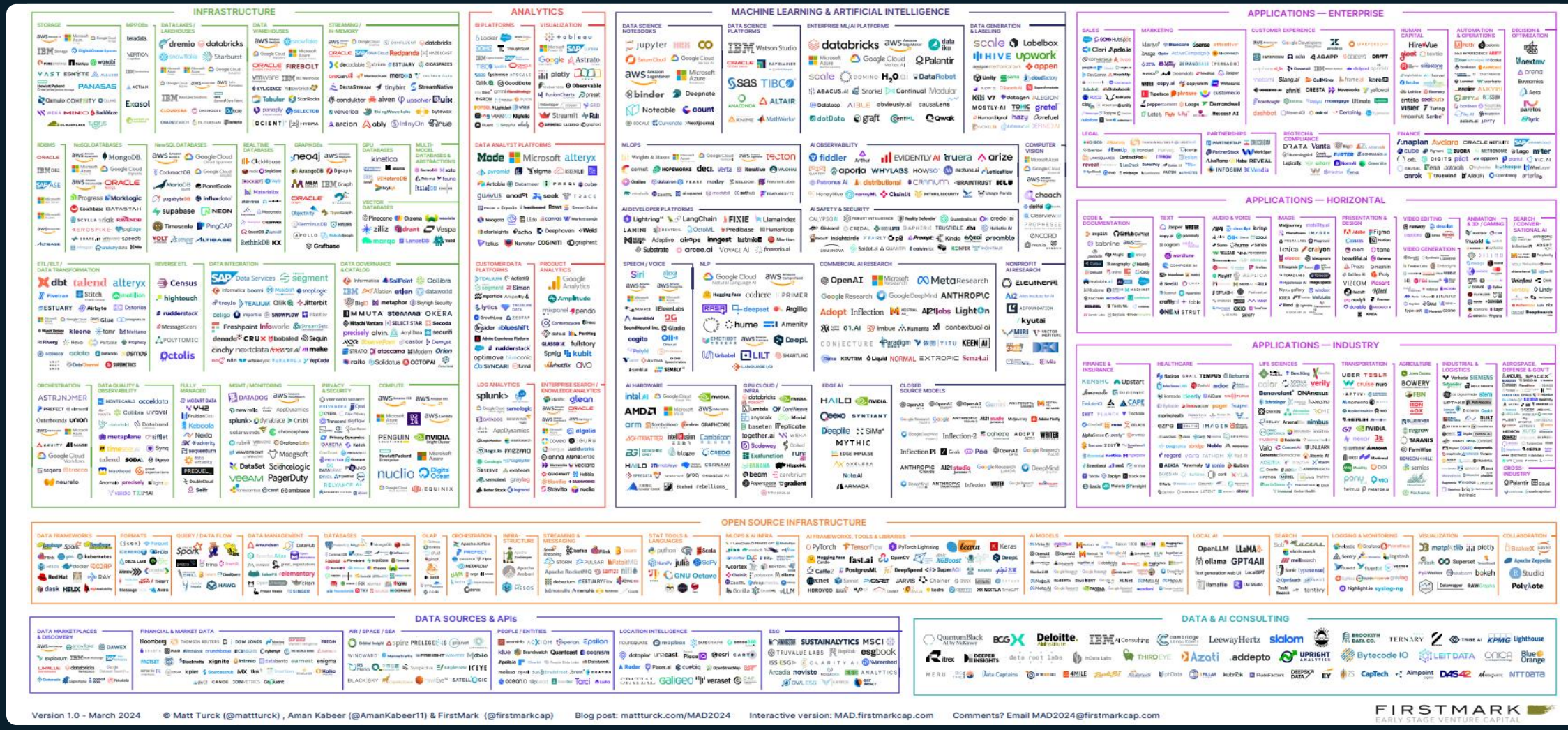
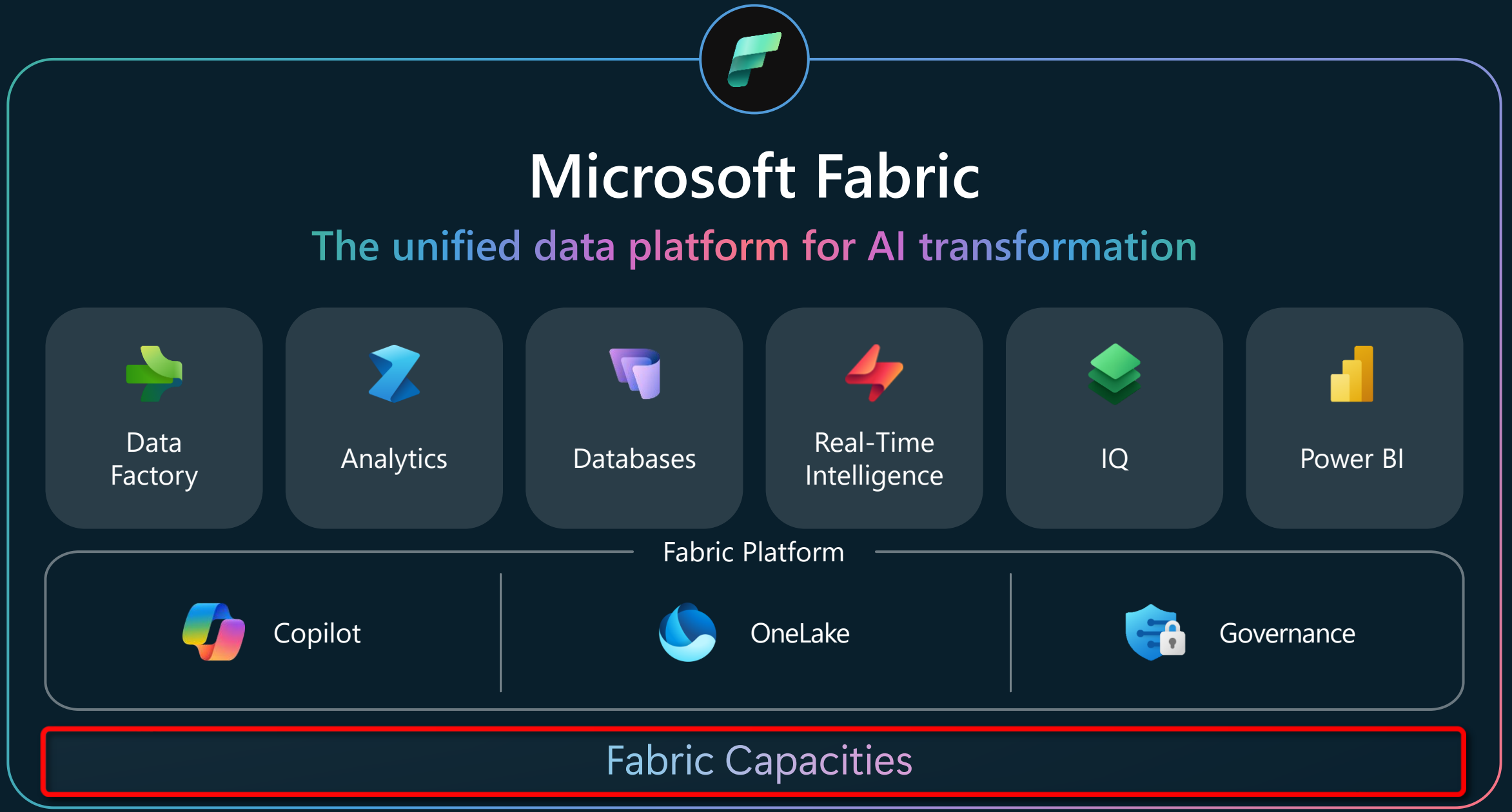
Introduction to Fabric

What do you prefer?

CIOs are accelerating their efforts to bring AI to their data estate

Customers enhancing their data estate face immense complexity




Microsoft Fabric
The unified data platform for AI transformation
Data Factory
Analytics
Databases
Real-Time Intelligence
IQ
Power BI
Fabric Platform
Copilot
OneLake
Governance
Fabric Capacities

Microsoft Fabric is a unified product for all your data and analytics workloads. Rather than provisioning and managing separate compute for each workload, with Microsoft Fabric, your bill is determined by two variables: the amount of compute you provision and the amount of storage you use.

COMPUTE

A shared pool of capacity that powers all capabilities in Microsoft Fabric.

Pay-as-you-go and 1-year Reservation.

STORAGE

A single place to store all data.

Pay-as-you-go ($ per GB/month).

Microsoft Fabric

The unified data platform for AI transformation

AI-powered data platform

Open and AI-ready data lake

AI-enabled business users

Microsoft Fabric

The unified data platform for AI transformation

AI-powered data platform

Complete data platform

Unified, SaaS-ified

Secured and governed

Open and AI-ready data lake

OneLake

Multi-cloud

Open at every tier

AI-enabled business users

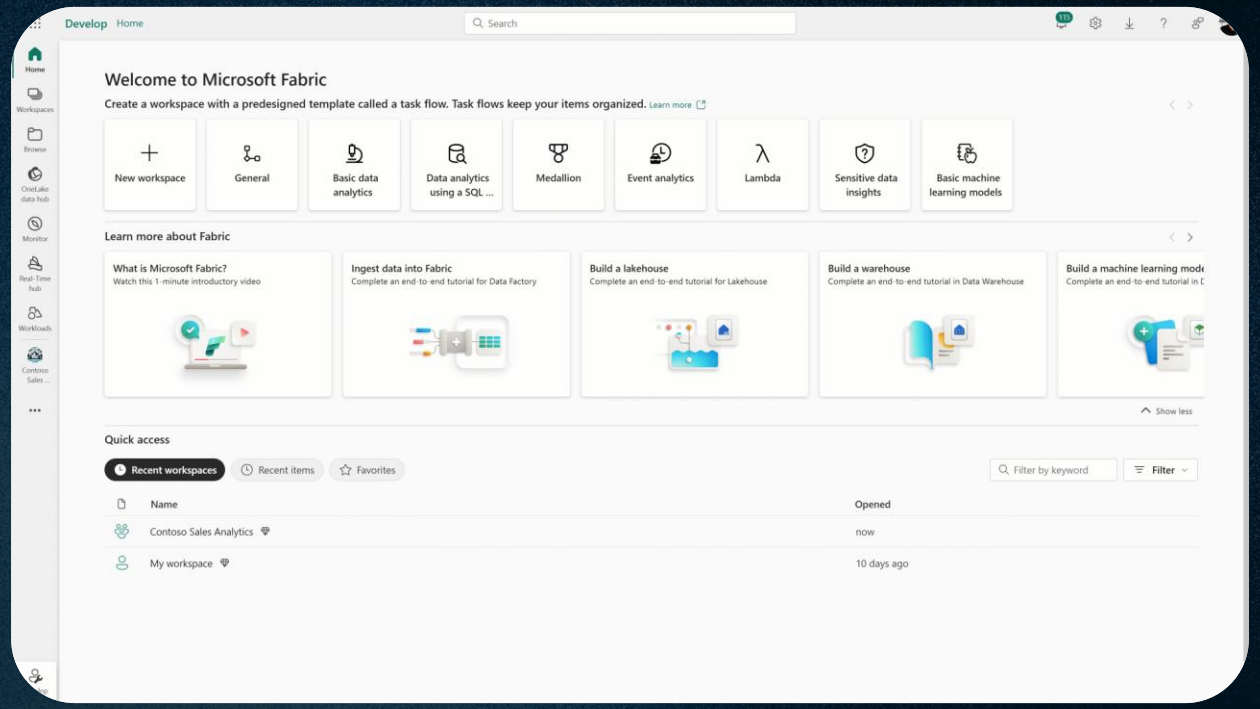
For every business user

Built into Microsoft 365

M365 Copilot Integrated

Unified project-centric development environment

Your one-stop shop for SQL, NoSQL, and analytics

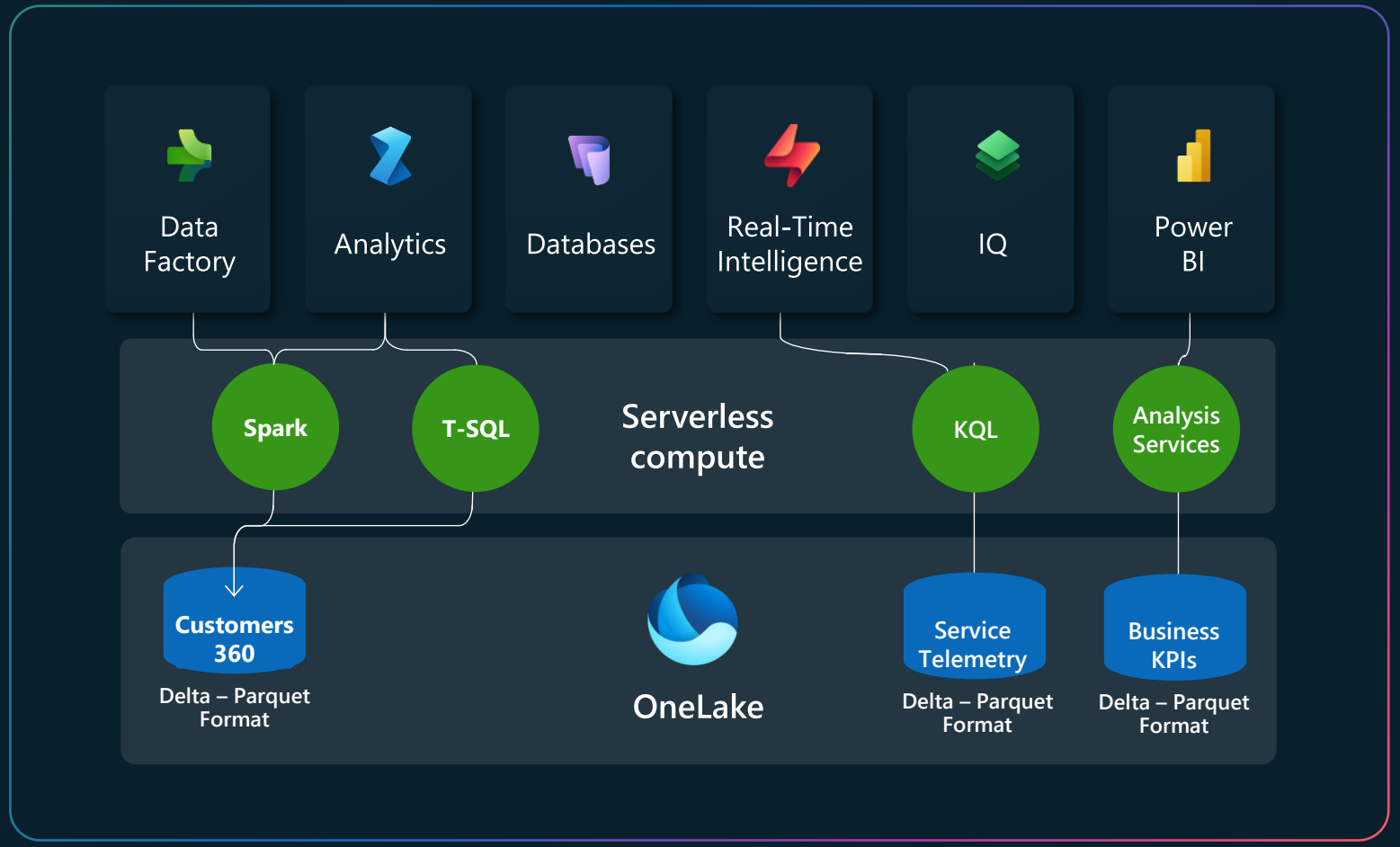


Unified experience with common project workspaces for end-to-end solutions

Fully integrated application lifecycle management streamlining development and operations

Copilot in every experience to boost productivity and uplevel skillsets

Serverless compute



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

Microsoft Fabric

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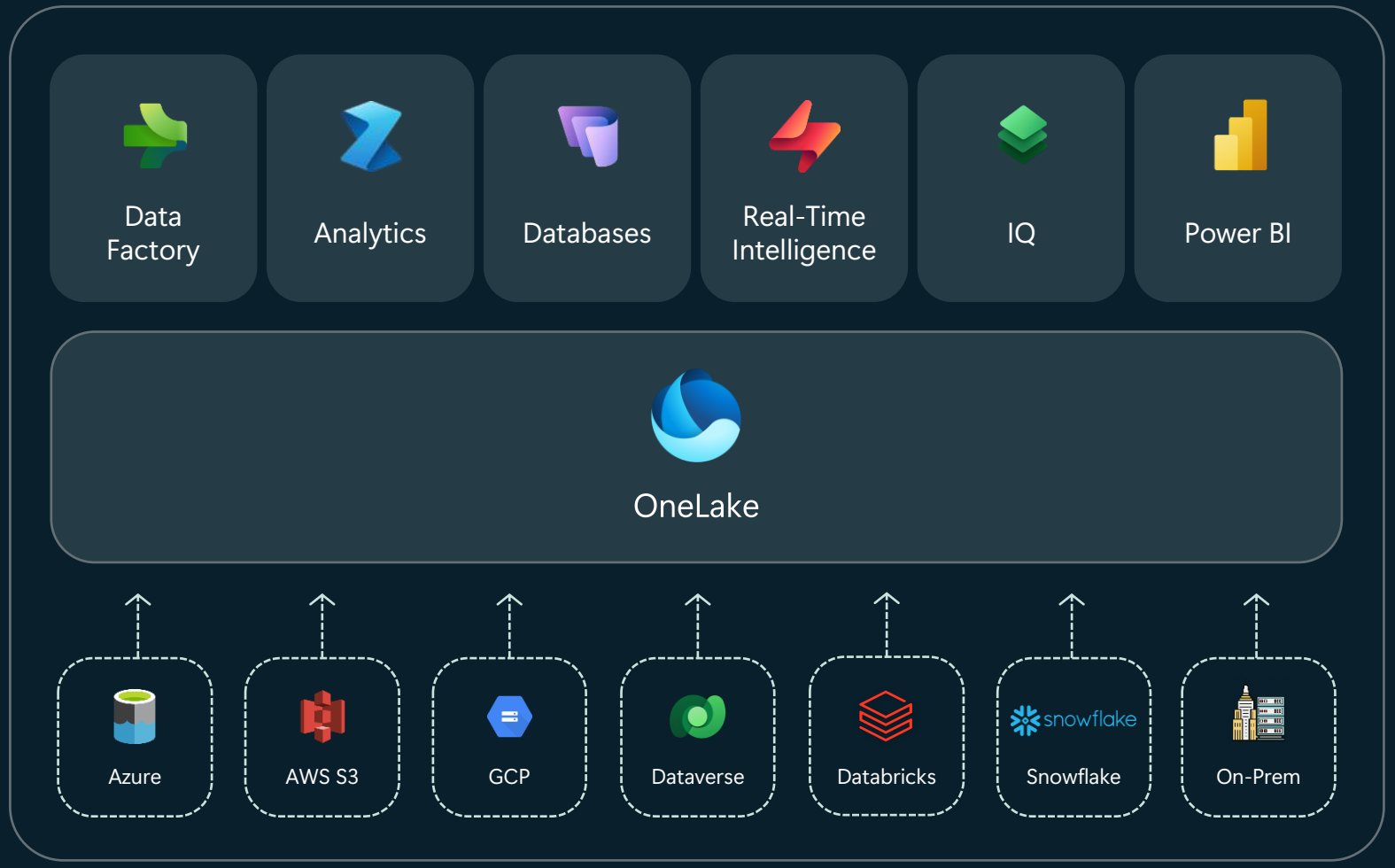
Unifying data in OneLake

Cross-cloud shortcuts and mirroring



First multi-cloud SaaS data lake

Shortcuts connect data across clouds and on-premises

Shortcuts are instantaneous: no data duplication or movement

Mirroring creates reflections of entire databases in OneLake

Mirroring is free

Unify data in OneLake with zero ETL

Shortcut and mirroring sources

Generally available

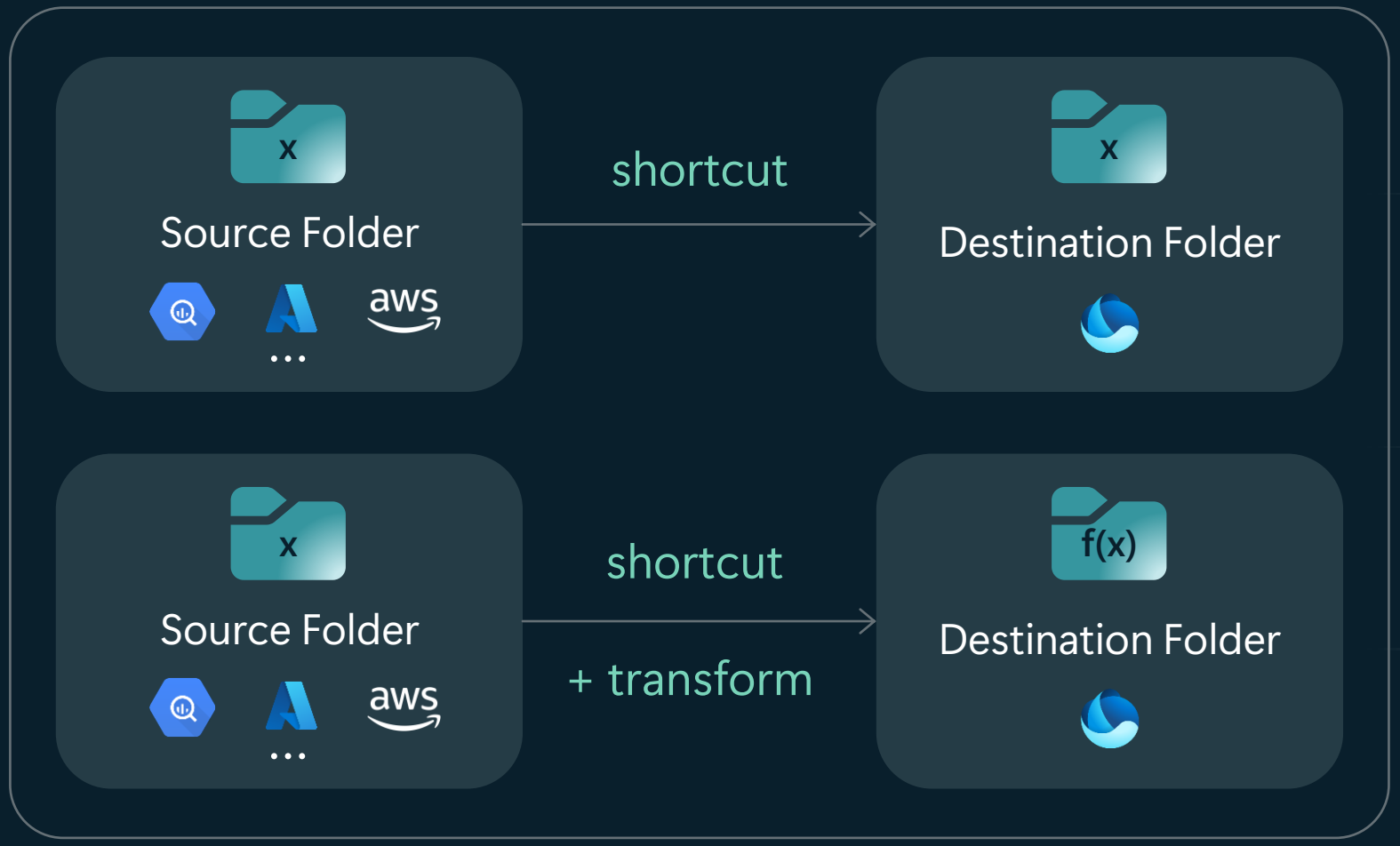
- Azure SQL DB
- Azure Data Lake Store
- Microsoft OneLake
- Google Cloud Storage
- Microsoft Dataverse
- Snowflake
- Amazon S3
- S3 Compatible (cloud/on-prem)
- Databricks Catalog
- Azure SQL MI (New)
- Azure Blob Storage (New)

Public preview

- Azure Cosmos DB
- Azure PostgreSQL
- Oracle DB (New)
- SQL Server
- Google BigQuery (New)
- SQL Server 2025

Shortcut transformations

Seamless enrichment with AI in OneLake



AI transformations built directly into OneLake

Extend easily by pointing to source folders and adding defined transformations

Right-click operations enabled on all folders across all clouds

Auto track changes in source and sync the destination

Microsoft Fabric

The unified data platform for AI transformation

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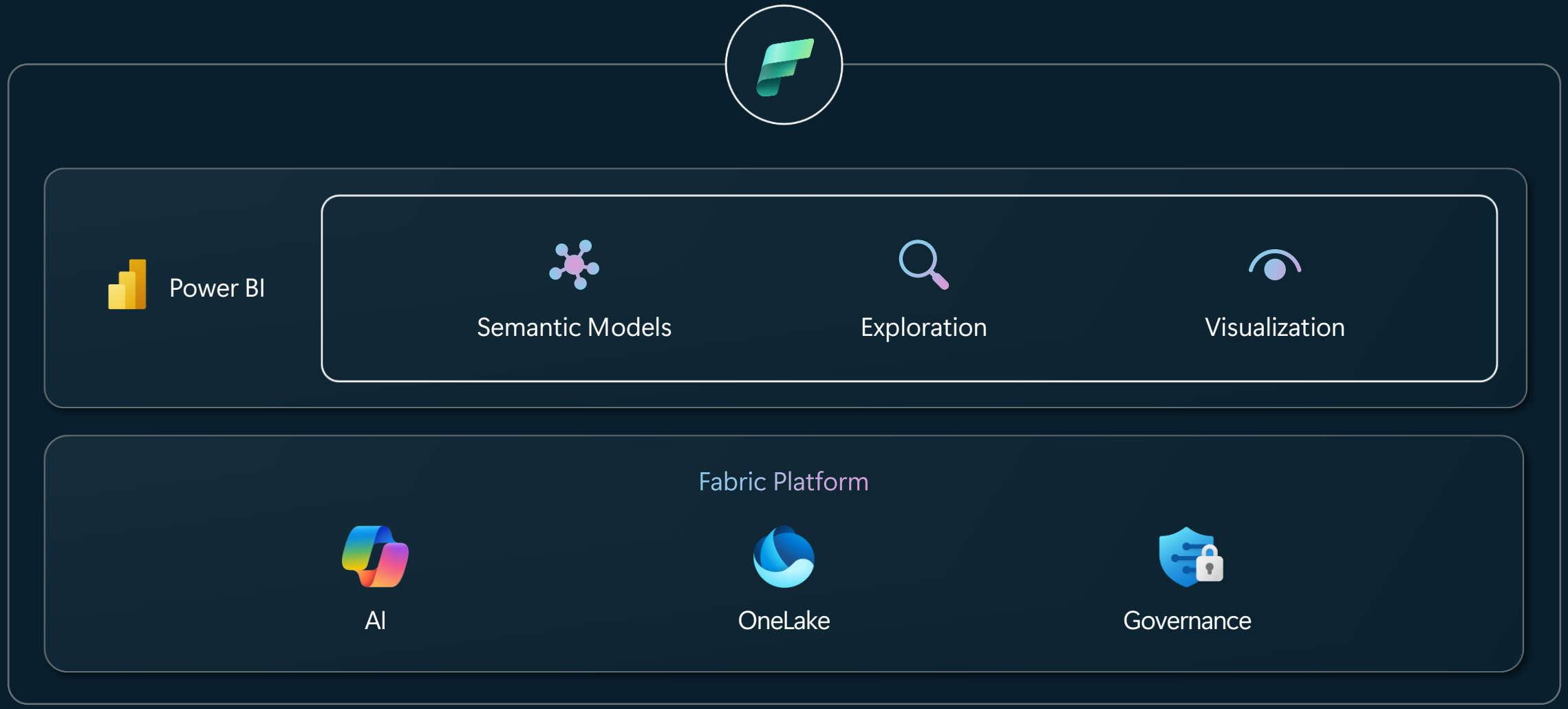
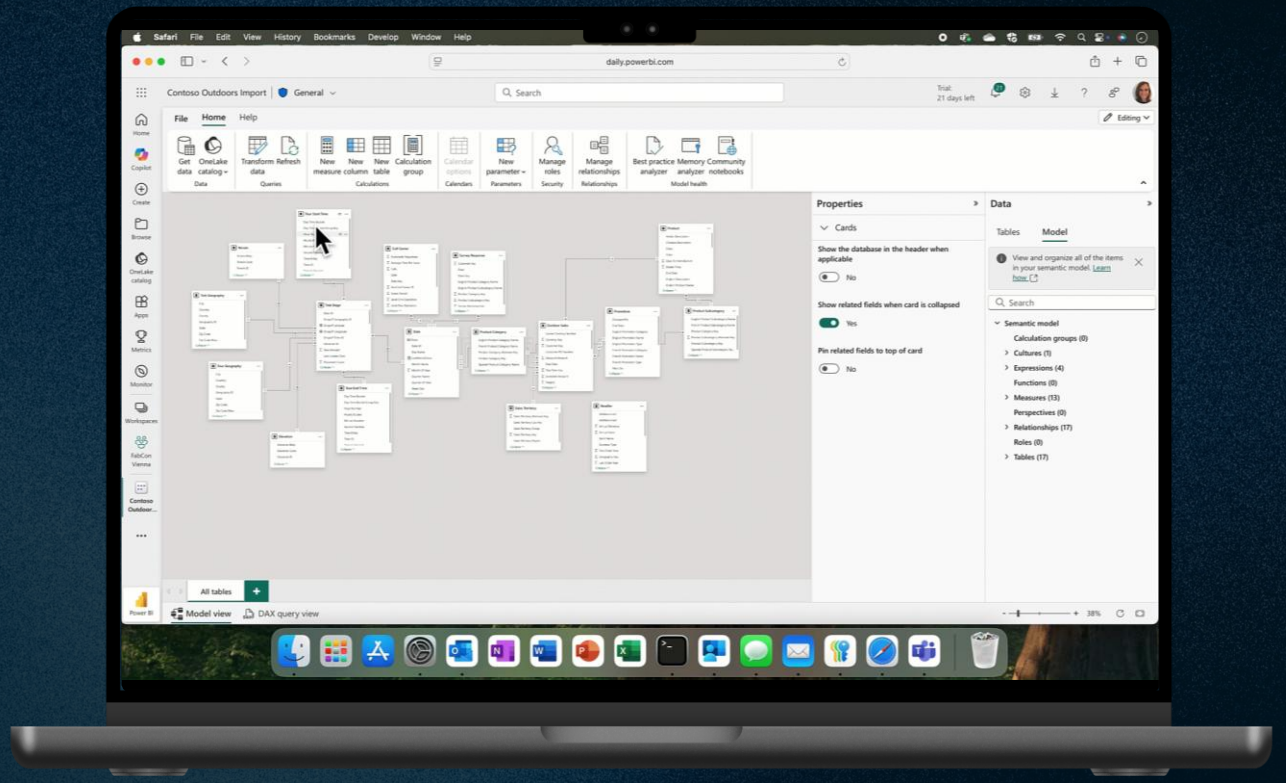


Web Modelling in Power BI

All the capabilities you know and love, now in your browser



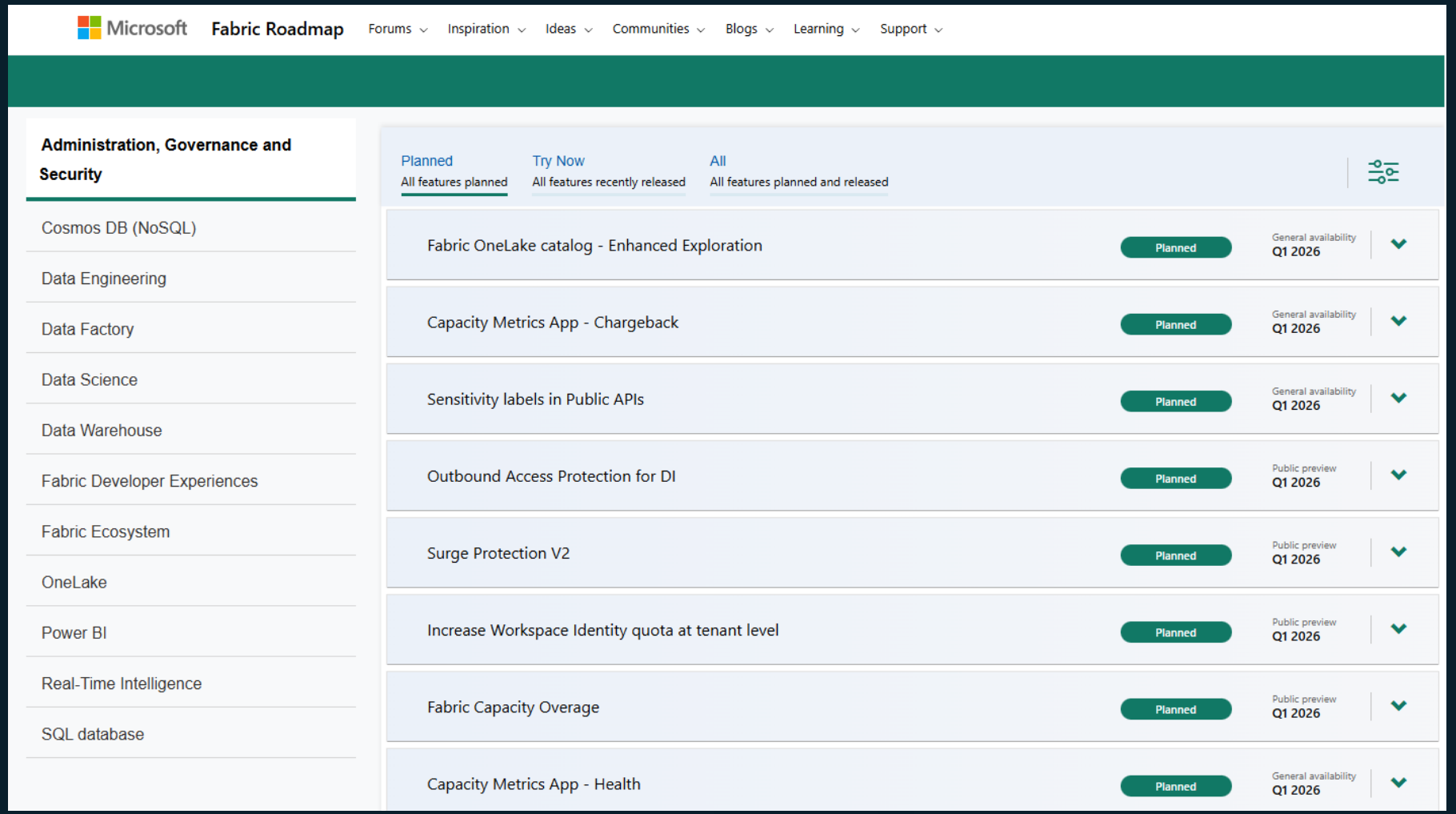
Create models and reports from your browser, Mac users included

Combine Direct Lake and Import modes for composite models

Power Query support for Fabric—plus 100s of other sources

Seamless integration with OneLake and all of Fabric

Fabric Roadmap



aka.ms/fabricroadmap

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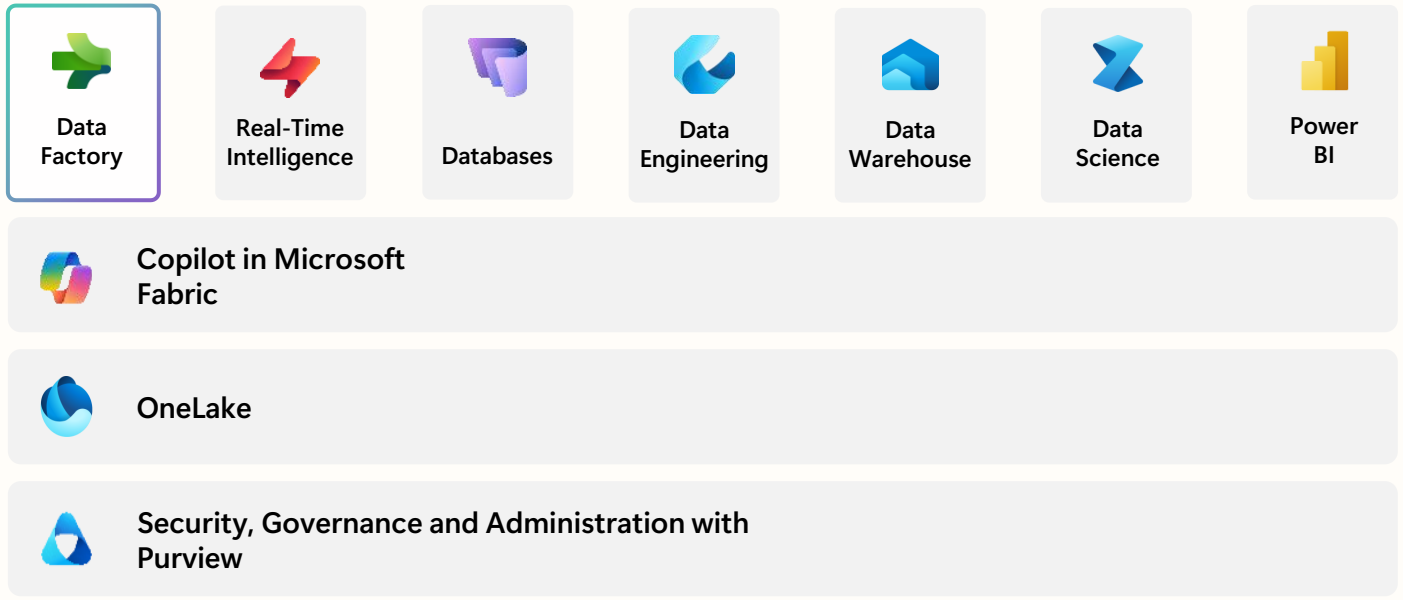
Workloads in Fabric

Data Factory workload

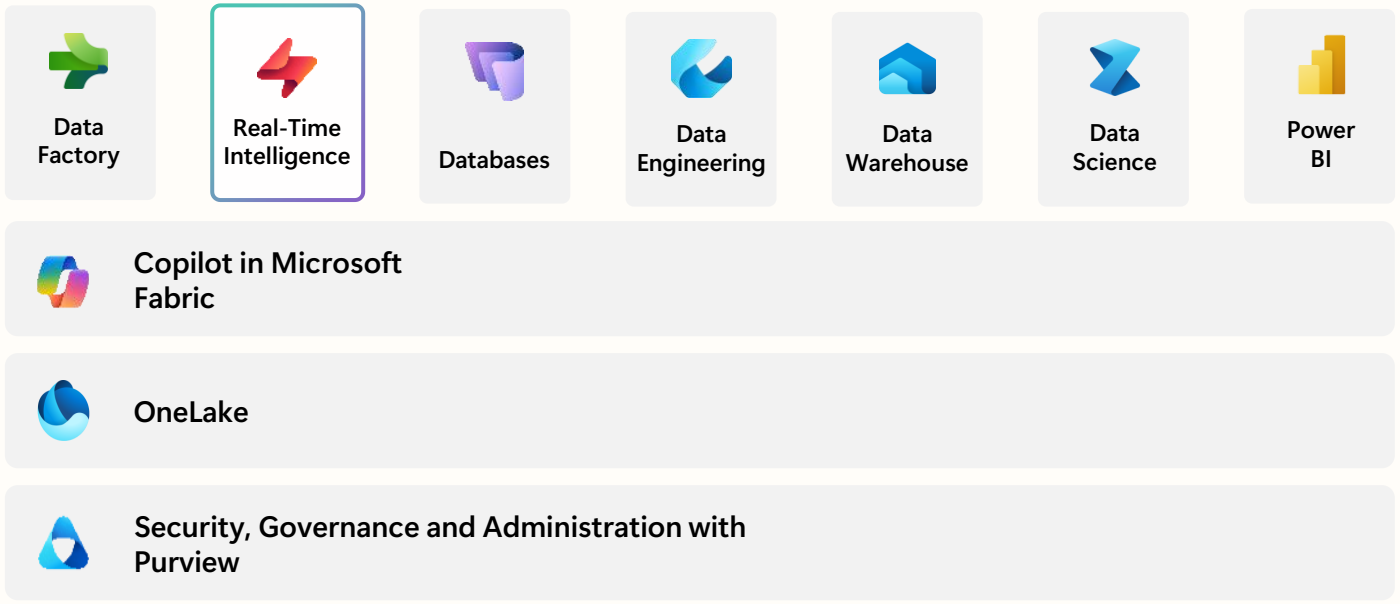
Dataflows and data pipelines bring together low-code, AI-based experiences, multi-cloud connectivity, and persistent data security and governance to help solve complex ETL scenarios for all developers



- 170+ native data source connectors
- 300+ data transformations in dataflows designer to transform data more easily
- Cloud-scale data movement with Data Factory
- Low-code interface for ingesting data from hundreds of data sources using Dataflows Gen2
- Out-of-the-box rich data orchestration capabilities to compose flexible workflows
- Powerful, enterprise-grade Data Factory workload with the best of ADF and Power Query together

Real-Time Intelligence workload

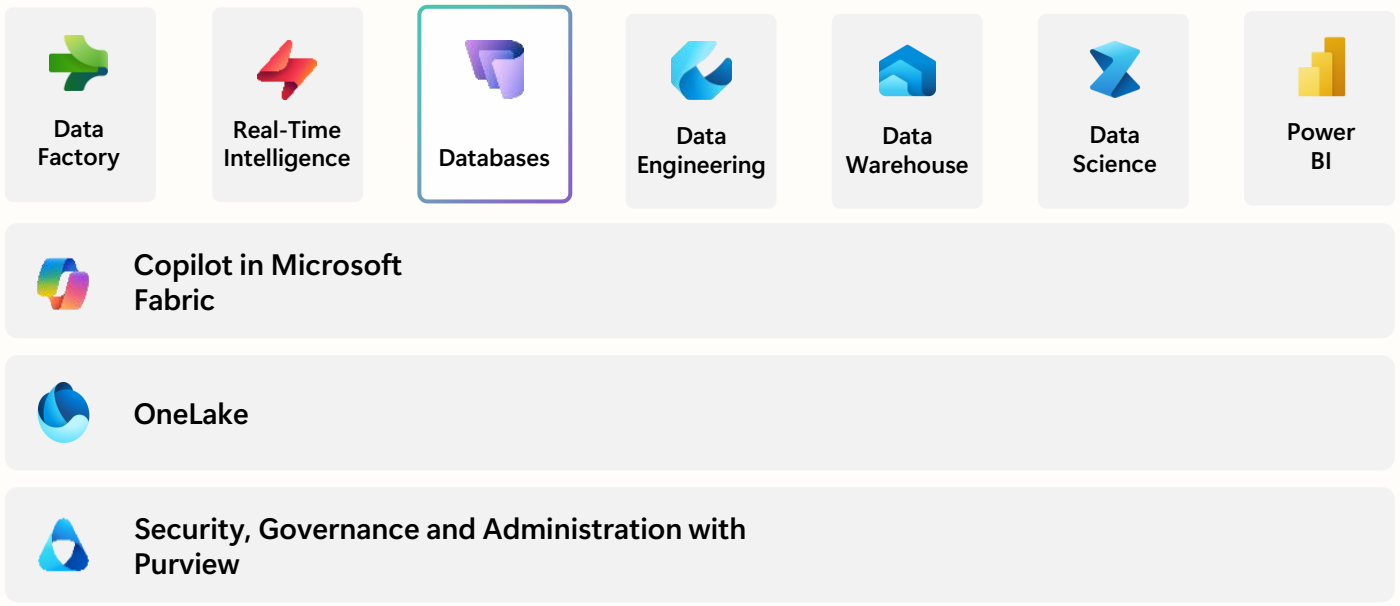
Explore data and turn insights into actions by performing real-time analysis across telemetry data to better predict, optimize, and improve data applications



- Ingest, transform, query, visualize, and act on data in real time.
- Simple ingestion, curation and processing of streaming data in the Real-Time Hub, a single data estate for data in motion.
- No-, low-, and pro-code experiences for everything from business insight discovery to complex stream processing.
- Create triggers on changing data to act automatically when conditions are met.
- Streamline analysis of event streaming data with Copilot in Fabric.

Databases workload

Unite transactional, analytical, and AI workloads with Fabric Databases to streamline AI application development and build reliable, highly scalable applications and unlock AI transformation



- Leverage a SQL database where cloud authentication and encryption are on by default
- Increase analytical agility, design tables, view and edit data, and create T-SQL queries with our Copilot support
- Spend less time planning for spiky workloads with serverless, auto-scaled compute and storage
- Get fast and consistent app performance with resource optimization and intelligent auto-indexing
- Use chat-based natural language to SQL queries and database administration

Microsoft Fabric

The unified data platform for the AI Frontier

Databases

SQL database GA

Cosmos DB GA

Fabric Platform

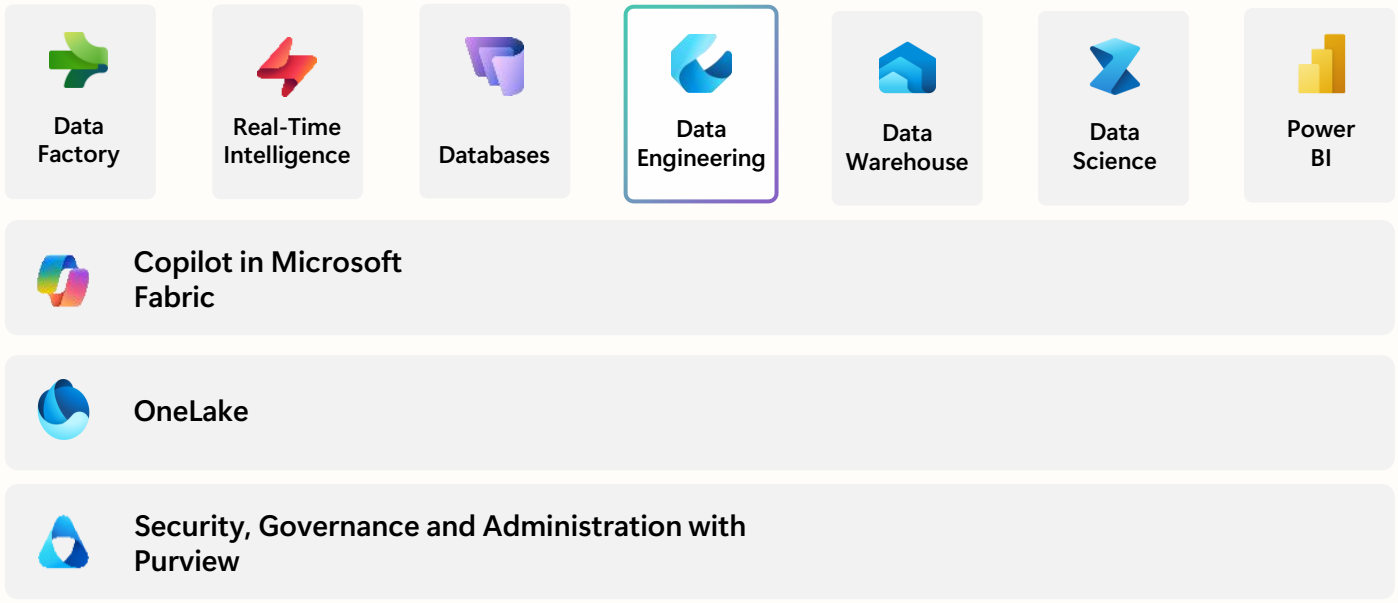
Copilot

OneLake

Governance

Data Engineering workload

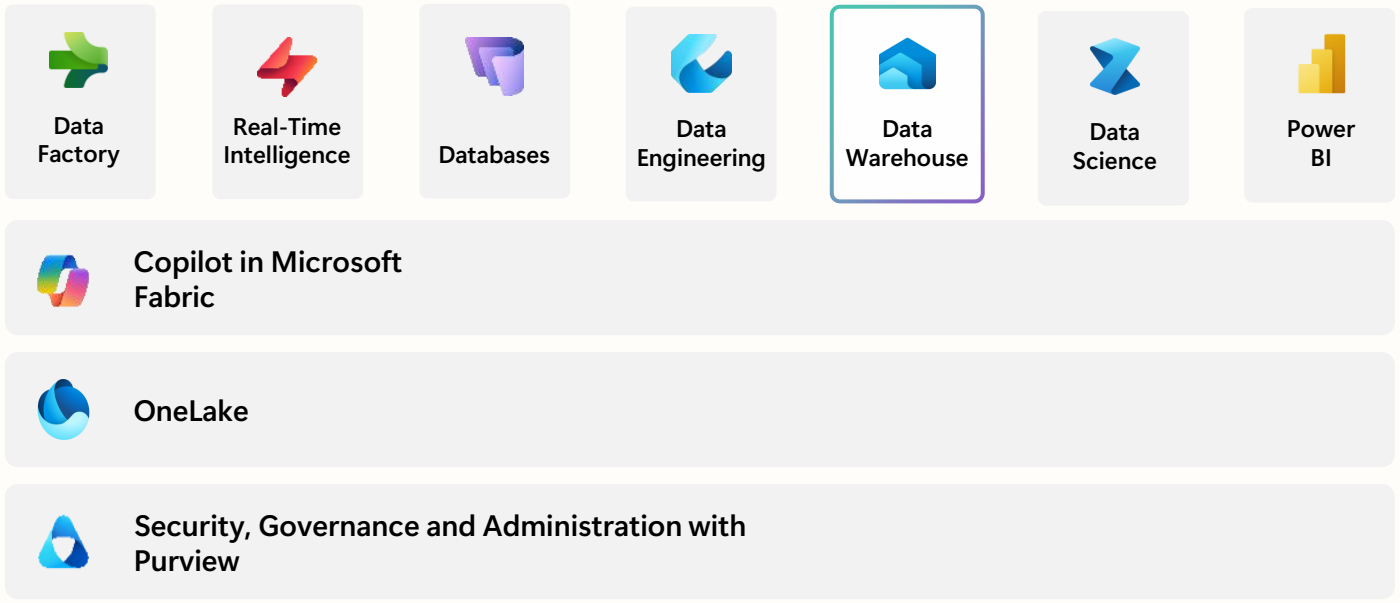
Build your data estate and empower data engineers with a world-class Spark platform, fully integrated with Data Factory, to transform and maintain infrastructures at scale



- Pro and low-code authoring experience
- Schedule and orchestrate data transformations with notebooks and Spark jobs
- Use notebooks to write code for data ingestion, preparation, and transformation
- Launch clusters on demand and dynamically scale in, scale out, pause, and resume
- Perform code-free interactive data exploration and add to your data pipeline

Data Warehouse workload

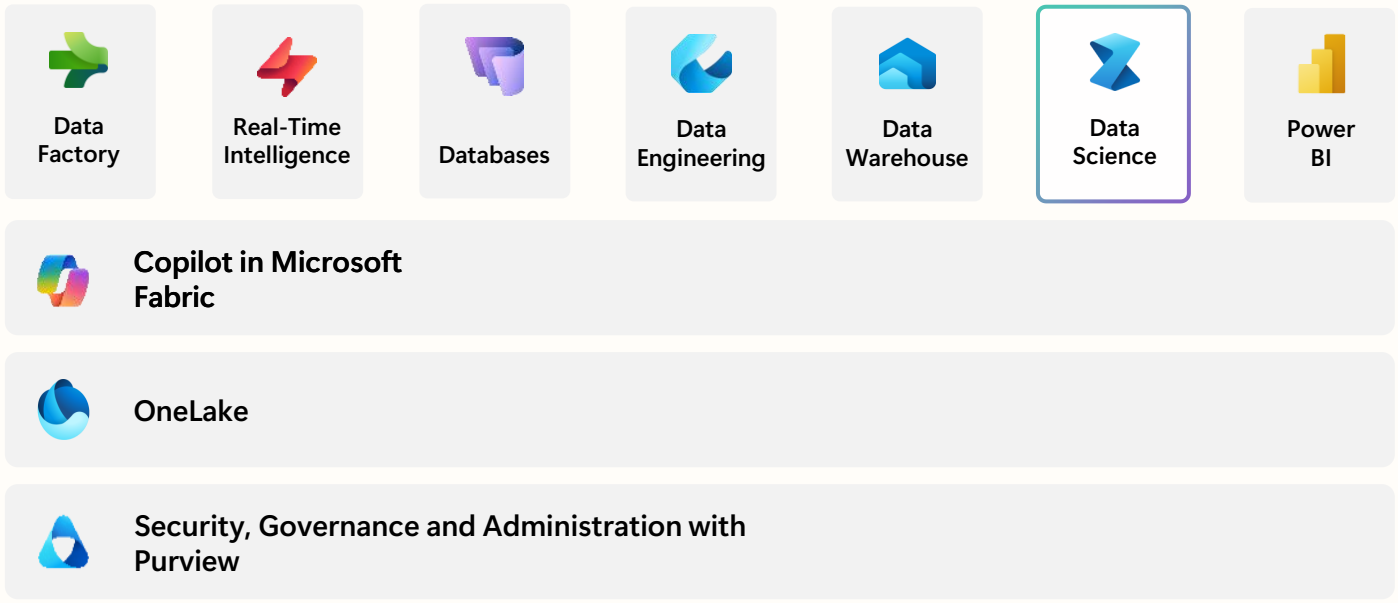
Achieve data platform goals with ease and cost efficiency, while empowering your developers and engineers of any skill level with accelerated reporting and insights



- Industry-leading SQL performance and scale
- Fully separate compute storage that can independently scale
- Natively store data in open Parquet/Delta Lake
- TLS 1.2 encryption protects connections for granular security across data platform
- Cross-database querying for fast insights and zero data duplication

Data Science workload

Build, deploy, and operationalize sophisticated AI and ML models with speed and at scale from your Lakehouse



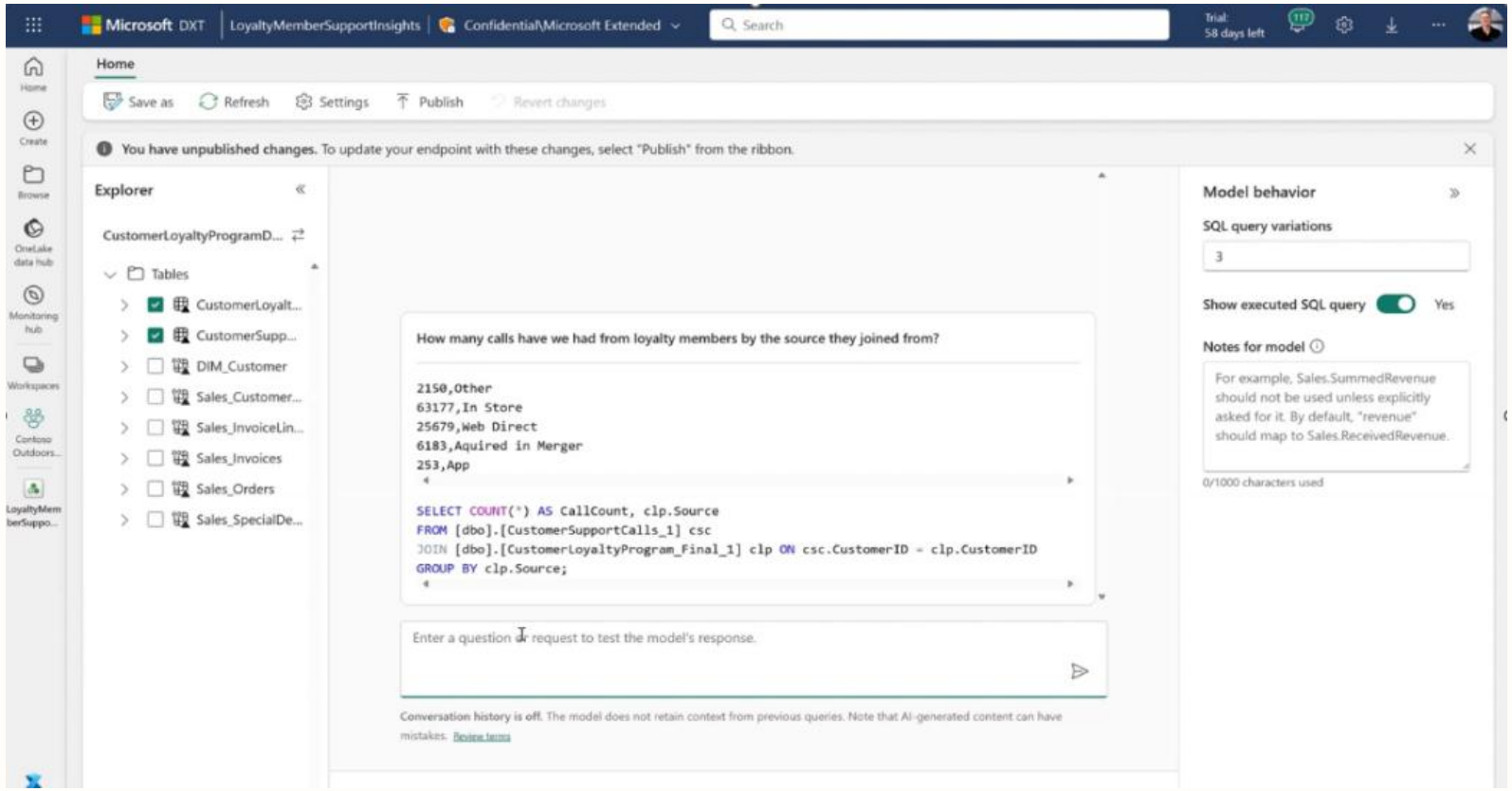
- Access data from multiple sources and store data and insights in Lakehouse(s)
- Leverage data science capabilities for model prediction at scale
- Perform exploration, experimentation, modeling, featurization and serving of predictive insights by leveraging built-in experiences, including AI functions
- Collaborate with others via Notebook, Power BI, and Lakehouses in real-time
- Use Data Agents to curate and configure a 'data expert' on data domains, influencing the behavior of conversational Q&A systems on Fabric using GenAI

Use Generative AI on your data with Fabric Data Agents

Deliver custom generative AI experiences for your data

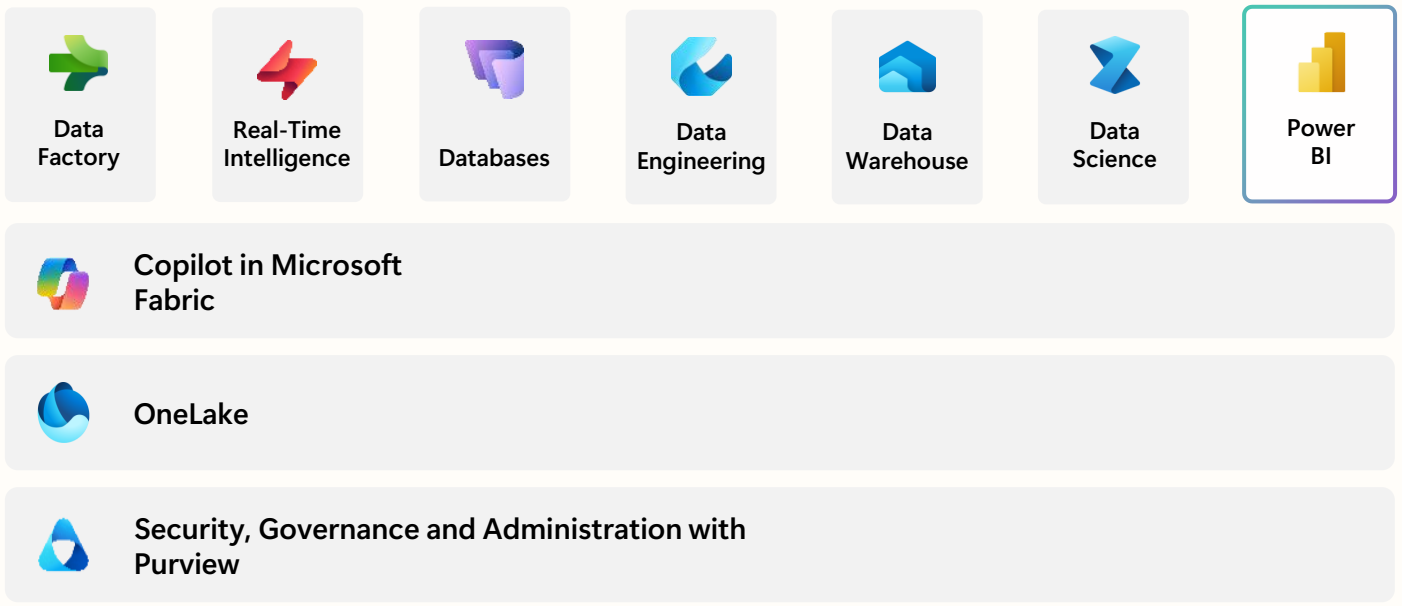
Key capabilities:

- Enable custom conversational Q&A on your data in Fabric
- Define custom business semantics and grounding unique to your organization
- Support multiple data sources (lakehouse and warehouse tables, mirrored DB and shortcut data, Semantic models, Eventhouse KQL DB)
- Scale the custom experiences to Agent Service from Azure AI Foundry and Copilot Studio



Power BI workload

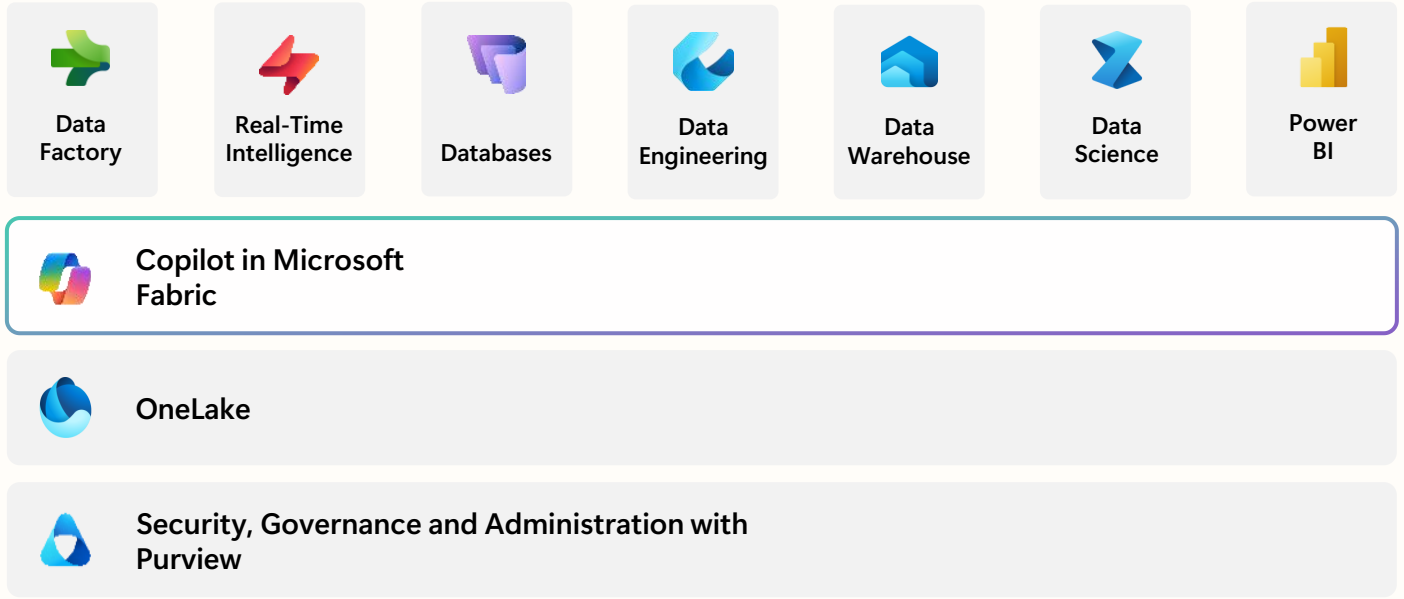
Uncover powerful insights with intelligence visuals, leverage data quickly and intuitively, and help achieve faster and better, data-based decisions with the industry-leading Power BI platform



- Easy-to-use drag and drop canvas and visualizations for insightful and engaging report-building in seconds
- Native Integration with Microsoft 365
- Built-in AI capabilities and visuals illuminate hidden patterns, opportunities and anomalies with the click of a button
- Connect to, index, and certify datasets in the Power BI data hub
- Build governed databases, like data models or data marts, in a trusted and secure hub

Copilot in Microsoft Fabric

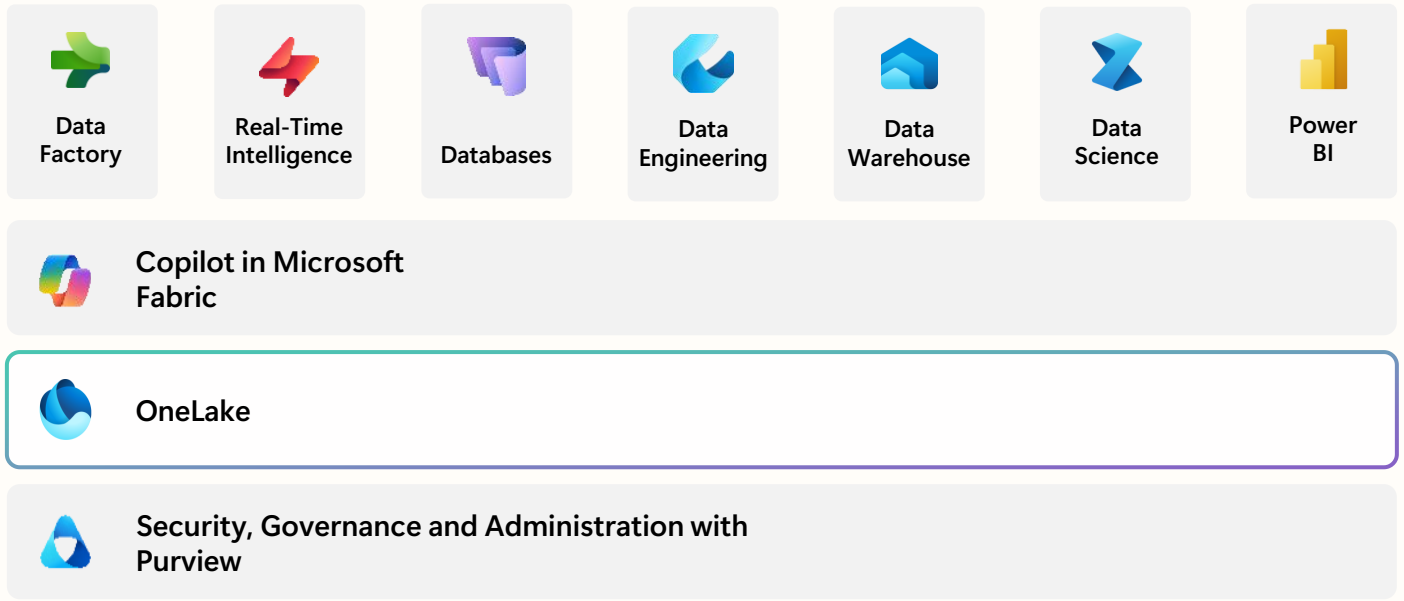
Use conversational language with Copilot in Fabric to create dataflows and pipelines, write SQL statements, build reports, and even build machine learning models



- Chat with AI assistant and request help handling data analysis
- Code more efficiently with intelligent code completion and generated code explanations
- More quickly enrich, model, analyze, and explore data all through natural languages
- Create Power BI reports automatically and summarize your insights for streamlined productivity
- Access industry-standard code templates to facilitate building robust data pipelines

Unified data foundation with OneLake

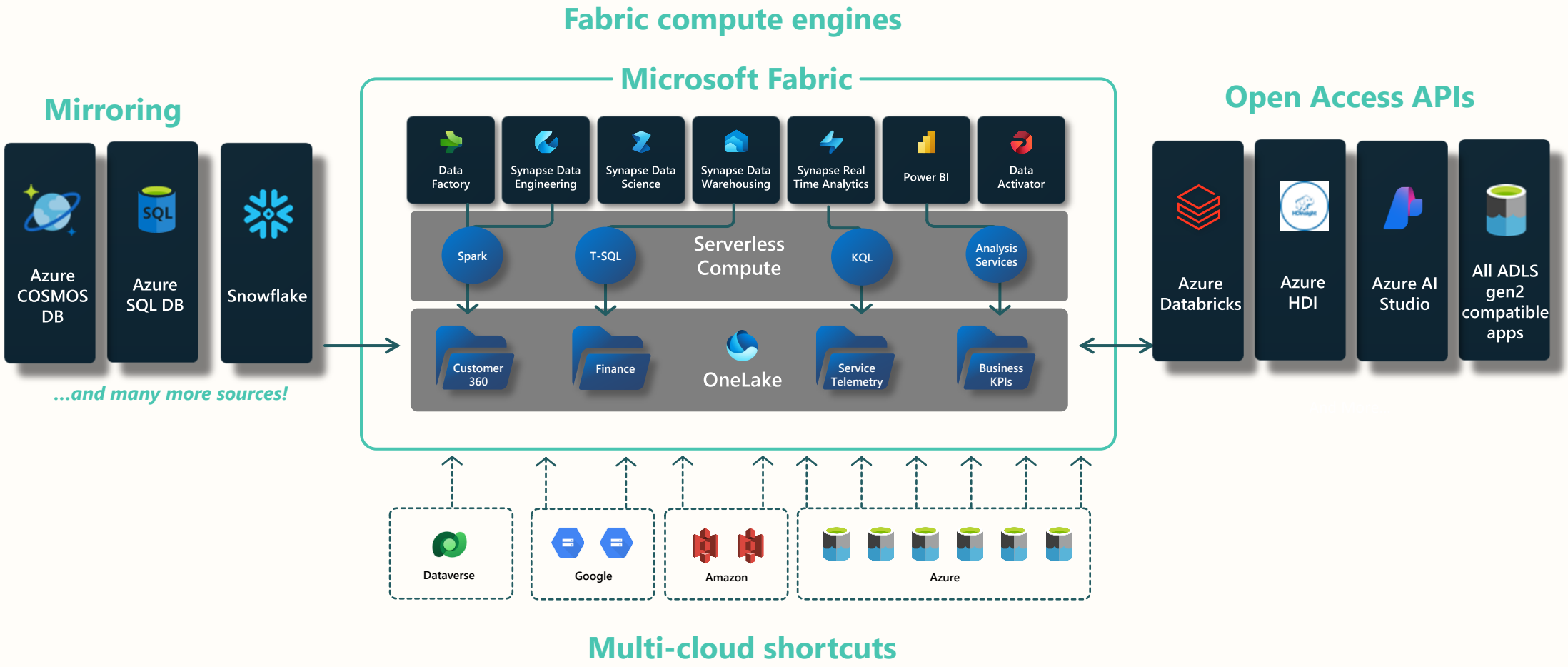
Manage and analyze all your data across your organization in a unified, secure, and centralized SaaS data lake for everyone with OneLake—the "OneDrive" for data



- A single and open, logical SaaS lake for the whole organization
- OneLake supports any type of file, structured or unstructured
- One copy of data for use with multiple analytical engines
- Enable virtualization of data without duplication using shortcuts
- All workloads automatically store their data in OneLake in Delta Parquet format
- Data in OneLake is automatically indexed for discovery, sharing, governance, and compliance

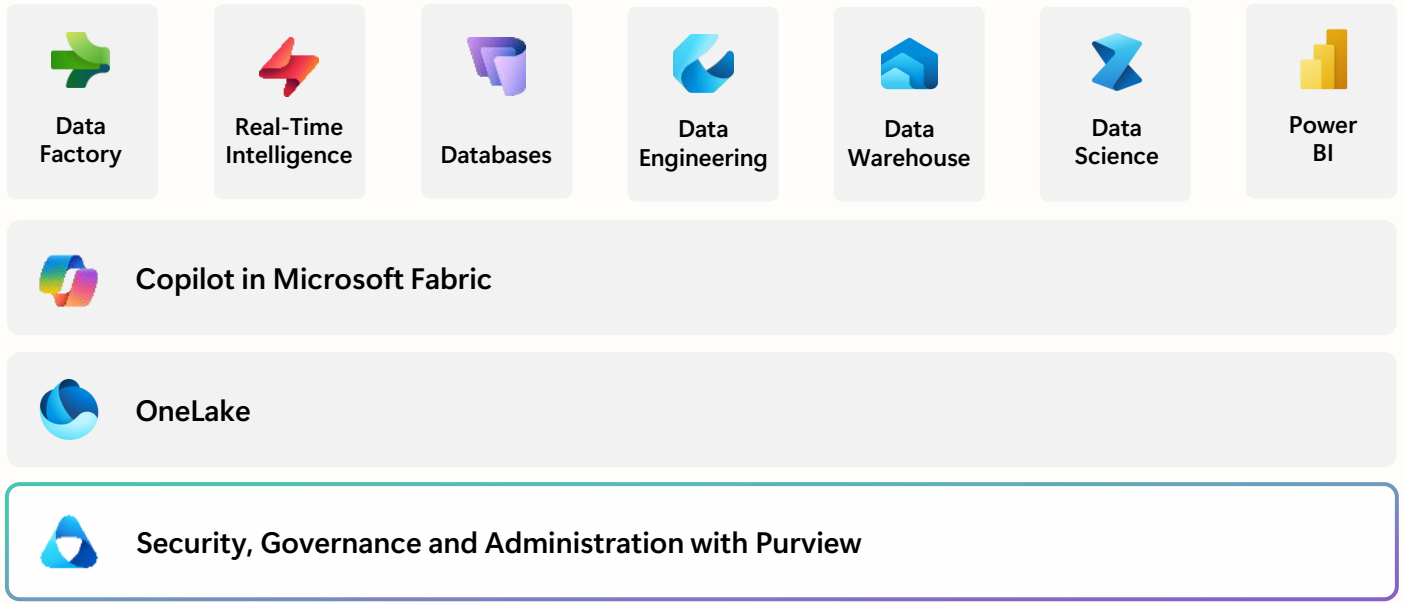
Unifying databases and data warehouses in OneLake

Creating Data Gravity in OneLake



Security, Governance and Admin in Microsoft Fabric

Manage, secure, and govern all your data in Microsoft Fabric and beyond



- Reduce the effort needed to defend and control your entire analytics platform with out-of-the-box security and governance
- Secure your network from any intrusion, ensure only the right people have access to the right data, and maintain compliance with even the strictest requirements
- Enable different parts of the organization to take ownership of their data while still contributing to the same data lake
- Certify datasets to promote usage of the most accurate data across the organization
- Maintain the flexibility to use the partner and third-party solutions you want

Security, Governance and Admin

- Tenant administration
  - Admin role required, e.g. Fabric Admin
  - Access to Admin Portal
- Tenant settings
  - Configure what you can do in your tenant
- Access control
  - Entra ID
- Compliance settings
  - Purview integration (sensitivity labels, DLP etc.)
  - Region for capacity

Security, Governance and Admin

- Navigation and usability
  - Tags, Domains, Endorsements, “Get Help”
- Monitoring tenant
  - Admin monitoring workspace
  - OneLake catalog, Govern & Secure tabs

Tenant and workspace-level security in Fabric

Tenant-level security

Microsoft Entra

Azure Private Links

Secure by default

Workspace-level security

Outbound trusted workspace access

Generally available

Azure private links

Generally available

Outbound access protection

Generally available

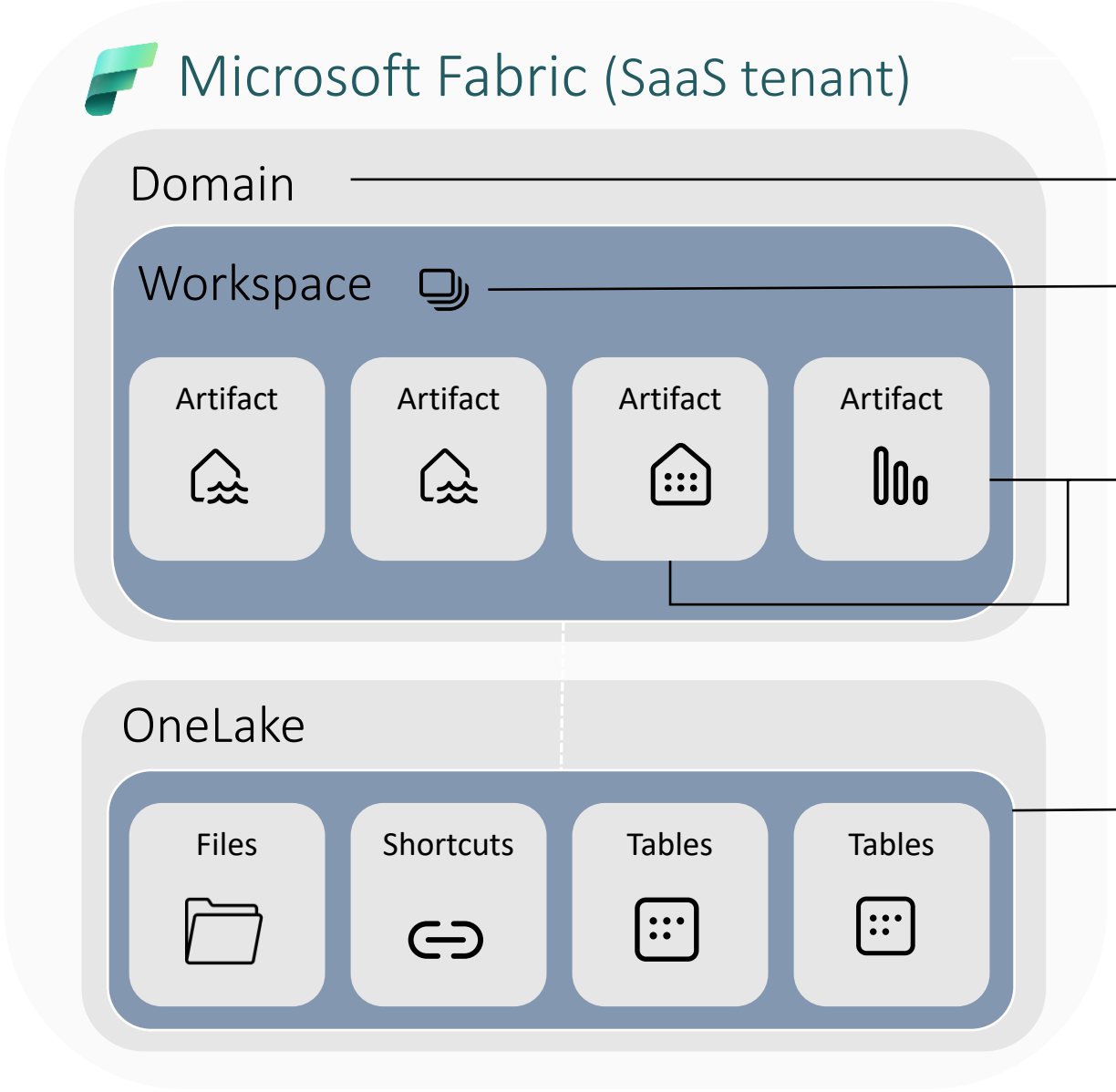
Customer managed keys in OneLake

Generally available

Workspace IP filtering

Planned for CY26

Multiple layers of security and access control



Platform level access. Authentication through Entra ID. Inbound through Private Link or Conditional access

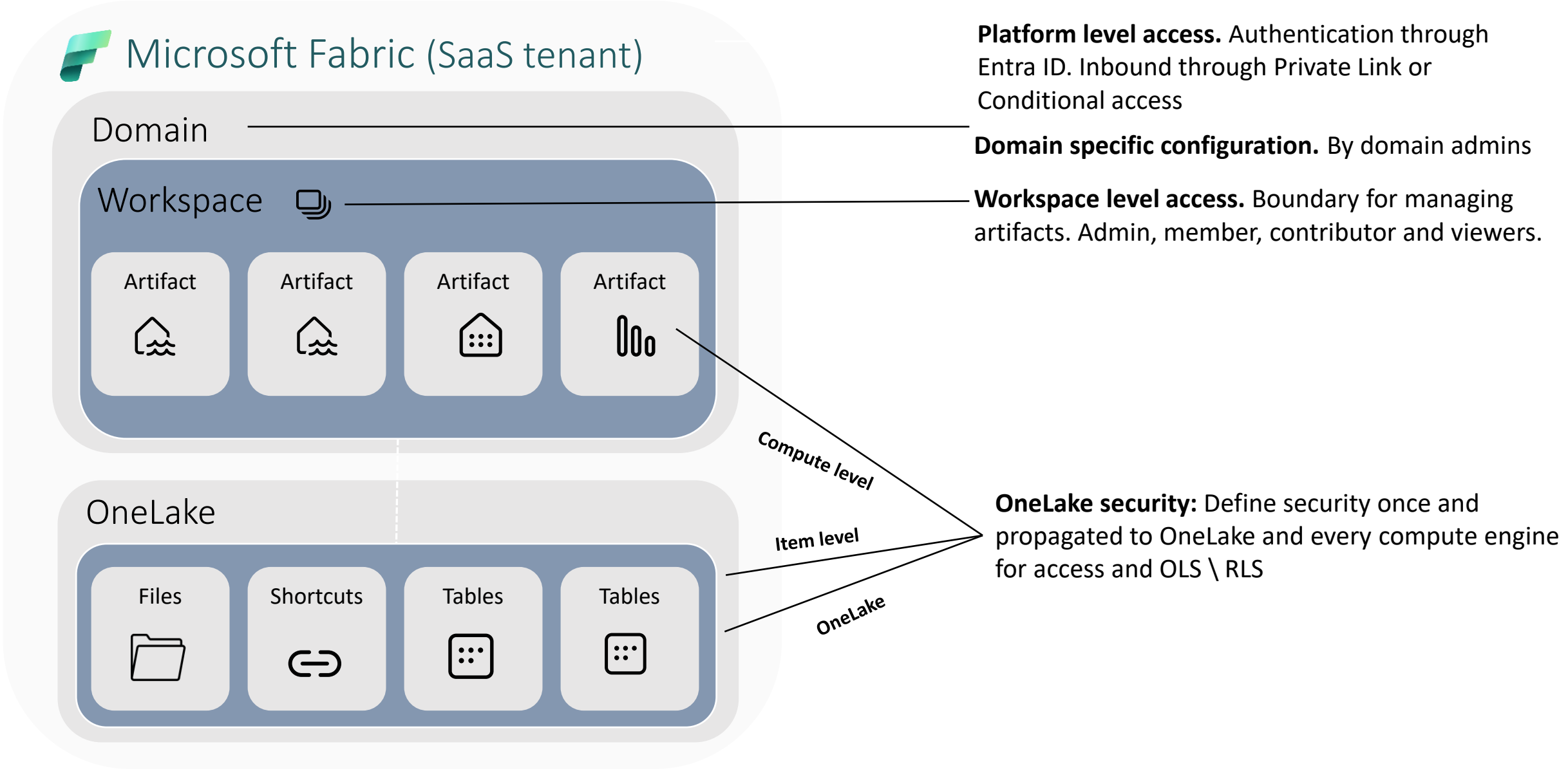
Domain specific configuration. By domain admins

Workspace level access. Boundary for managing artifacts. Admin, member, contributor and viewers.

Compute security. e.g. Warehouse access through GRANT/DENY or Semantic Models & Warehouse RLS/OLS.

Item level access. e.g. read all only via OneLake or read access to only subset of data.
More granular roles for files and folders.

OneLake security (Preview)



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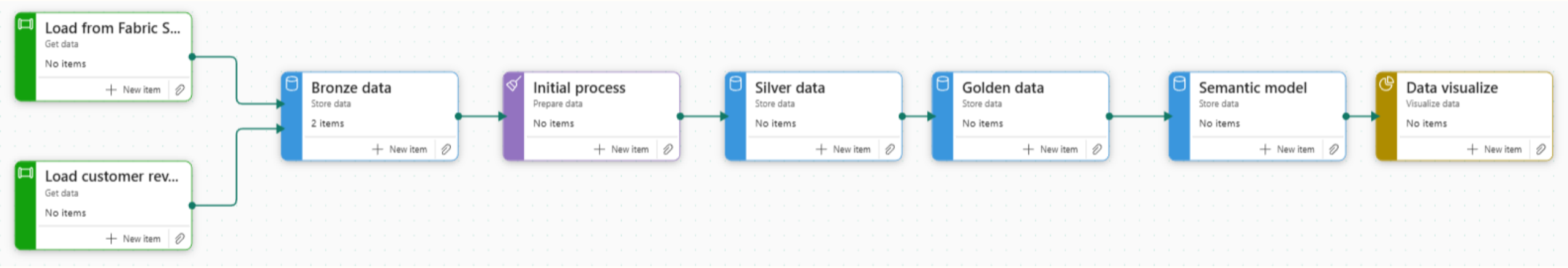
Labs

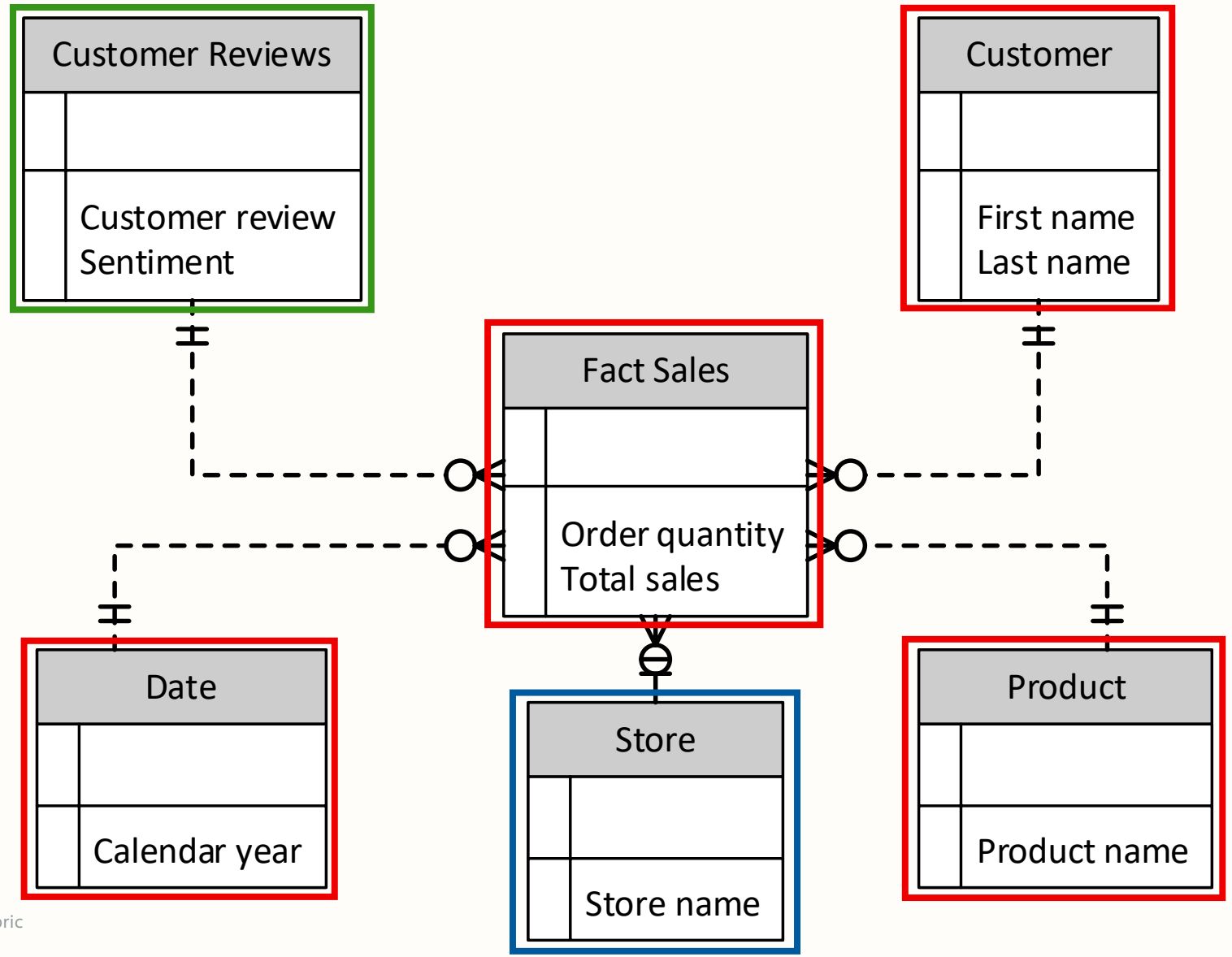
Lab outline


Load from Fabric S...
Get data
No items
New item
Load customer rev...
Get data
No items
New item
Bronze data
Store data
2 items
New item
Initial process
Prepare data
No items
New item
Silver data
Store data
No items
New item
Golden data
Store data
No items
New item
Semantic model
Store data
No items
New item
Data visualize
Visualize data
No items
New item

Lab outline

- Sources:
  - **Fabric SQL database** with sales data and dimensions
  - **Excel** with customer reviews
  - **CSV** with store dimension
- Structure content using Task flows
- Load data to Lakehouses and Warehouse in a medallion architecture
- Reuse existing Power Query code
- Create sentiment score of customer reviews
- Create semantic model and Power BI report

Lab data model



Fabric SQL database

Excel file

CSV file

Labs

- Lab 0. Access to tenant
- Lab 1. Setup. Create workspace, setup task flow and lakehouse
- Lab 2. Get data from Fabric SQL db, load to bronze lakehouse
- Lab 3. Get data from Excel, load to bronze lakehouse
- Lab 3b. Reuse existing Power Query, load to bronze lakehouse
- Lab 4. Analyze customer reviews, load to bronze and silver lakehouse
- Lab 5. Create warehouse, load to gold warehouse
- Lab 6. Create semantic model and report

Labs

https://aka.ms/DynUG