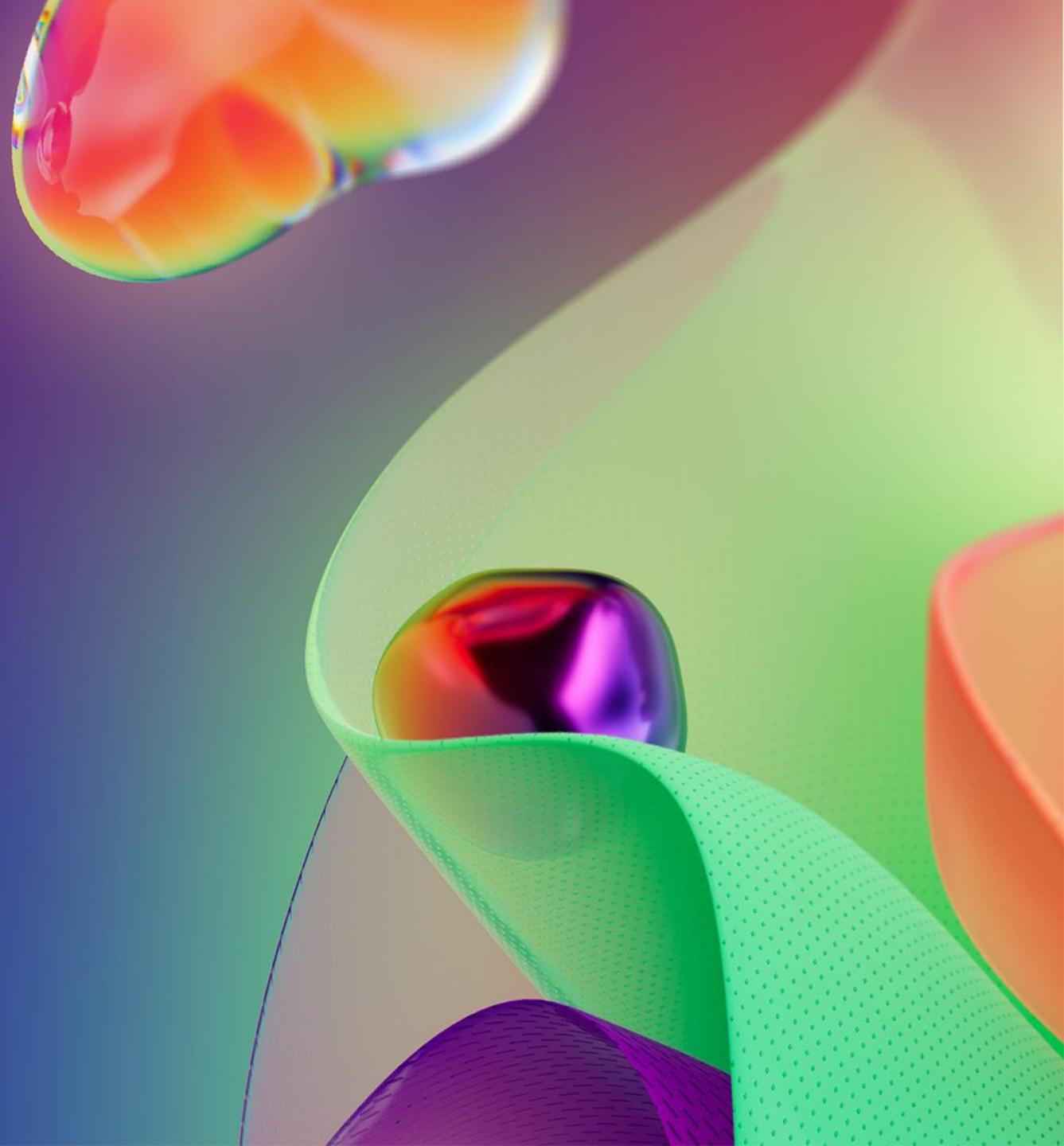




Microsoft Build





Analytics in the Era of AI

João Salvado
Data & AI technical specialist

Today's data value creation challenges



Limited scalability of legacy solutions as data demand rises exponentially



Balancing the need for data access and self-service analytics while remaining governed



Breaking down data siloes across the organization into a unified source of truth

Delivering on the promise of analytics with limited resources

Microsoft Analytics Portfolio



Data Factory



Synapse DW



Purview



Event Hub



Data Explorer



Azure AI



Power BI



Synapse Spark



Azure Databricks

420K+

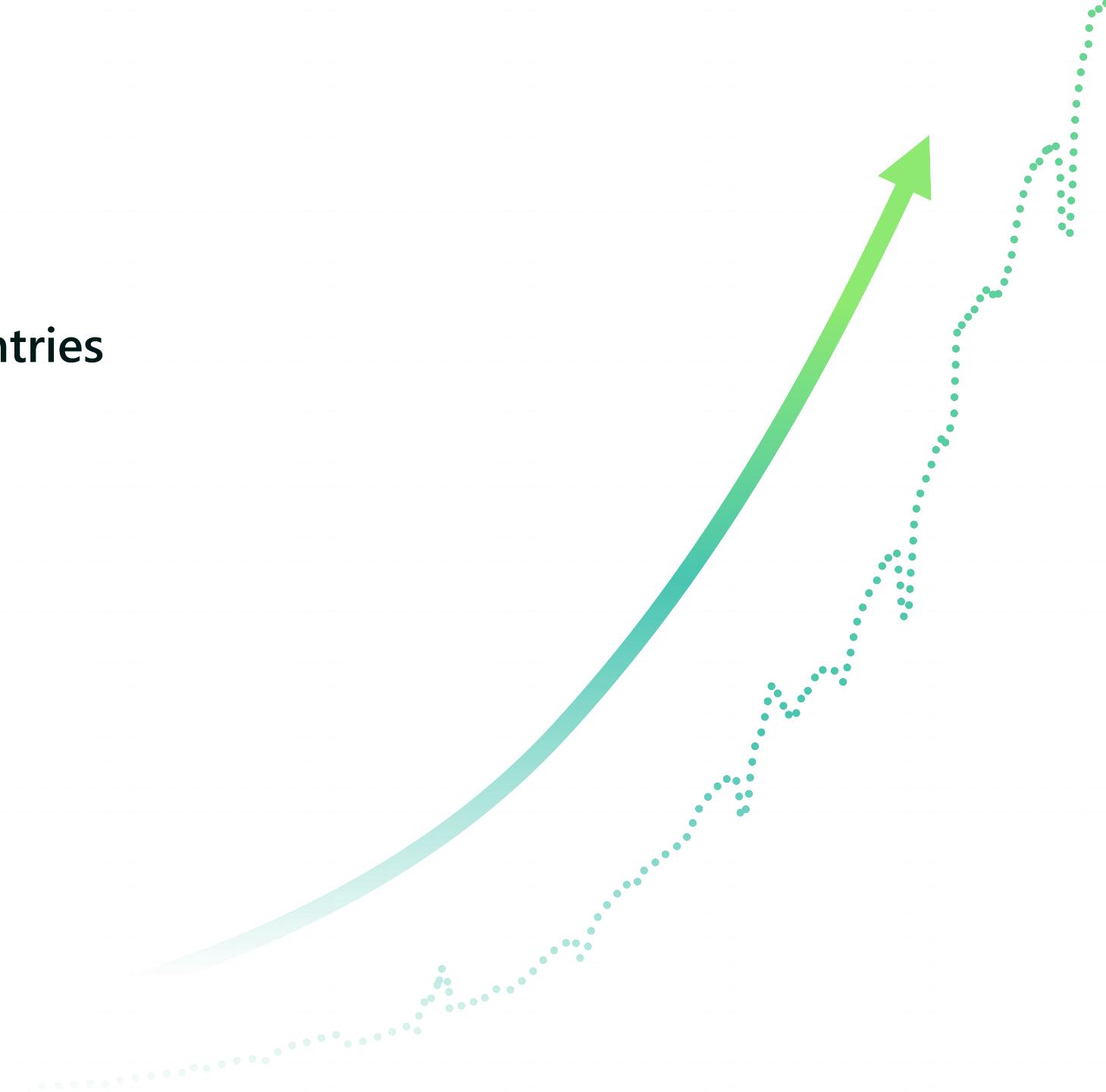
Organizations in 187 countries

~8 trillion

messages per day

33+ exabytes

Data under management



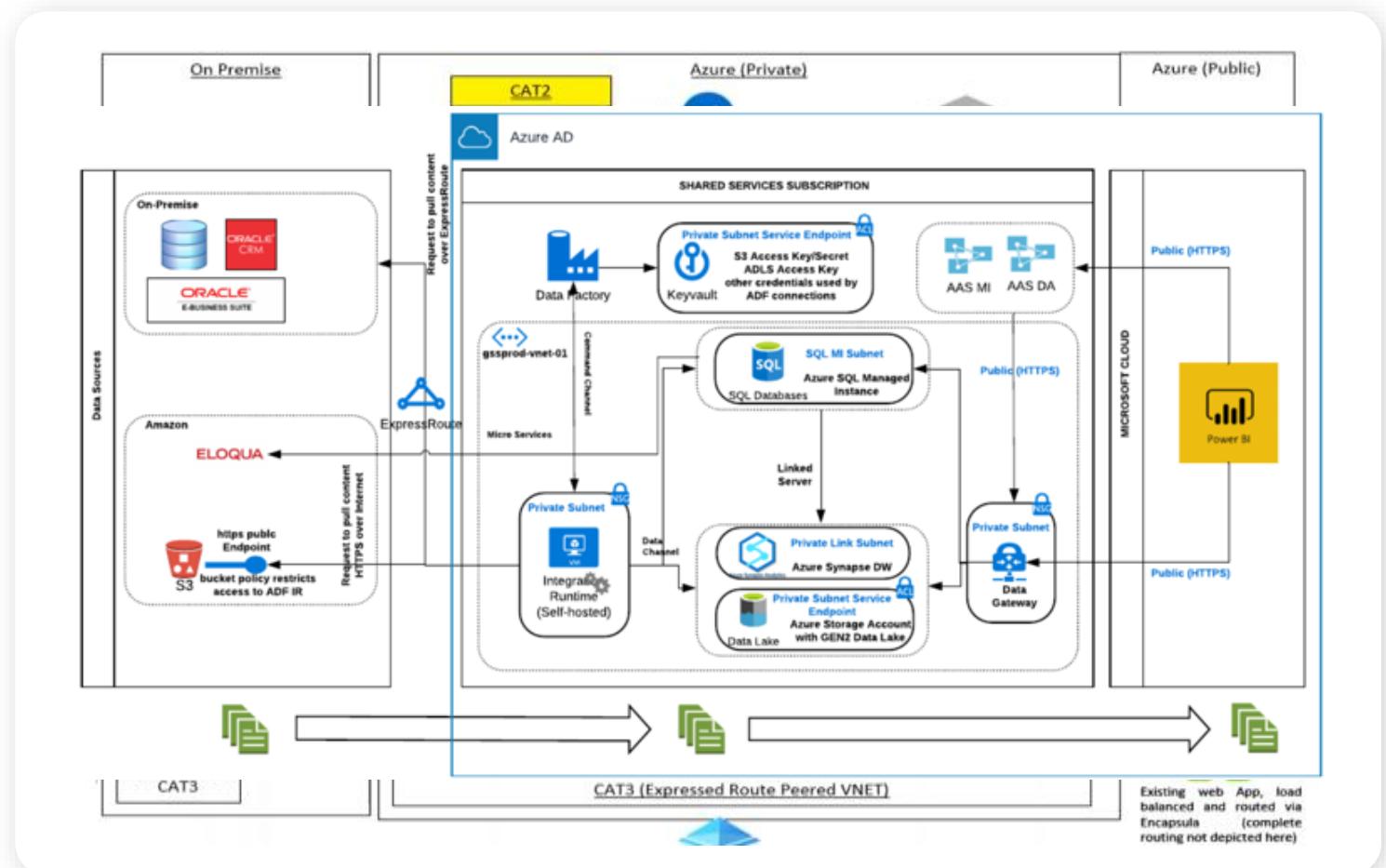
Analytics is complex and fragmented

Every project has many subsystems

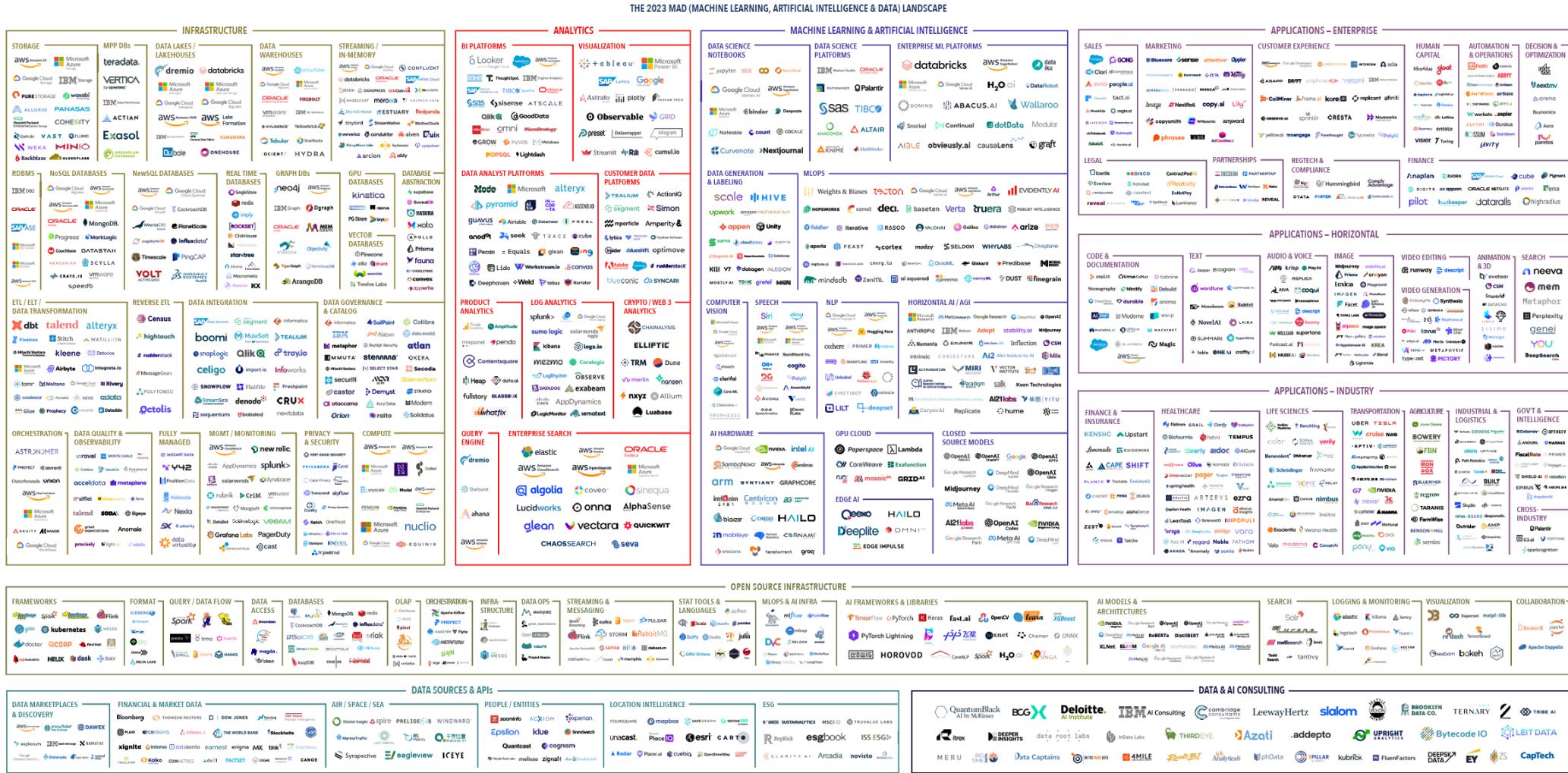
Every subsystem need a different class of product

Products often comes from multiple vendors

Integration is complex, fragile and expensive



There is massive fragmentation of the modern tech stack



Version 1.0 - Feb 2023

© Matt Turck (@mattturck), Kevin Zhang (@kevinzhang) & FirstMark (@firstmarkcap)

Blog post: mattturck.com/MAP2023

Interactive version: MAP.firstmarkcap.com

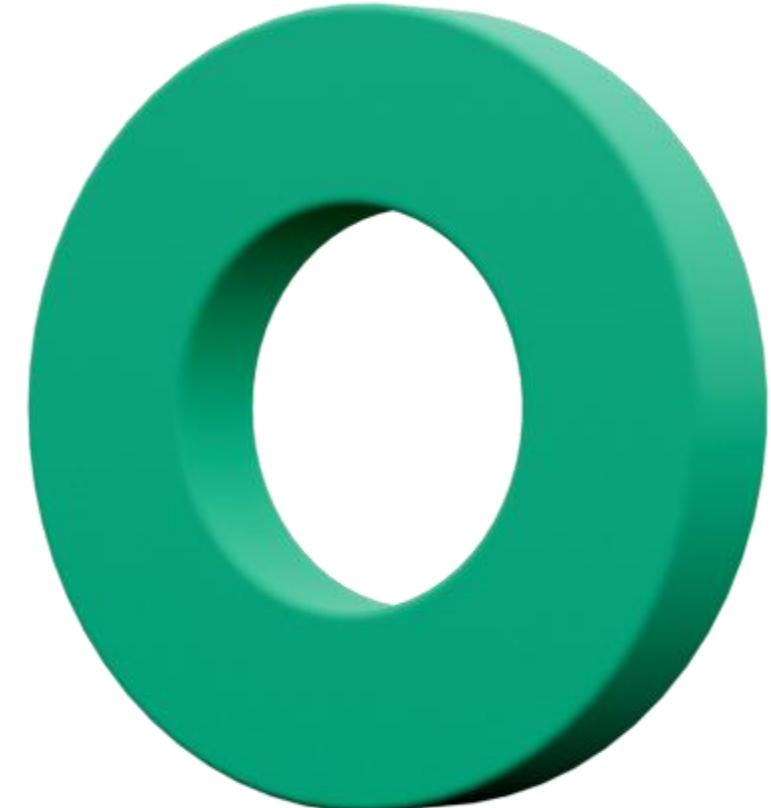
Comments? Email MAD2023@firstmarkcap.com

FIRSTMARK
EARLY STAGE VENTURE CAPITAL

Source: The 2023 ML, AI, and Data Landscape

**“Simplify,
I am the Chief Data
Officer and don’t want
to be the Chief
Integration Officer.”**

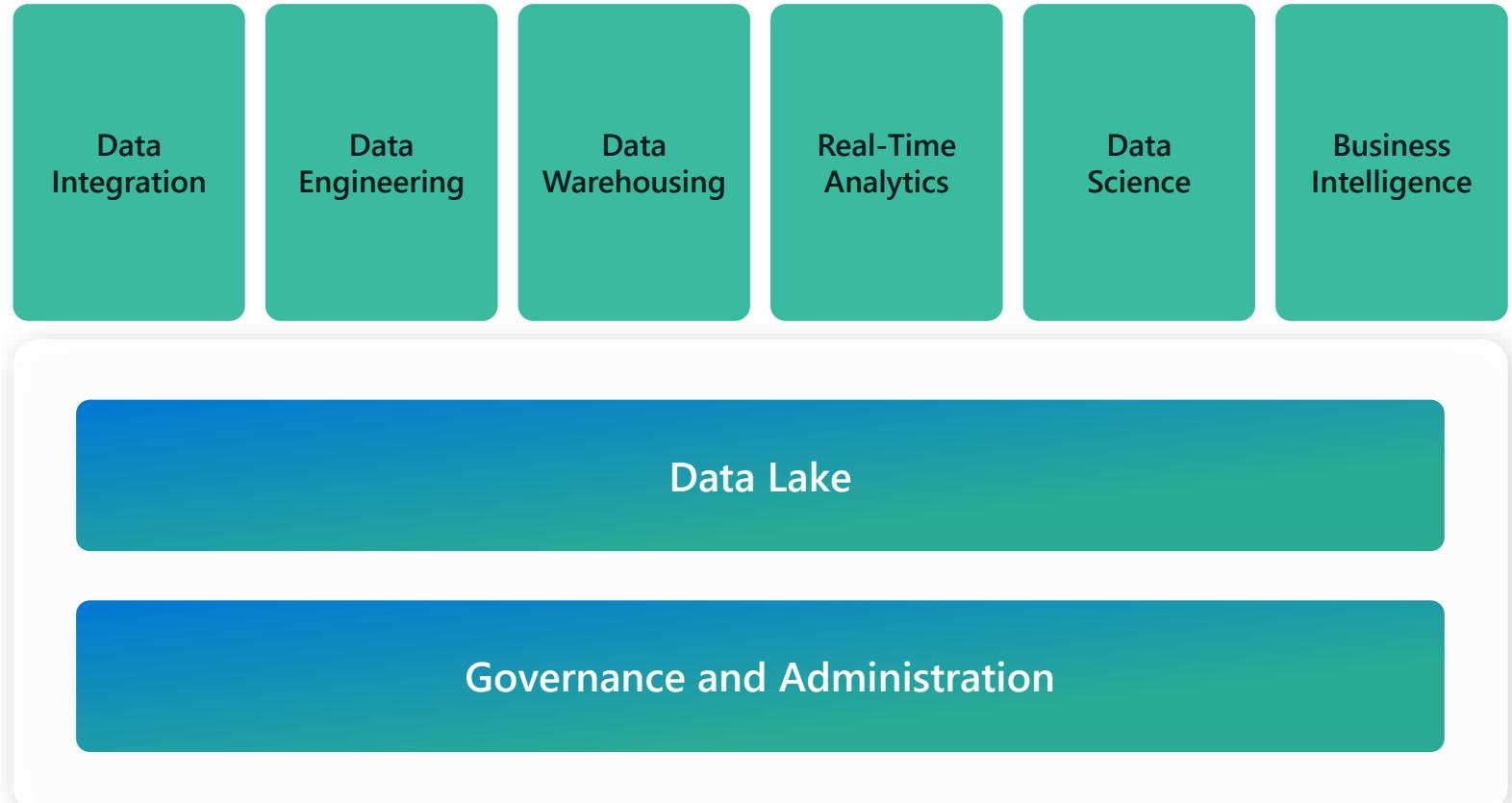
– Every CDO, Every Enterprise



A silver lining?

Analytics has very predictable patterns

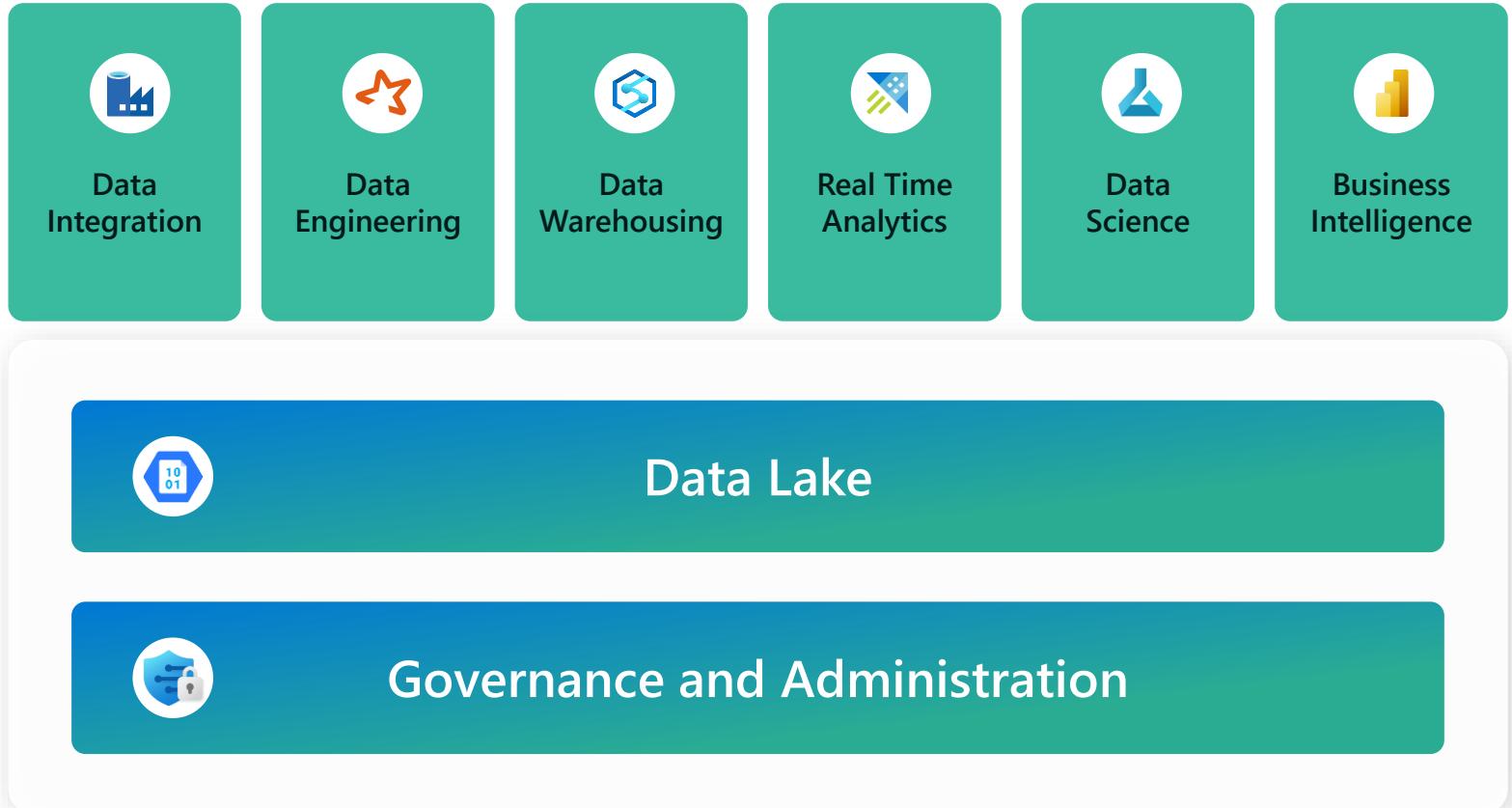
Microsoft has all the products with the right scale needed to build a complete analytics system



A silver lining?

Analytics has very predictable patterns

Microsoft has all the products with the right scale needed to build a complete analytics system



Still far too complex

Many Products

Different Experiences

Proprietary and Open

Dedicated and Serverless

PaaS and SaaS

Different Business Models

Steep Learning Curves

Deep Expertise Needed

High Integration Effort



Purview



Power BI



Kusto



Data Factory



Azure AI



Synapse DW



Synapse Spark

Announcing



Microsoft Fabric

The data platform for the era of AI



Microsoft Fabric

The data platform for the era of AI

Complete
Analytics
Platform

Lake Centric
and Open

Empower Every
Business User

AI
Powered



Microsoft Fabric

The data platform for the era of AI

Complete Analytics Platform

Everything, unified

SaaS-ified

Secured and governed

Lake centric and open

OneLake

One Copy

Open at every tier

Empower Every Business User

Familiar and intuitive

Built into Microsoft 365

Insight to action

AI Powered

Copilot accelerated

ChatGPT on your data

AI driven insights



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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



Data Integration

Data Factory



Data Engineering

Synapse Data Engineering



Data Warehouse

Synapse Data Warehousing



Data Science

Synapse Data Science



Real Time Analytics

Synapse Real Time Analytics



Business Intelligence

Power BI



Observability

Data Activator



Unified data foundation
OneLake

UNIFIED

SaaS product experience

Security and governance

Compute and storage

Business model



Microsoft Fabric



Data
Factory



Synapse Data
Engineering



Synapse Data
Science



Synapse Data
Warehousing



Synapse Real
Time Analytics



Power BI



Data
Activator

AI Assisted

Shared Workspaces

Universal Compute Capacities

OneSecurity



OneLake

Intelligent data foundation

Single...

Onboarding and trials
Sign-on
Navigation model
UX model
Workspace organization
Collaboration experience
Data Lake
Storage format
Data copy for all engines
Security model
CI/CD
Monitoring hub
Data hub
Governance & compliance



Data Engineering



Bronze → Silver → Gold

Data Factory



Data Pipelines

Data Warehouse



Data Warehouse

Data Science



Experiments



Notebooks



Models

Real-Time Analytics



Real-Time Analytics

Power BI

- Direct Lake
 - SQL Endpoint
 - Near Real-Time Analytics
- Power BI Report

Serverless Compute



OneSecurity



Lakehouse
Delta-Parquet Format



Warehouse
Delta-Parquet Format



OneLake



Dataset
Delta-Parquet Format



Kusto DB
Delta-Parquet Format

Store

Transform

Ingestion

Data Sources



Pipeline



Dataflow Gen2



Notebook



Shortcut



Azure SQL DB
Contoso Sales Data



Snowflake
Campaigns Data



Microsoft Dataverse
Customer Insights Data



ADLS Gen2
Marketing Data



ADLS Gen2
Litware Inc Sales Data



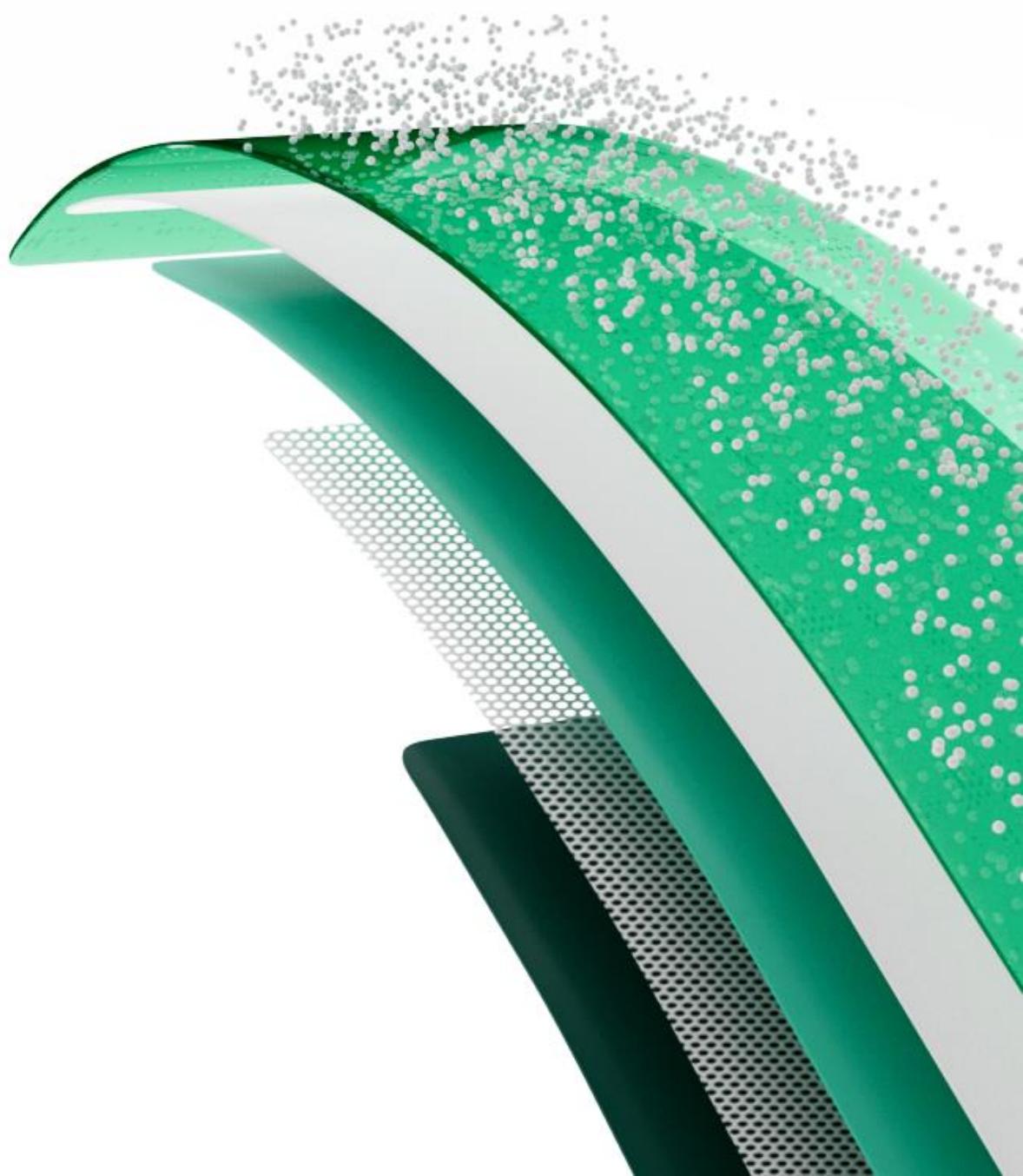
Store Sensors and
POS Data



Streaming Data

DEMO: Getting started with Fabric

Data Warehouse Experience
Data Engineer Experience
Real Time Experience
Data Science Experience





Microsoft Fabric

The data platform for the era of AI

Complete Analytics Platform

Everything, unified

SaaS-ified

Secured and governed

Lake centric and open

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AI Powered

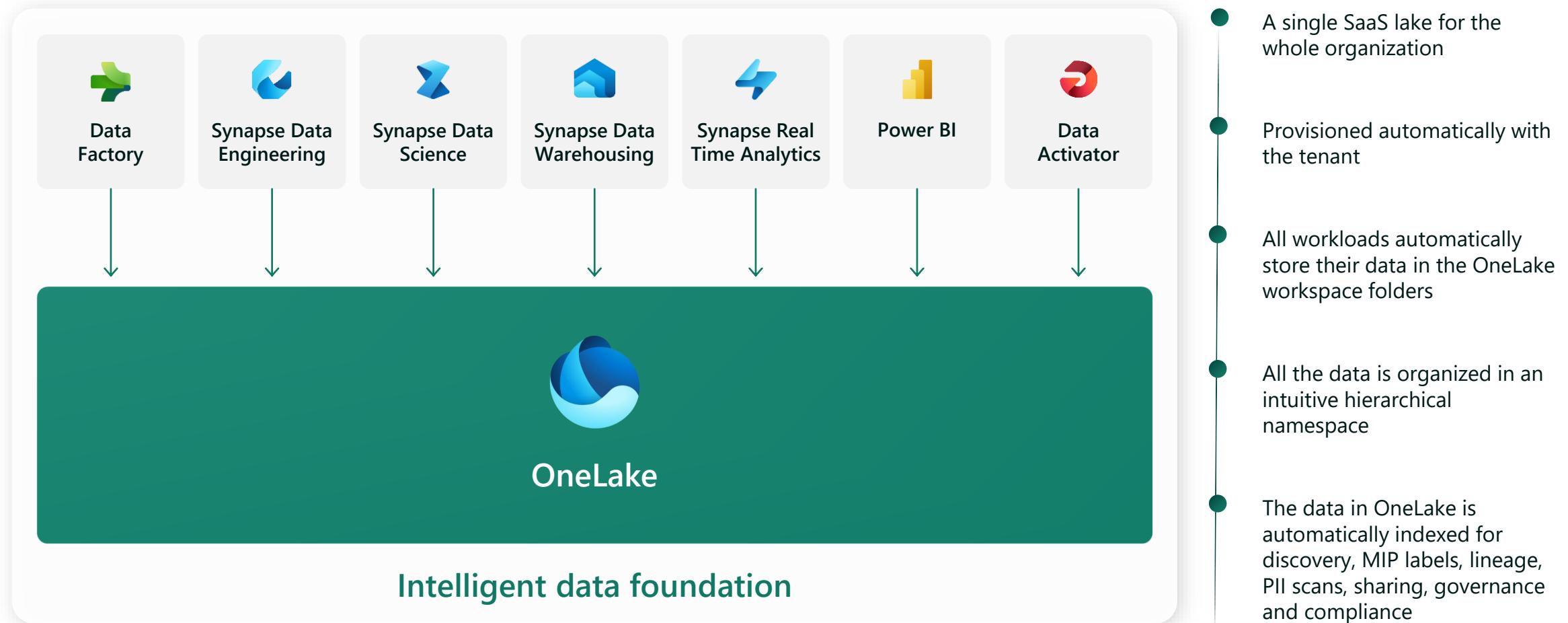
Copilot accelerated

ChatGPT on your data

AI driven insights

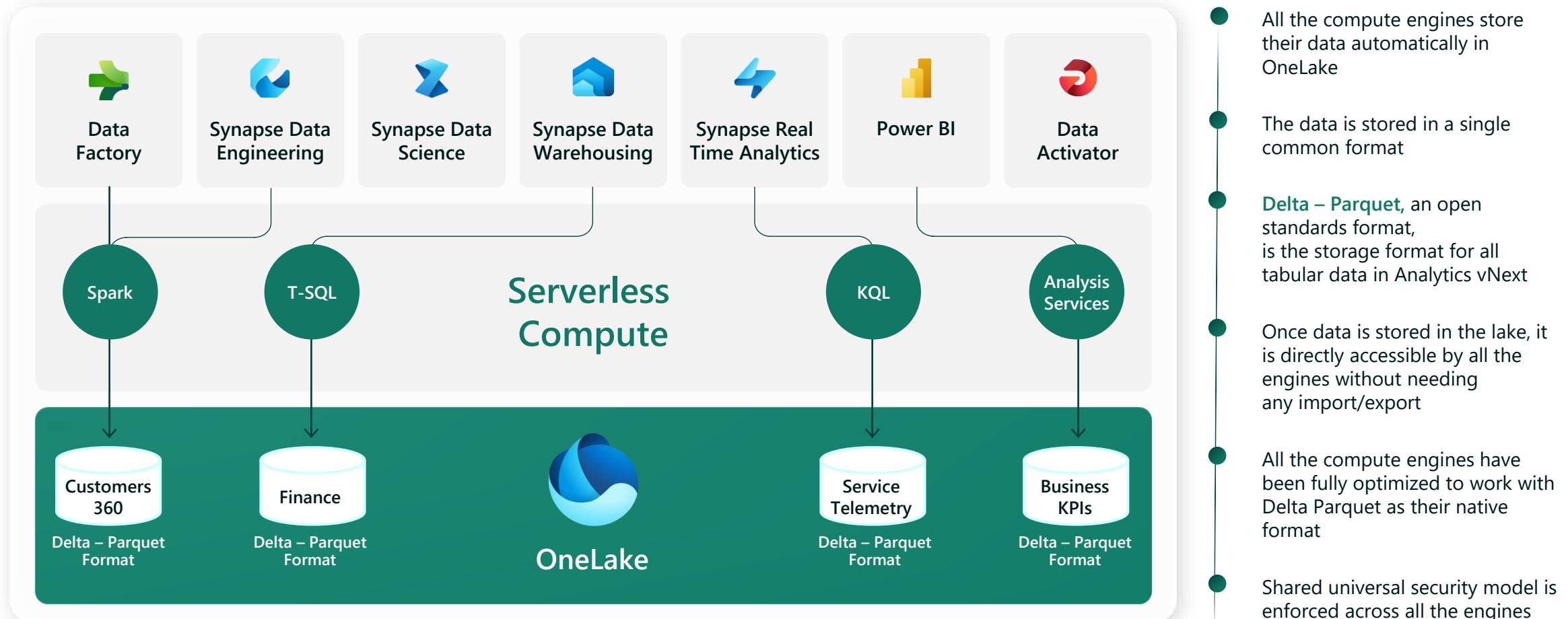
OneLake for all Data

"The OneDrive for Data"



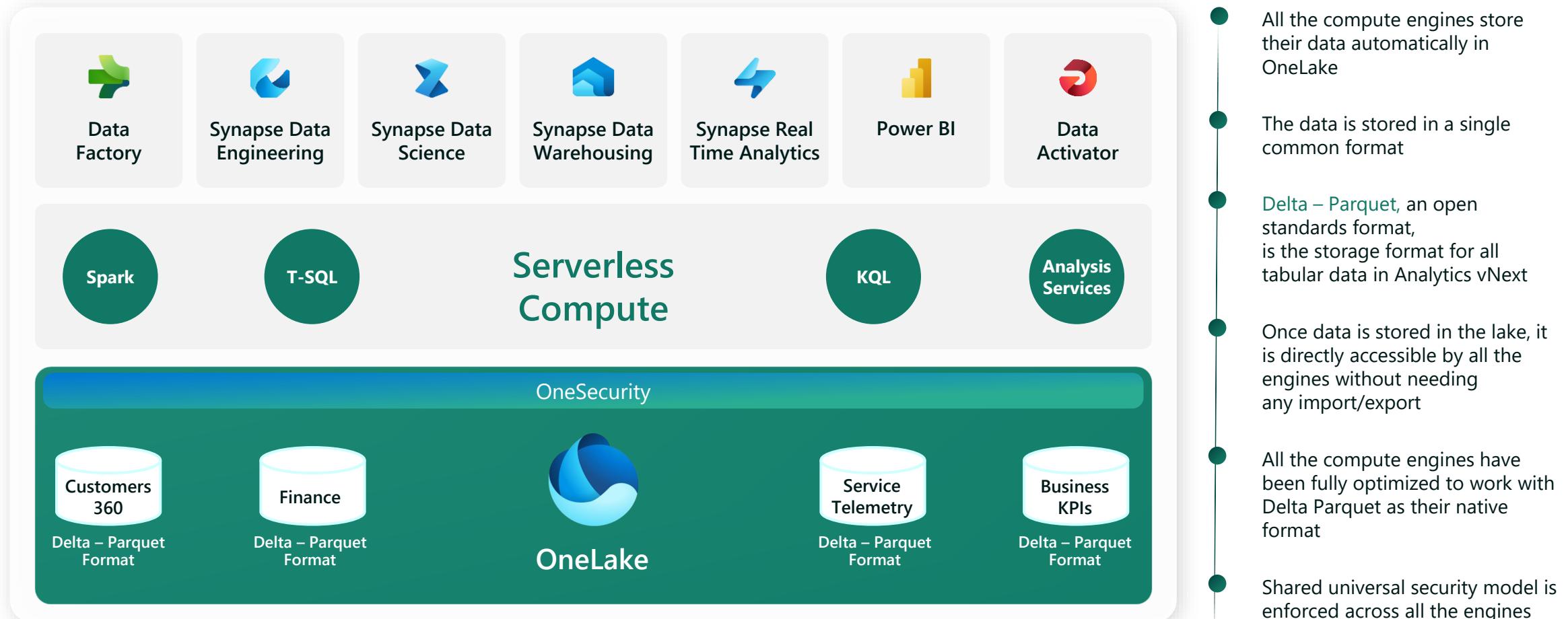
One Copy for all computes

Real separation of compute and storage



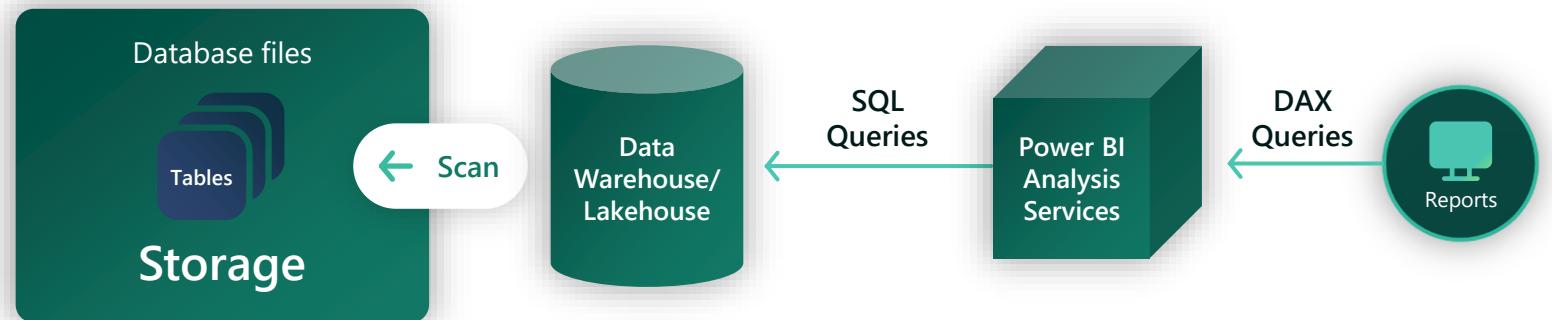
One Copy for all computes

Universal security makes it real



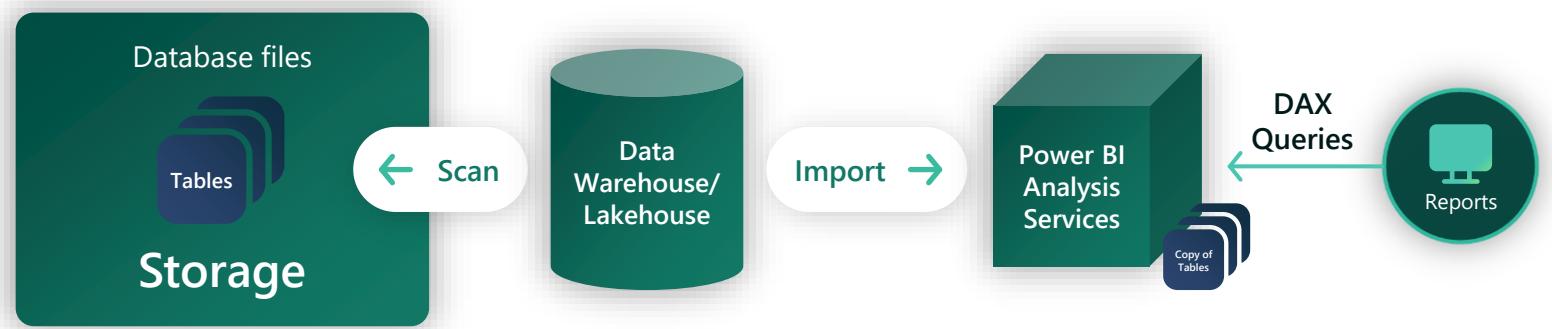
“Direct Query Mode”

Slow, but real time



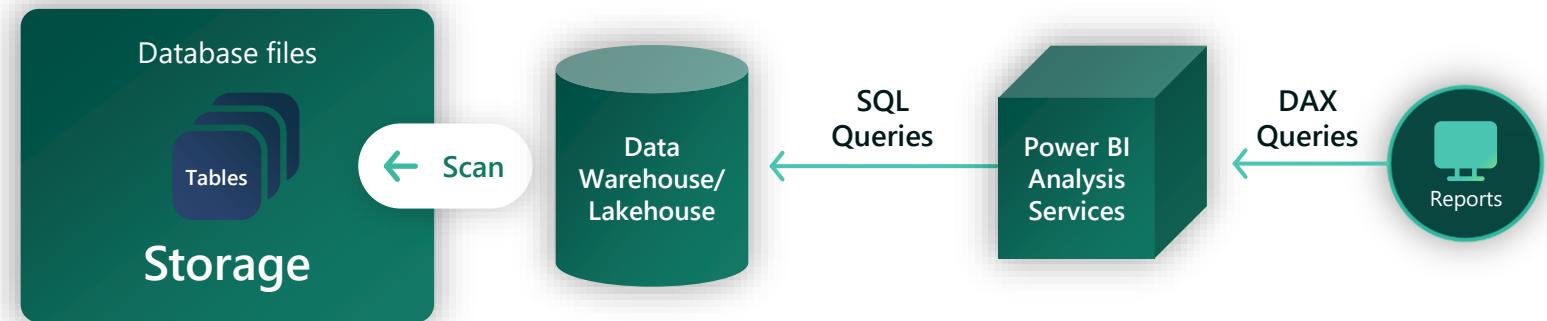
“Import Mode”

Latent & duplicative but fast



“Direct Query Mode”

Slow, but real time



“Import Mode”

Latent & duplicative but fast

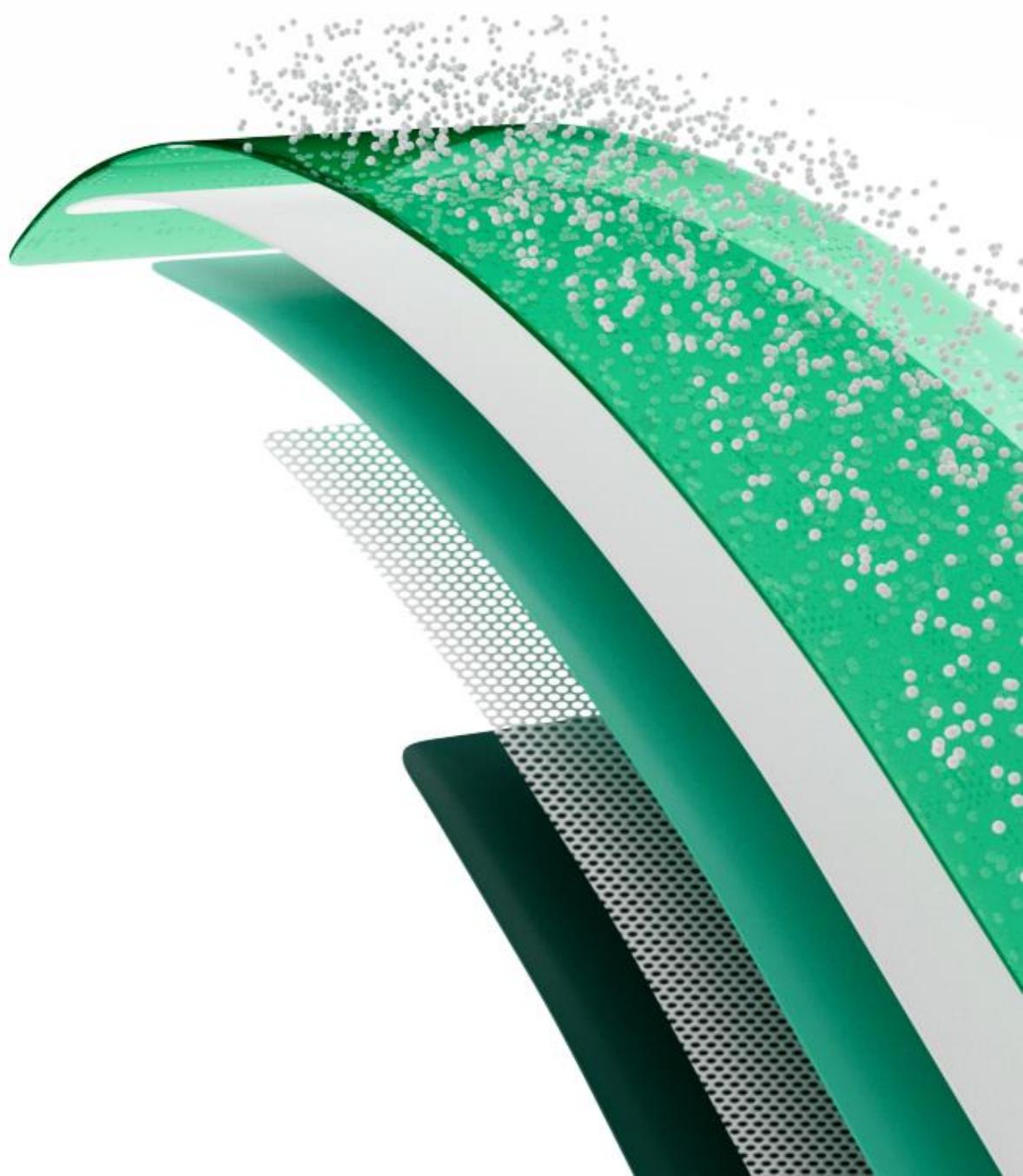


“Direct Lake Mode”

Perfect!



DEMO: One Lake Shortcuts





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AI driven insights



Power BI

Home Create Browse OneLake data hub Learn About

G E

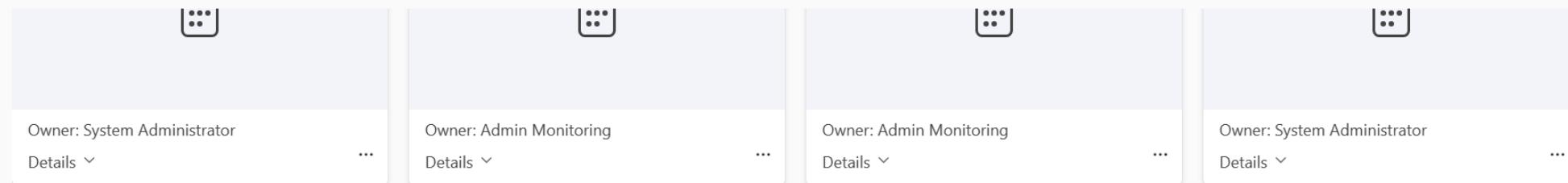


...



OneLake data hub

Discover, manage, and use data from across your org. [Learn more about OneLake data hub](#) ↗



Filter by keyword

Filter

Explorer

	Name	Type	Owner	Refreshed	Location	Endorsement	Sensitivity
grid	nyctaxi_predictions	Dataset	System Admi...	08/08/23, 16:01:51	Data Science WS - Fa...	-	-
grid	Sample_lakehouse_765 ↗	Lakehouse	System Admi...	-	test1	-	-
grid	DataScienceLakehouse ↗	Lakehouse	System Admi...	-	Data Science WS - Fa...	-	-
grid	NycTaxiDBBuild1 ↗	KQL Database	System Admi...	-	test1	-	-
grid	wwlakehouse ↗	SQL endpoint	System Admi...	01/09/23, 12:56:51	Lakehouse WS - Fabric	-	-
grid	wwlakehouse	Dataset (defa...	System Admi...	07/08/23, 16:05:08	Lakehouse WS - Fabric	-	-
grid	wwlakehouse ↗	Lakehouse	System Admi...	-	Lakehouse WS - Fabric	-	-

Predictions Report Taxi Trip Duration

Close

[File](#) [Export](#) [Share](#) [Chat in Teams](#) [Get insights](#) [Subscribe to report](#) [Edit](#) [...](#)

pickupDate

20/03/2016

31/03/2016

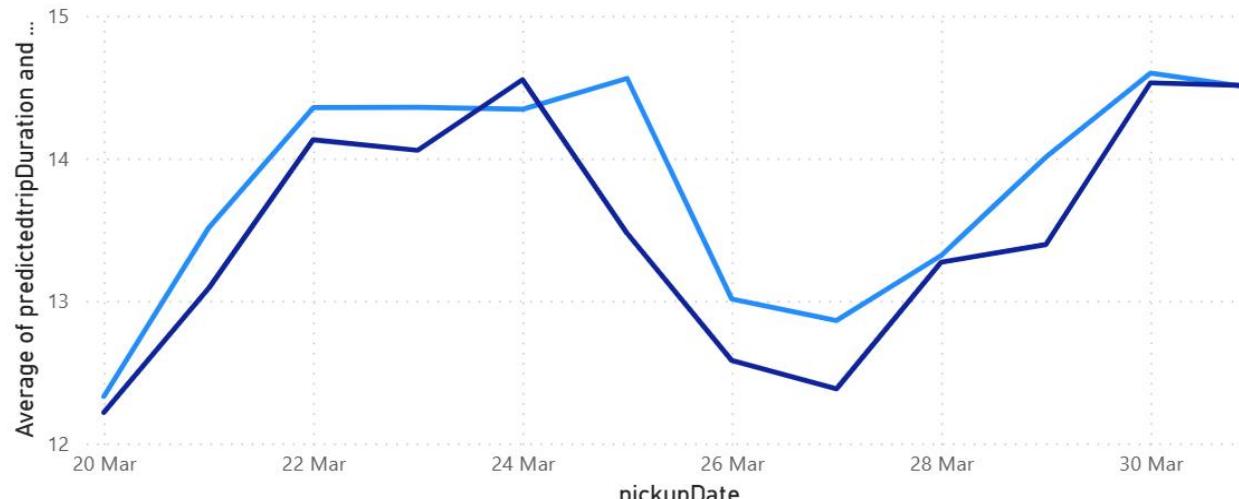
13.83

Average of predictedtripDuration

13.53

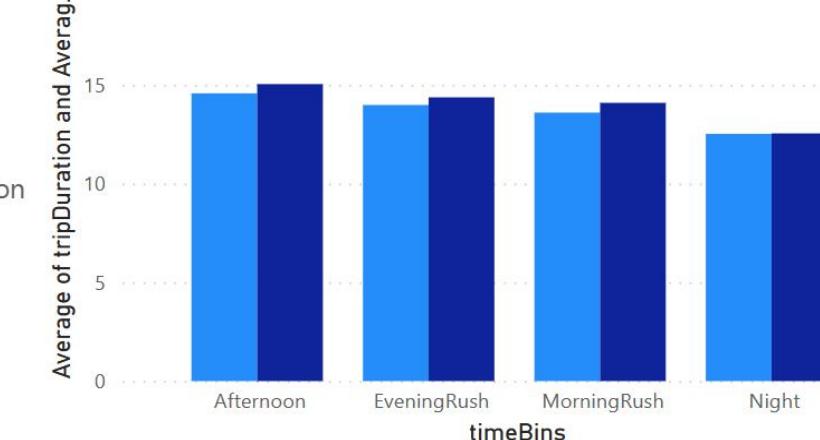
Average of tripDuration

Average of predictedtripDuration and Average of tripDuration by pickupDate



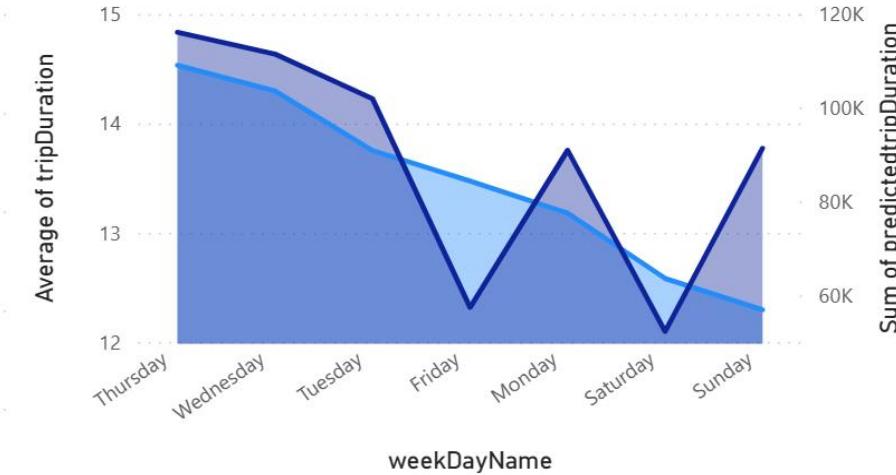
Average of tripDuration and Average of predictedtripDuration by timeBins

Average of tripDuration and Average...

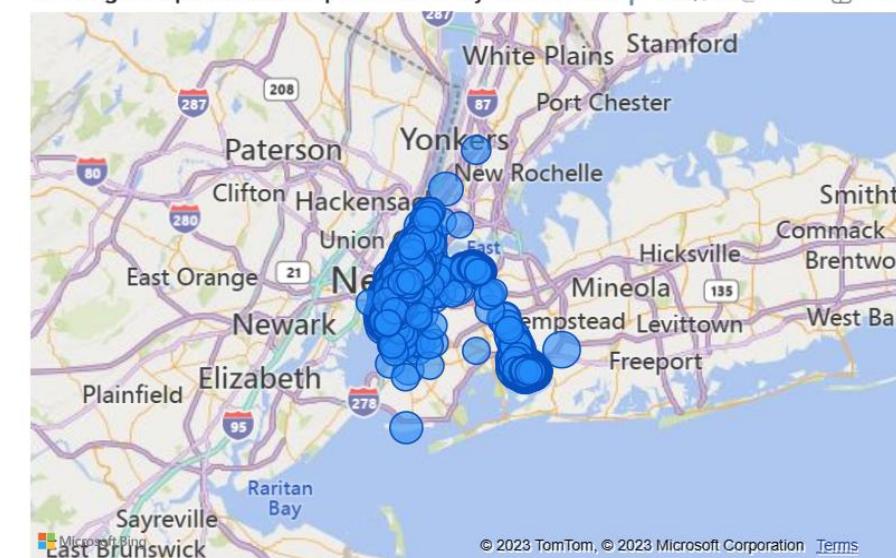


Average of tripDuration and Sum of predictedtripDuration by weekDayName

Average of tripDuration and Sum of predictedtripDuration



Average of predictedtripDuration by startLat : i st l ...





...



nyctaxi_predictions

File Refresh Share Create a report Analyze in Excel Lineage Open data model ...

Details for nyctaxi_predictions

[+ Add description](#)Location
Data Science WS - Fa... Refreshed
08/08/23, 16:01:51

Visualize this data



Create an interactive report, or a table, to discover and share business insights. [Learn more](#)

[+ Create a report](#)

Share this data

Give people access to the dataset and set their permissions to work with it. [Learn more](#)

[Share dataset](#)

See what already exists

These items use the same data source as nyctaxi_predictions.

 Filter by keyword[Filter](#)

	Name	Type	Relation	Location	Refreshed	Endorsement	Sensitivity
	Predictions Report Taxi Tri...	Report	Downstream	Data Science WS - F...	08/08/23, 16:01:51	—	—
	DataScienceLakehouse	SQL endpoint	Upstream	Data Science WS - F...	—	—	—
	DataScienceLakehouse	Lakehouse	Upstream	Data Science WS - F...	—	—	—

Tables

Select a table and/or columns from this dataset to view and export the underlying data. [Learn more](#)

To select more than one table, and view summarized data, create a paginated report.

[Create paginated report](#)

nyctaxi_predictions

Σ dayofMonth

doLocationId

Σ endLat

Σ endLon

Σ extra

Σ fareAmount

improvementSurc...

Σ mtaTax

Σ passengerCount

File Home Insert Draw Page Layout Formulas Data Review View Automate Help Power Pivot PivotTable Analyze Design

Cut Copy Format Painter Paste Undo Clipboard

Font Alignment Number Styles Cells Editing Analysis Sensitivity

Sum of SalesAmount

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Row Labels		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total		
A. Datum	\$ 1,500,950	\$ 1,500,950	\$ 1,500,950	\$ 1,500,950	\$ 1,500,950	\$ 1,500,950	\$ 1,500,950	\$ 1,500,950	\$ 1,500,950	\$ 1,500,950	\$ 1,500,950	\$ 1,500,950	\$ 1,500,950	\$ 1,500,950	\$ 1,500,950	
Adventure Works	\$ 6,331,326	\$ 6,331,326	\$ 6,331,326	\$ 6,331,326	\$ 6,331,326	\$ 6,331,326	\$ 6,331,326	\$ 6,331,326	\$ 6,331,326	\$ 6,331,326	\$ 6,331,326	\$ 6,331,326	\$ 6,331,326	\$ 6,331,326	\$ 6,331,326	
Crafteros	\$ 4,745,988	\$ 4,745,988	\$ 4,745,988	\$ 4,745,988	\$ 4,745,988	\$ 4,745,988	\$ 4,745,988	\$ 4,745,988	\$ 4,745,988	\$ 4,745,988	\$ 4,745,988	\$ 4,745,988	\$ 4,745,988	\$ 4,745,988	\$ 4,745,988	
Ifigis Metal	\$ 71,876	\$ 71,876	\$ 71,876	\$ 71,876	\$ 71,876	\$ 71,876	\$ 71,876	\$ 71,876	\$ 71,876	\$ 71,876	\$ 71,876	\$ 71,876	\$ 71,876	\$ 71,876	\$ 71,876	
Litware	\$ 4,929,698	\$ 4,929,698	\$ 4,929,698	\$ 4,929,698	\$ 4,929,698	\$ 4,929,698	\$ 4,929,698	\$ 4,929,698	\$ 4,929,698	\$ 4,929,698	\$ 4,929,698	\$ 4,929,698	\$ 4,929,698	\$ 4,929,698	\$ 4,929,698	
Mundopolis	\$ 4,971,705	\$ 4,971,705	\$ 4,971,705	\$ 4,971,705	\$ 4,971,705	\$ 4,971,705	\$ 4,971,705	\$ 4,971,705	\$ 4,971,705	\$ 4,971,705	\$ 4,971,705	\$ 4,971,705	\$ 4,971,705	\$ 4,971,705	\$ 4,971,705	
Northwind Traders	\$ 1,079,531	\$ 1,079,531	\$ 1,079,531	\$ 1,079,531	\$ 1,079,531	\$ 1,079,531	\$ 1,079,531	\$ 1,079,531	\$ 1,079,531	\$ 1,079,531	\$ 1,079,531	\$ 1,079,531	\$ 1,079,531	\$ 1,079,531	\$ 1,079,531	
OneTwo	\$ 91,876	\$ 91,876	\$ 91,876	\$ 91,876	\$ 91,876	\$ 91,876	\$ 91,876	\$ 91,876	\$ 91,876	\$ 91,876	\$ 91,876	\$ 91,876	\$ 91,876	\$ 91,876	\$ 91,876	
Proseware	\$ 5,191,497	\$ 5,191,497	\$ 5,191,497	\$ 5,191,497	\$ 5,191,497	\$ 5,191,497	\$ 5,191,497	\$ 5,191,497	\$ 5,191,497	\$ 5,191,497	\$ 5,191,497	\$ 5,191,497	\$ 5,191,497	\$ 5,191,497	\$ 5,191,497	
Southridge Video	\$ 1,957,555	\$ 1,957,555	\$ 1,957,555	\$ 1,957,555	\$ 1,957,555	\$ 1,957,555	\$ 1,957,555	\$ 1,957,555	\$ 1,957,555	\$ 1,957,555	\$ 1,957,555	\$ 1,957,555	\$ 1,957,555	\$ 1,957,555	\$ 1,957,555	
Tailspin Toys	\$ 191,876	\$ 191,876	\$ 191,876	\$ 191,876	\$ 191,876	\$ 191,876	\$ 191,876	\$ 191,876	\$ 191,876	\$ 191,876	\$ 191,876	\$ 191,876	\$ 191,876	\$ 191,876	\$ 191,876	
The Phone Company	\$ 1,190,499	\$ 1,190,499	\$ 1,190,499	\$ 1,190,499	\$ 1,190,499	\$ 1,190,499	\$ 1,190,499	\$ 1,190,499	\$ 1,190,499	\$ 1,190,499	\$ 1,190,499	\$ 1,190,499	\$ 1,190,499	\$ 1,190,499	\$ 1,190,499	
Venusar	\$ 8,552,371	\$ 8,552,371	\$ 8,552,371	\$ 8,552,371	\$ 8,552,371	\$ 8,552,371	\$ 8,552,371	\$ 8,552,371	\$ 8,552,371	\$ 8,552,371	\$ 8,552,371	\$ 8,552,371	\$ 8,552,371	\$ 8,552,371	\$ 8,552,371	
Grand Total	\$ 40,806,748															

PivotTable Fields

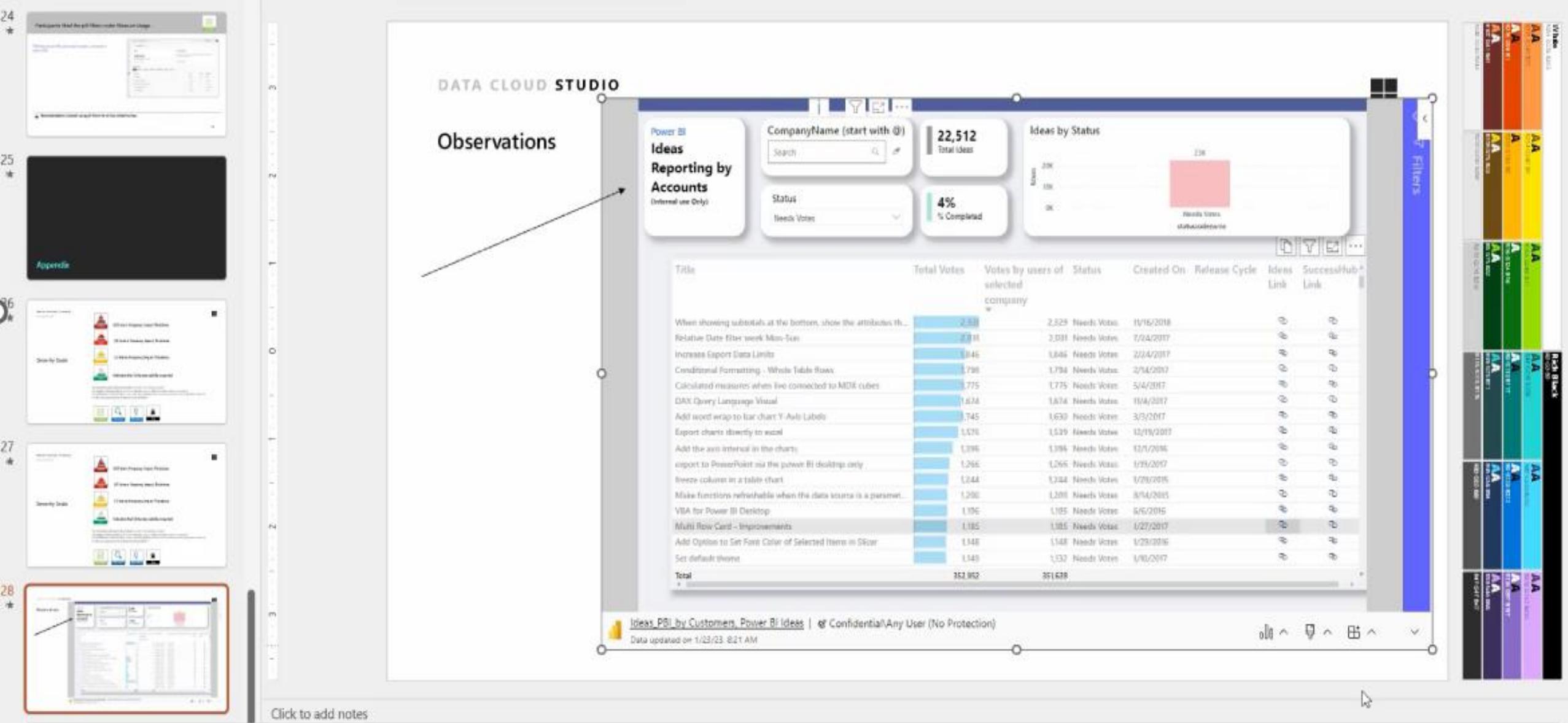
Show fields: (All)

month

- Demo Data
 - Month
 - MonthSort
- Previous Year
 - Month
- Revenue Data
 - Year Hierarchy
 - Month
 - More Fields
 - Month
 - MonthN

Drag fields between areas below:

Filters	Columns
Month	Month
Rows	Values
BrandName	Sum of SalesAmount

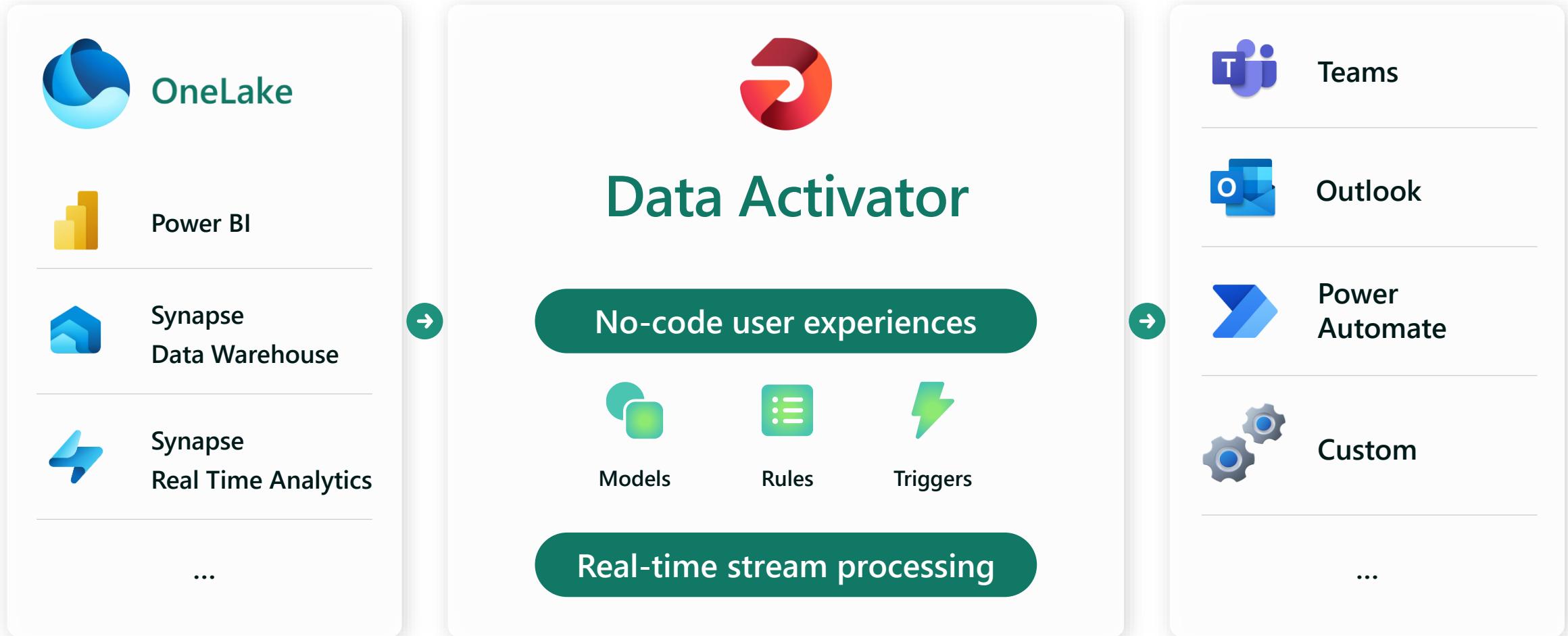


Announcing

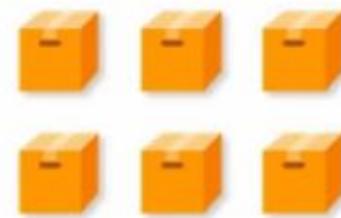


Data Activator

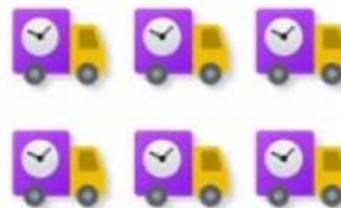
Introducing Data Activator



Demo scenario – delivery logistics



PACKAGES



DRIVERS

Package data:

- In-transit time
- Temperature reading
- Delivery status
- ...

Driver data:

- On-shift duration
- Location
- Driver status
- ...



TRIGGERS

E-mails when:

- Package is too hot
- Package is delayed
- Driver on shift for too long
- ...



PEOPLE

Power BI

https://edog.analysis-df.windows.net/groups/d0b5f775-92de-491a-819e-38f402ae5b7d/reflexprojects/c46c0b82-3bda-40c7-8169-163c57765112/objects/gM6RQmRaUw-RPN--yqYL-N0fSq65LprhmN3UQoWyy2-mHURb... A 16

Package delivery scenario | General

Search

Home

New object New measure New trigger Add data Add email

Objects

World Events Driver Availability Status Package Delivery Status Package Properties HoursInTransit PackageId Temperature Events Package Delivery Status

1 hour

Package Delivery Status

Event Details (most recent events)

Timestamp	Packageld	CityName	HoursInTransit	LastUpda...	Message	Outcome	State	Temperat...	Type
2022-08-24T15:53:41.7524...	141944447929833	Kirkland	16.74	08/24/2022 0...	Package is in t...	InTransit	53	Medicines	
2022-08-24T15:53:41.6854...	517346994219569	Bellevue	0.85	08/24/2022 0...	Package is in t...	InTransit	55	Perishables	
2022-08-24T15:53:41.5464...	921259613523526	Kirkland	5.17	08/24/2022 0...	Package is in t...	InTransit	59	Medicines	
2022-08-24T15:53:41.4734...	494074275066752	Sammamish	0.97	08/24/2022 0...	Package is in t...	InTransit	50	Perishables	
2022-08-24T15:53:41.4424...	126942610364385	Kirkland	0	08/24/2022 0...	Package is rea...	ReadyForPickup	70	Perishables	
2022-08-24T15:53:41.4334...	301636679813425	Bellevue	0.53	08/24/2022 0...	Package is in t...	InTransit	66	Perishables	
2022-08-24T15:53:41.3734...	633775202373092	Kirkland	6.62	08/24/2022 0...	Package is in t...	InTransit	50	Medicines	
2022-08-24T15:53:41.3184...	650059237376554	Sammamish	5.05	08/24/2022 0...	Package is in t...	InTransit	52	Medicines	

https://edog.analysis-ot.windows.net/groups/dub077/b-92de-491a-b19e-301402ae0070/relexprojects/c4bc0d02-3008-40c7-b1b9-163077b9114/objects/gmVbKQmtkaUW-KHr-uyQYL-nU7q65LpmMN9UuQowyyz-mtRUKD... 16 16 16 16 16 16

Package delivery scenario | General

Search

Home

New object New measure New trigger Add data Add email

Objects

World

Events

Driver Availability Status

Package Delivery Status

Package

Triggers

New trigger

Measures

Max Temperature

Properties

HoursInTransit

PackageId

Temperature

Events

Package Delivery Status

New trigger

1 hour

Max Temperature

282220349787403 317712511814600 441173257402154 595175720688339 740688213779331

Count of Trigger occurrences

Apply a condition to build your trigger.

Definition

Measure * Max Temperature

Conditions *

New condition

Condition evaluated as when Max Temperature

Becomes * greater than

Value * 80

Apply Cancel



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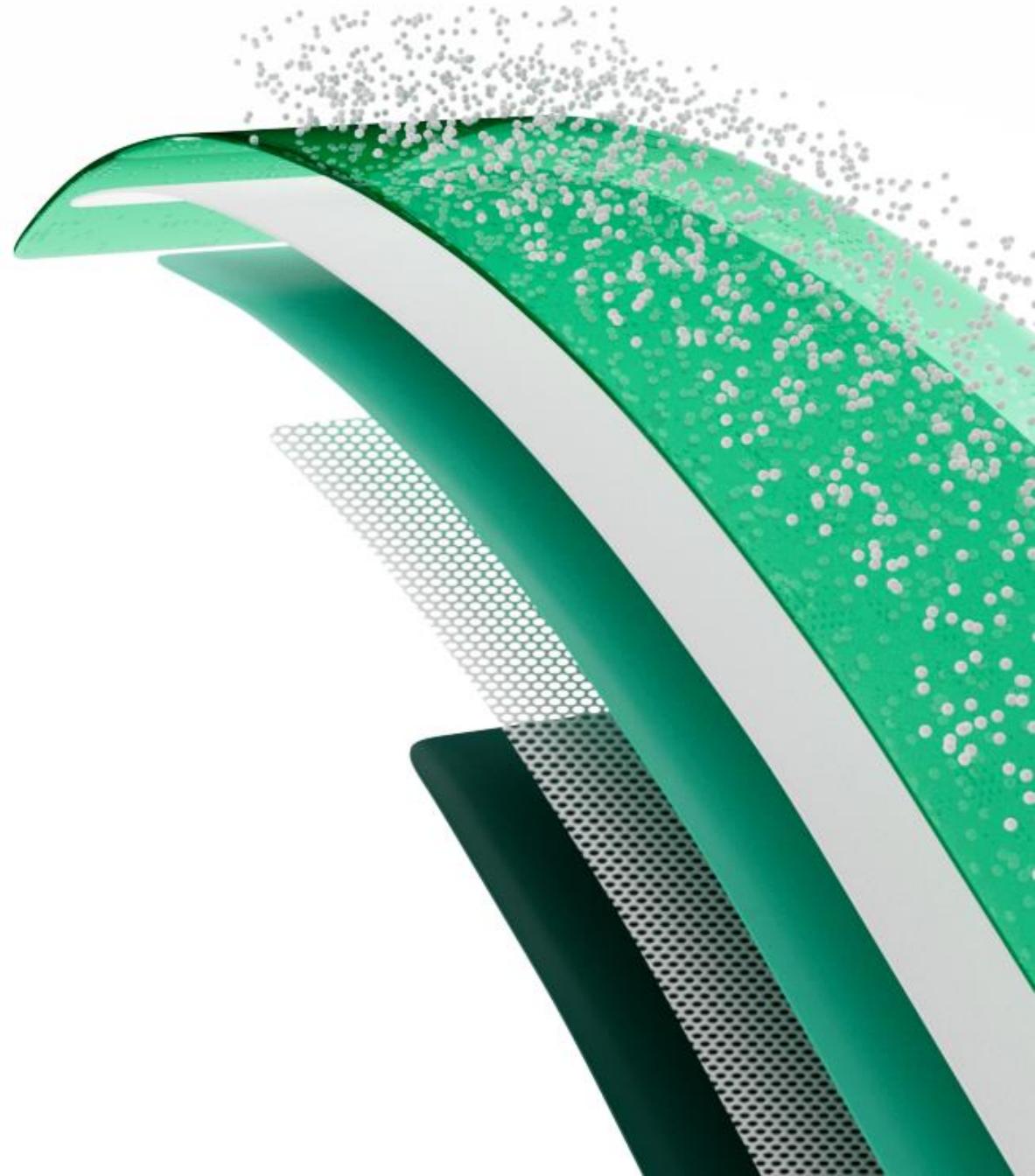
AI Powered

Copilot accelerated

ChatGPT on your data

AI driven insights

Sizzle Video (Video) AI Powered Fabric





Microsoft Fabric

The data platform for the era of AI



Data
Factory



Synapse Data
Warehousing



Synapse Data
Engineering



Synapse Data
Warehousing



Synapse Real
Time Analytics



Power BI



Data Activator



OneLake

Intelligent data foundation



Thank you

