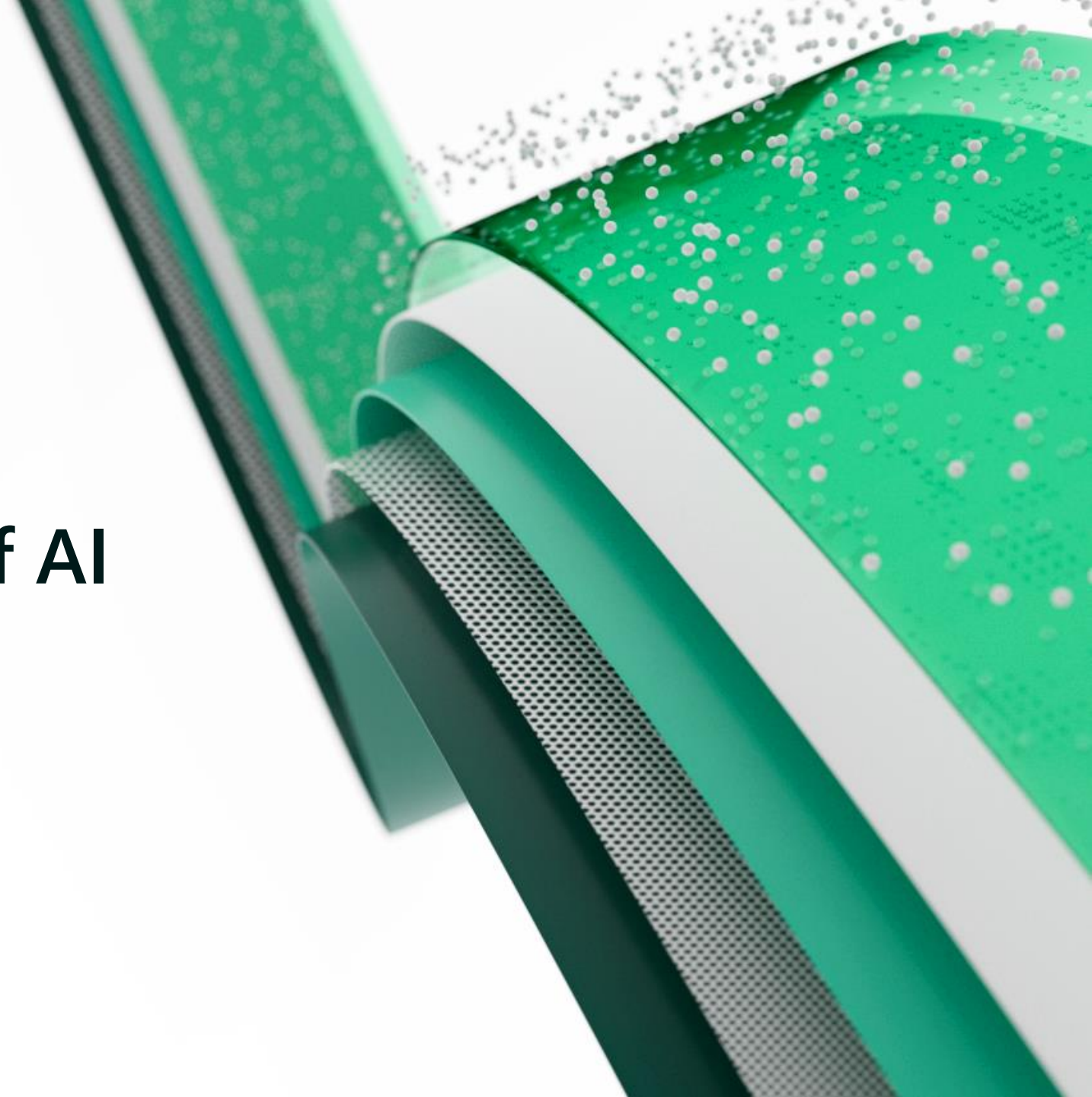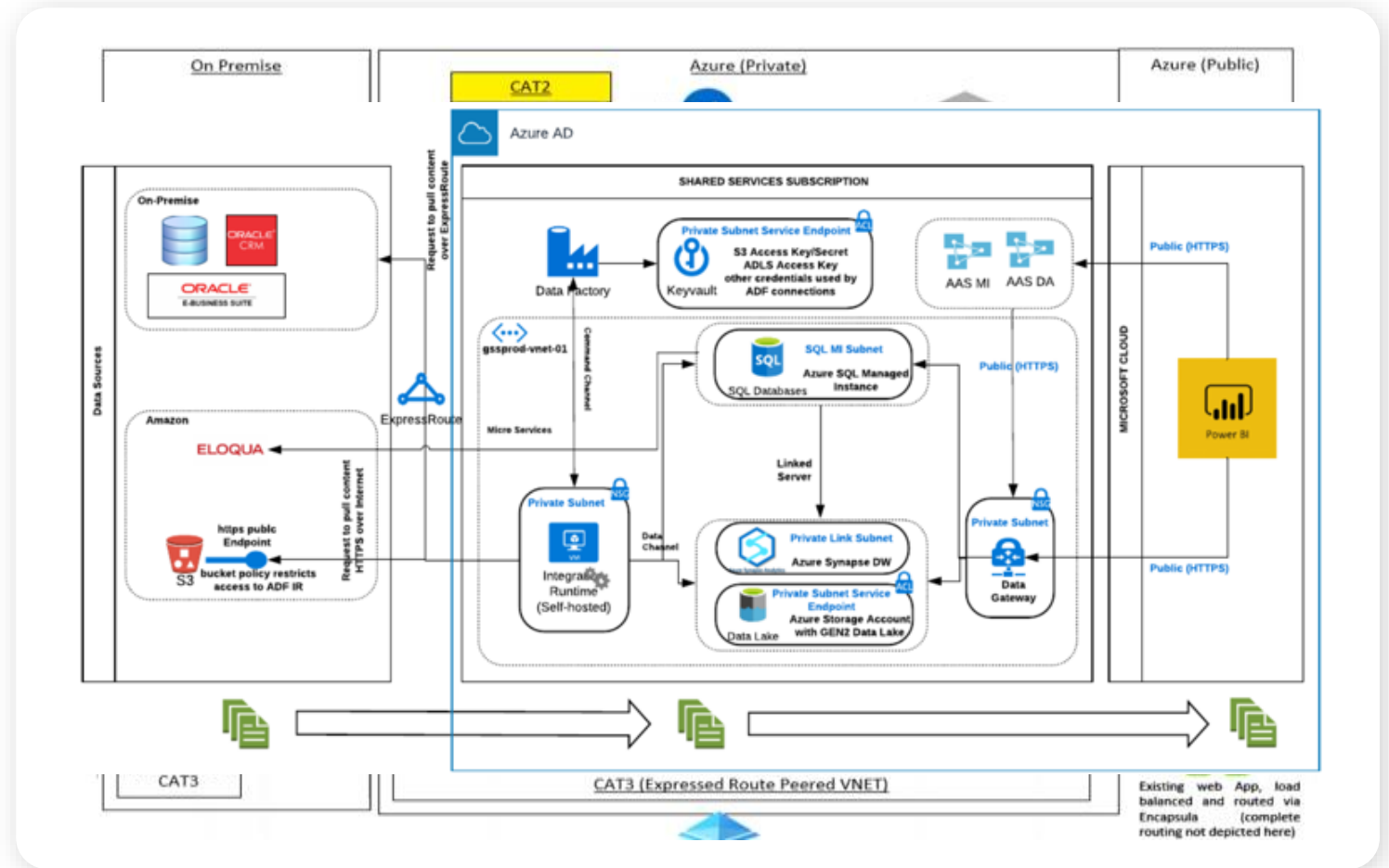Microsoft

Analytics in the Era of AI

Analytics is complex and fragmented

Every project has many subsystems

Every subsystem needs a different class of product
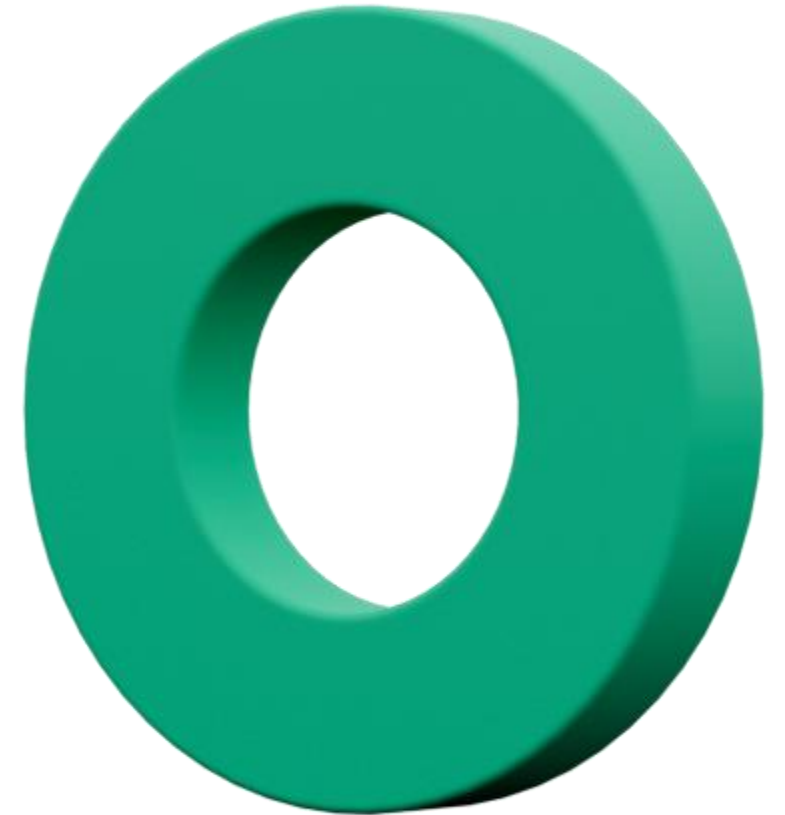
Products often come from multiple vendors

Integration is complex, fragile and expensive

"Simplify,

I am the Chief Data Officer and don't want to be the Chief Integration Officer."
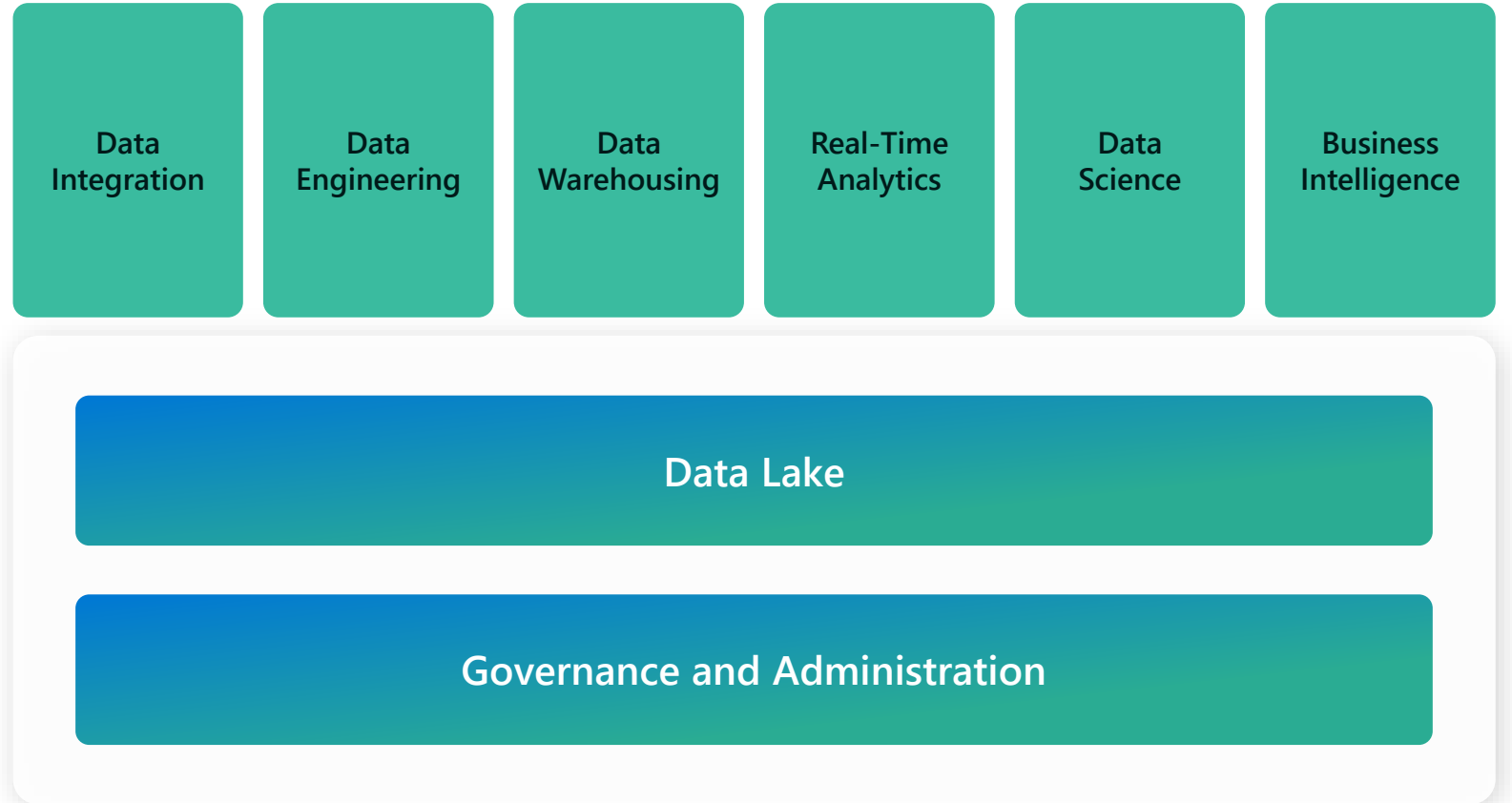
– Every CDO, Every Enterprise

A silver lining?

Analytics has very predictable patterns

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

Data Integration	Data Engineering	Data Warehousing	Real-Time Analytics	Data Science	Business Intelligence

Data Lake

Governance and Administration

A silver lining?

Analytics has very predictable patterns

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

Data Integration	Data Engineering	Data Warehousing	Real Time Analytics	Data Science	Business Intelligence

Data Lake

Governance and Administration
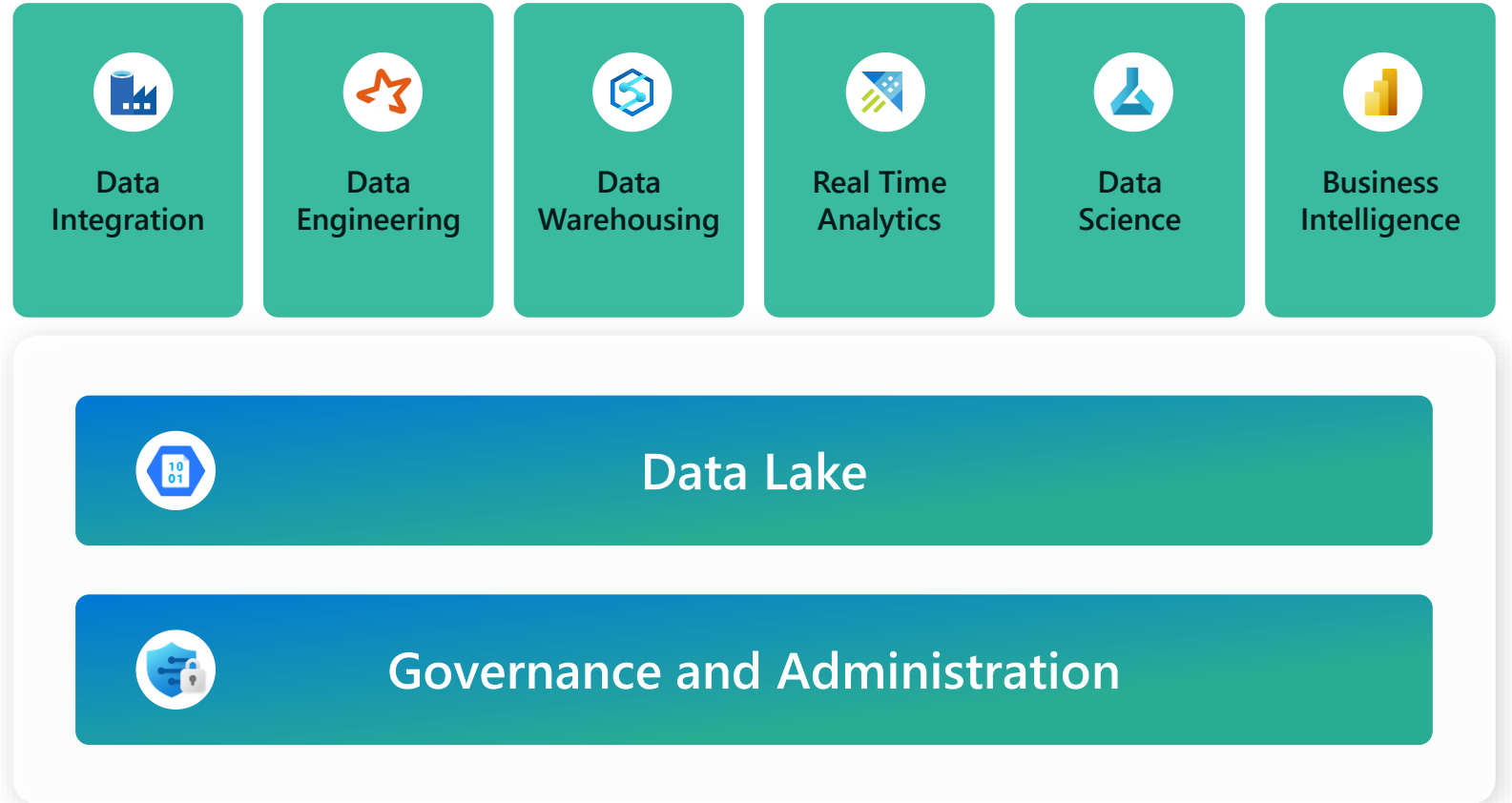
Still far too complex

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

Azure AI

Power BI

Synapse DW

Kusto

Synapse Spark

Data Factory

Announcing

Microsoft Fabric

The data platform for the era of AI

Microsoft Fabric

The data platform for the era of AI

Complete Analytics Platform

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

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

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

SaaS

"It just works"

5x5	Success by default	Centralized administration
Frictionless onboarding	Minimal knobs	Tenant-wide governance
Instant provisioning	Auto-optimized	Centralized security management
Quick results w/ Intuitive UX	Auto-integrated	Compliance built-in

Persona
optimized
experiences
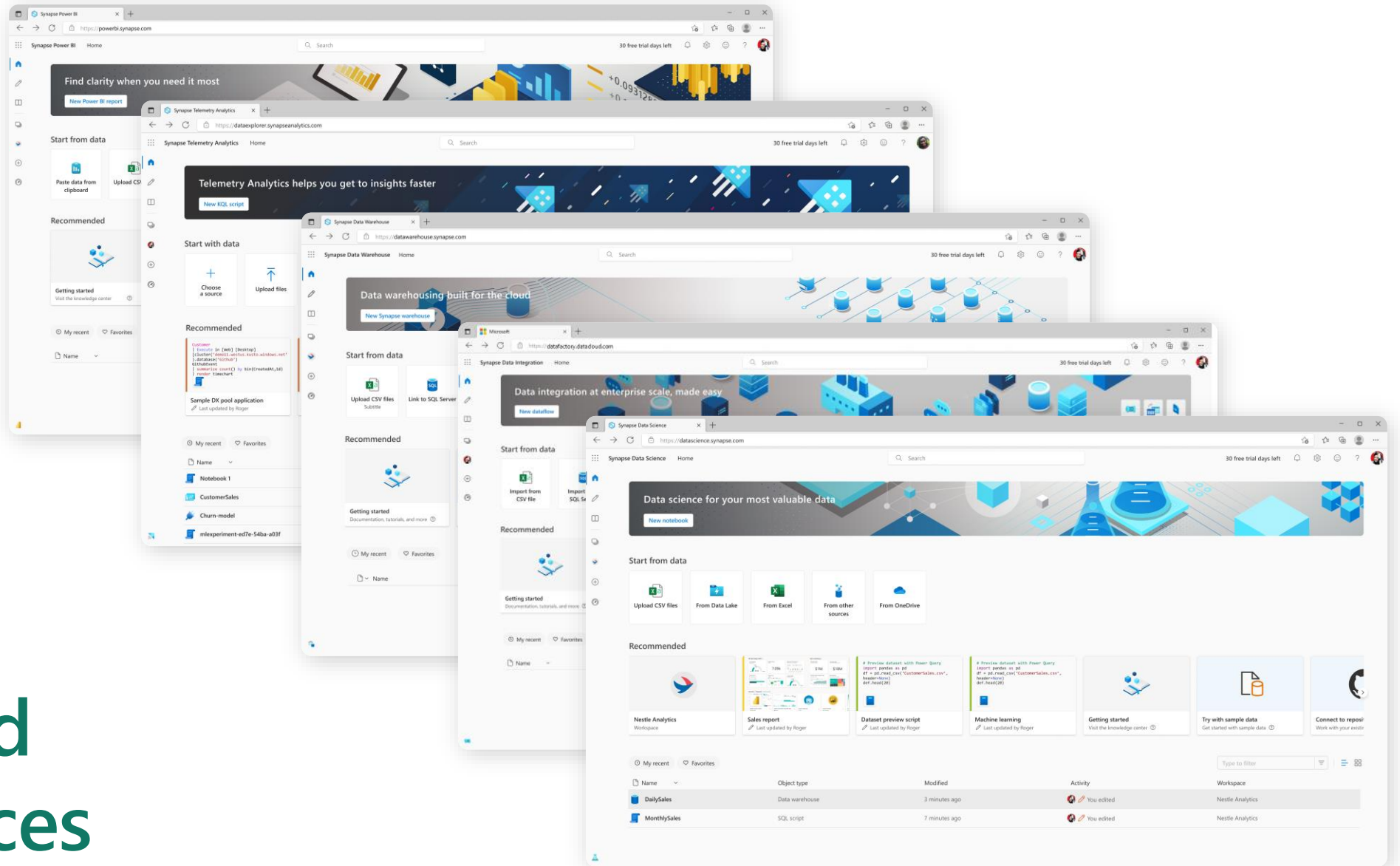
Microsoft Fabric

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
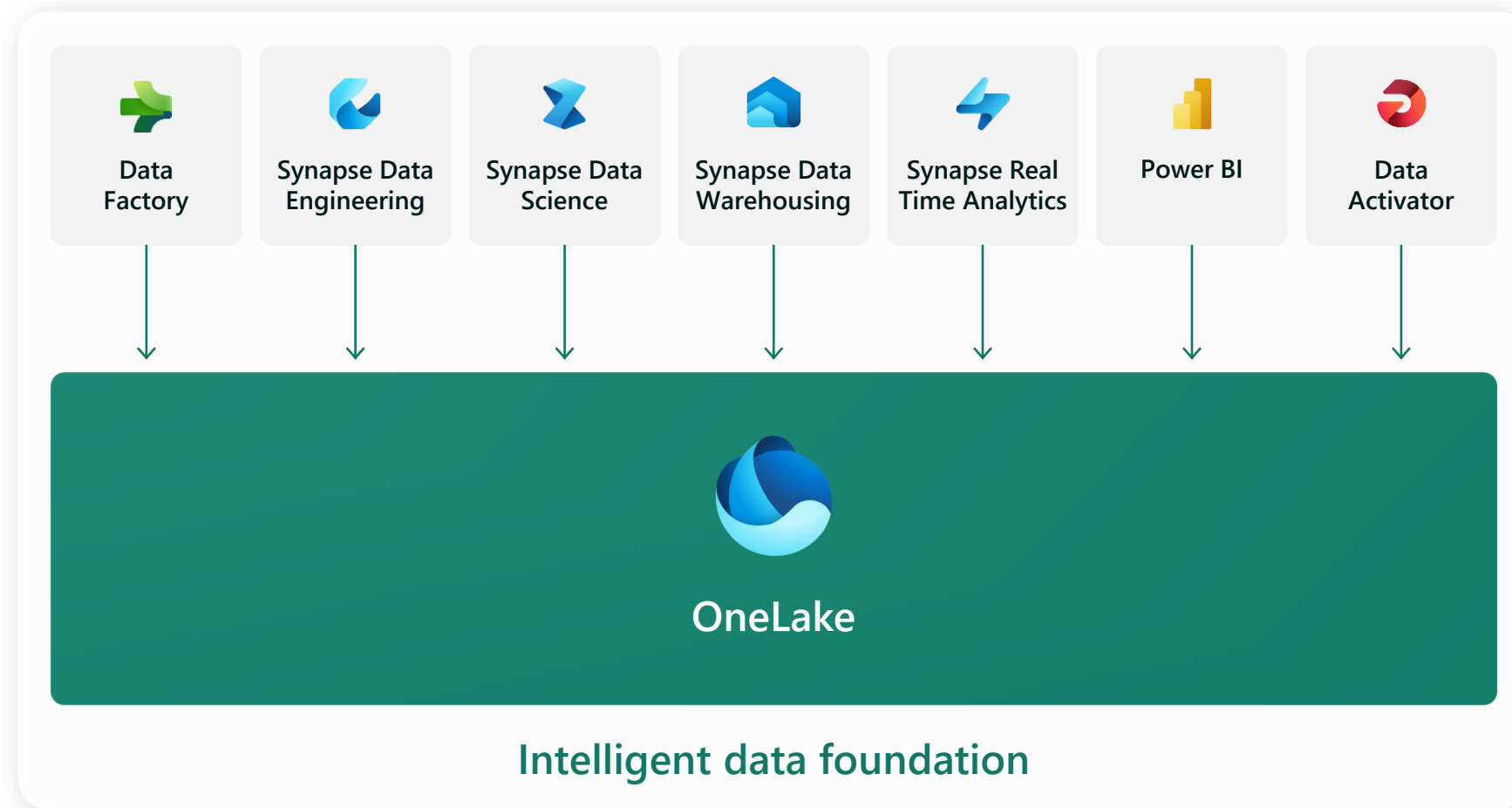
AI Powered

Copilot accelerated

ChatGPT on your data

AI driven insights

OneLake for all Data

"The OneDrive for Data"

Data Factory	Synapse Data Engineering	Synapse Data Science	Synapse Data Warehousing	Synapse Real Time Analytics	Power BI	Data Activator

OneLake

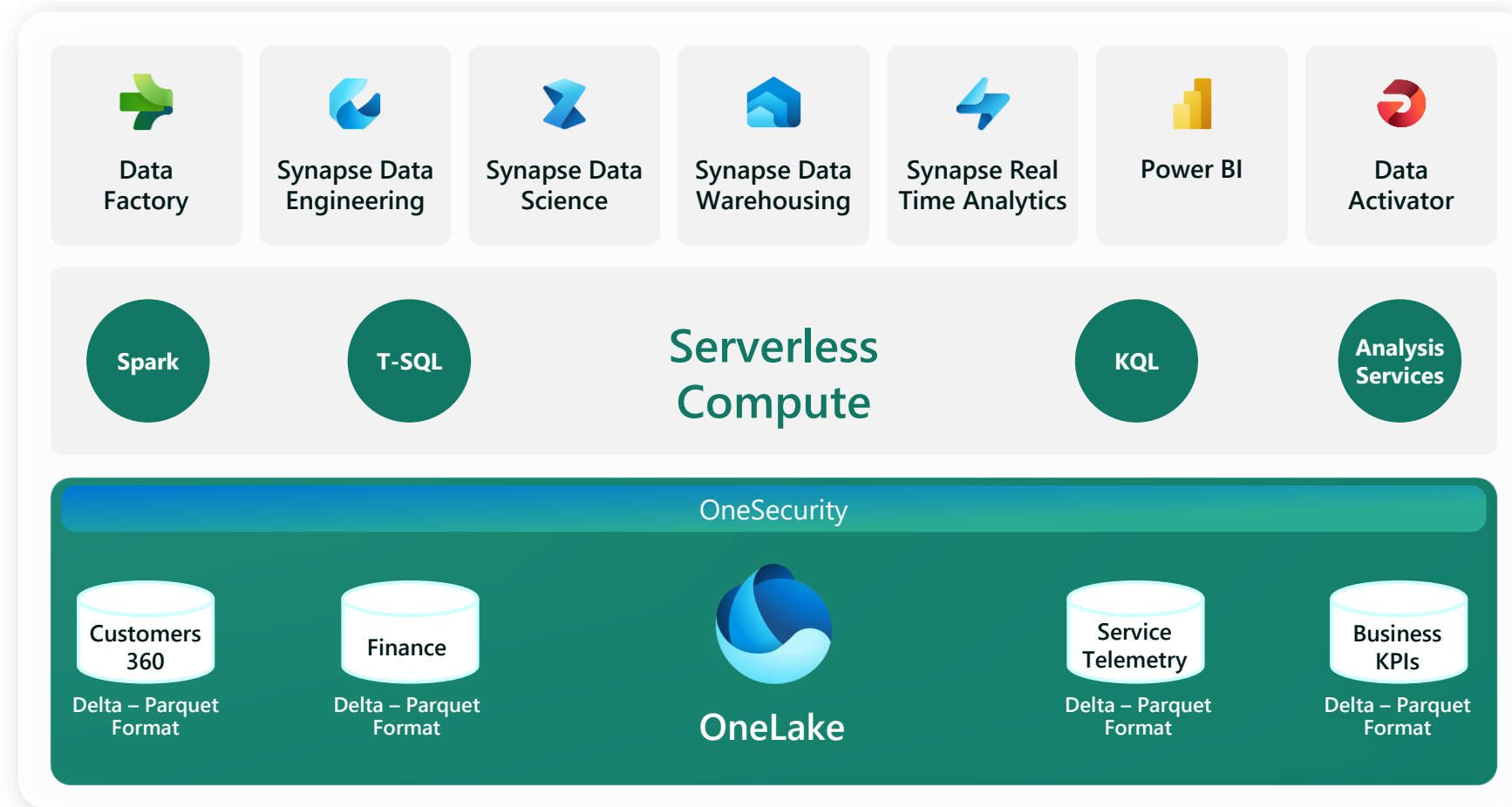**Intelligent data foundation**

- A single SaaS lake for the whole organization
- Provisioned automatically with the tenant
- All workloads automatically store their data in the OneLake workspace folders
- All the data is organized in an intuitive hierarchical namespace
- The data in OneLake is automatically indexed for discovery, MIP labels, lineage, PII scans, sharing, governance and compliance

One Copy for all computes

Universal security makes it real

| Data Factory | Synapse Data Engineering | Synapse Data Science | Synapse Data Warehousing | Synapse Real Time Analytics | Power BI | Data Activator |

Spark   **T-SQL**   **Serverless Compute**   **KQL**   **Analysis Services**

OneSecurity

Customers 360
Delta – Parquet Format

Finance
Delta – Parquet Format

OneLake

Service Telemetry
Delta – Parquet Format

Business KPIs
Delta – Parquet Format

- All the compute engines store their data automatically in OneLake

- The data is stored in a single common format

- Delta – Parquet, an open standards format, is the storage format for all tabular data in Analytics vNext

- Once data is stored in the lake, it is directly accessible by all the engines without needing any import/export

- All the compute engines have been fully optimized to work with Delta Parquet as their native format

- Shared universal security model is enforced across all the engines

OneLake for all domains

A true hub & spoke data mesh across organizational data domains.

OneLake

Sales
Customer
HR
IT
Marketing
Finance
Operations
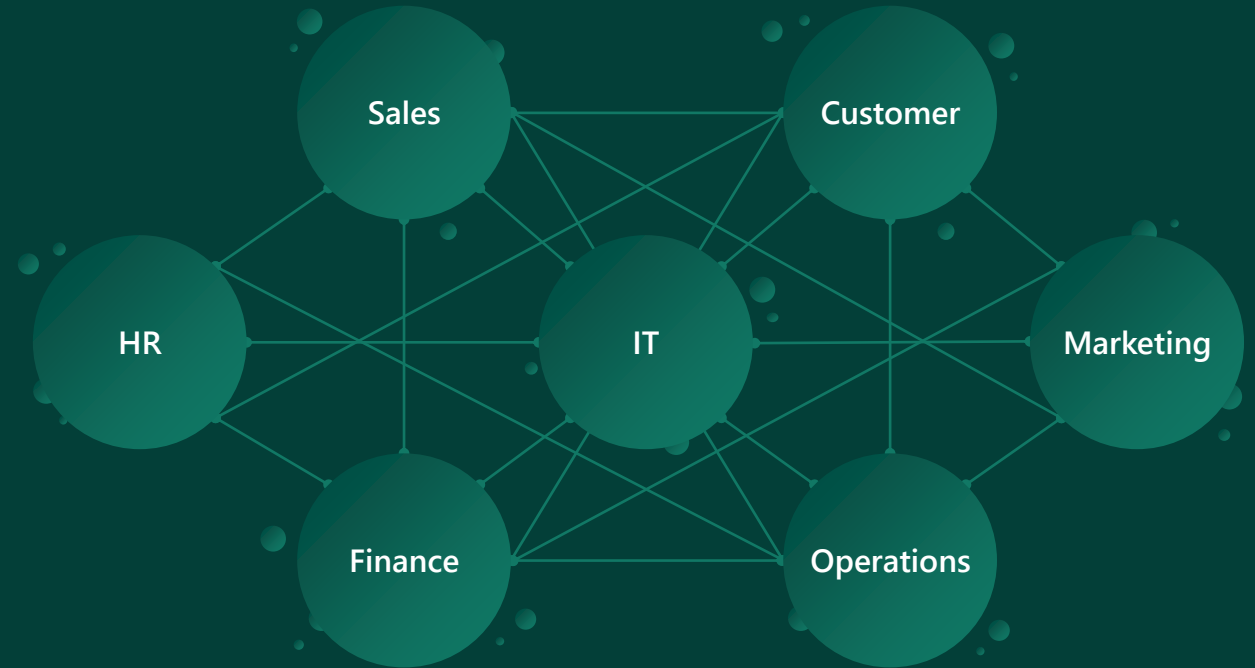
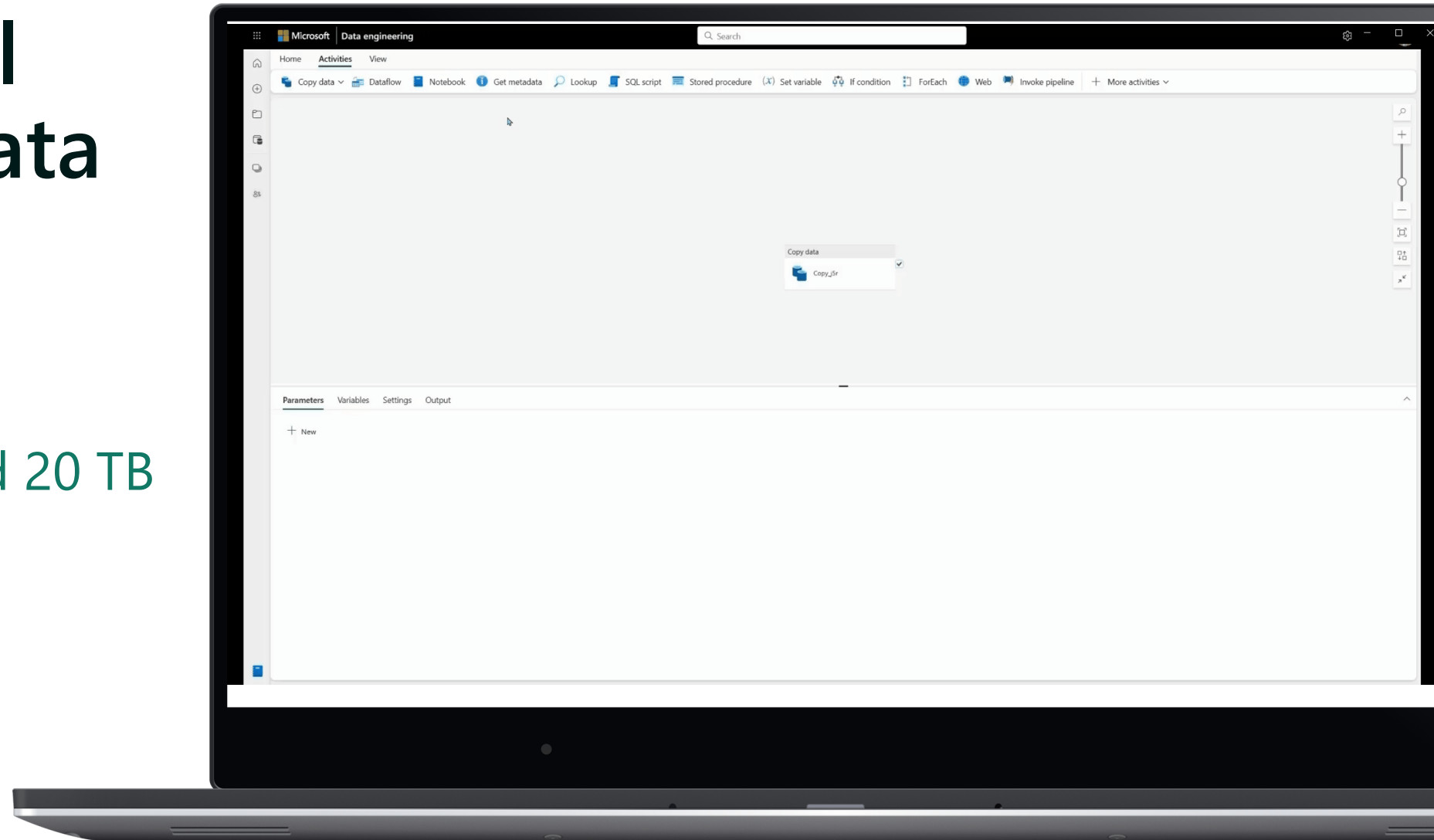Workspaces and artifacts for different data domains, contribute to building the same data lake

Without data movement, data from different domains can be analyzed, blended and transformed together

Data is secured and governed in one place while remaining easily discoverable and accessible to all who should have access across the organization

Data can be certified by domain experts to enabling trust for data which is discovered

Loading full MS Sales data to Fabric Lakehouse

15 minutes to load 20 TB

One Copy for all computes

Using the Lakehouse

| Data Factory | Synapse Data Engineering | Synapse Data Science | Synapse Data Warehousing | Synapse Real Time Analytics | Power BI | Data Activator |

Serverless Compute

Spark   T-SQL   KQL   Analysis Services

MS Sales

Delta – Parquet Format
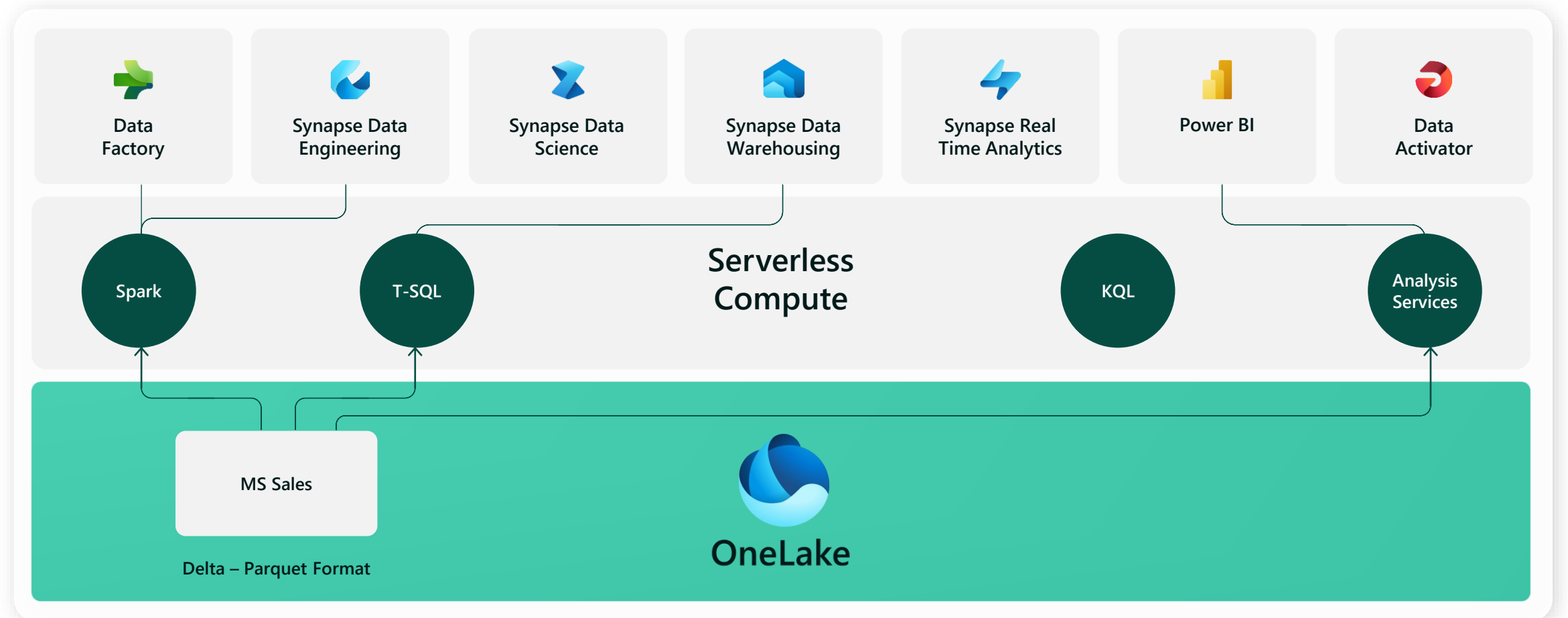
OneLake

DEMO: One Copy in Action – Using the Lakehouse

Home

Lakehouse

Get data | New Power BI dataset | Open notebook

Explorer

- MSSalesLH
  - Tables
    - DistributionChannel
    - FiscalCalendar
    - Geography
    - ManagementReporting
    - ProductMasterFamily
    - ReportedSubsegmentDefinit
    - Revenue
    - RevSumHierarchy
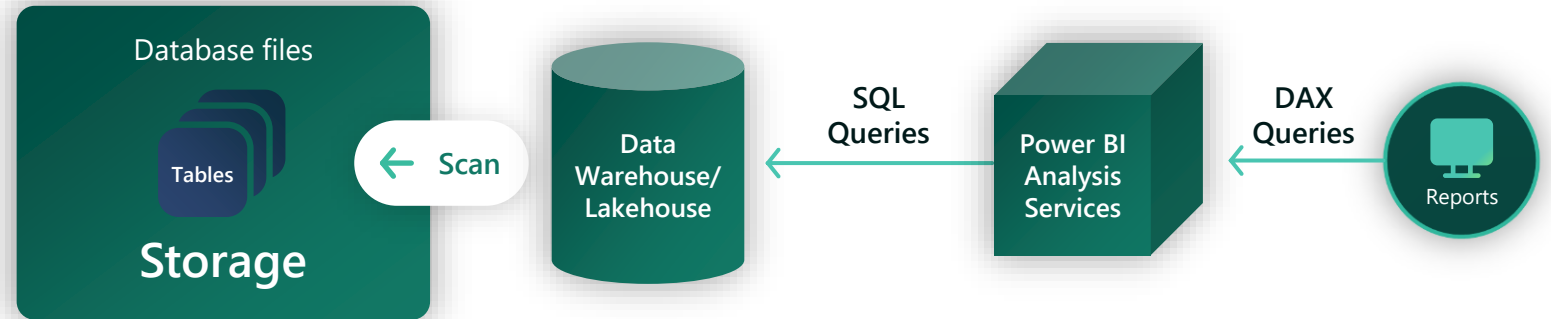   - Segment
  - Files
    - MSSalesRaw
    - Revenue

Revenue

Showing <1000> rows

	FTxlatOrgId	CTxlatOrgId	TRCredited...	BillingCurr...	ProductId	DataSourc...	Manageme...	RecordTyp...	BillingMon...	ActualQua...	ActualLice...	Secondary...	Legacy
1	3257564	128780890	1	15	2661545	982	4307622	3	10241	0	0	0	0
2	3257564	128780890	1	15	2661700	982	4307622	3	10241	0	0	0	0
3	3257564	128780890	1	15	10178506	982	4307622	3	10241	0	0	0	0
4	3257564	128780890	1	15	10224223	982	4307622	3	10241	0	0	0	0
5	3257564	128780890	1	15	2649901	982	4307622	3	10241	0	0	0	0
6	3257564	128780890	1	15	2650197	982	4307622	3	10241	0	0	0	0
7	3257564	128780890	1	15	10216572	982	4307622	3	10241	0	0	0	0
8	3257564	128780890	1	15	10216539	982	4307622	3	10241	0	0	0	0
9	3257564	128780890	1	15	2662213	982	4307622	3	10241	0	0	0	0
10	3257564	128780890	1	15	10216766	982	4307622	3	10241	0	0	0	0
11	3257564	128780890	1	15	2661343	982	4307622	3	10241	0	0	0	0
12	3257564	128780890	1	15	10216635	982	4307622	3	10241	0	0	0	0
13	3257564	128780890	1	15	10216552	982	4307622	3	10241	0	0	0	0
14	3257564	128780890	1	15	2661739	982	4307622	3	10241	0	0	0	0
15	3257564	128780890	1	15	2670046	982	4307622	3	10241	0	0	0	0

Home
Create
Browse
OneLake data hub
Monitoring hub
Workspaces
Sales Team
MSSalesLH
Data Engineering

"Direct Query Mode"
Slow, but real time

Database files

Tables

Storage

← Scan

Data Warehouse/ Lakehouse

SQL Queries

Power BI Analysis Services

DAX Queries

Reports

"Import Mode"
Latent & duplicative but fast

Database files

Tables

Storage

← Scan

Data Warehouse/ Lakehouse

Import →

Power BI Analysis Services

Copy of Tables

DAX Queries

Reports

"Direct Query Mode"
Slow, but real time

Database files
Tables
Storage
Scan
Data Warehouse/ Lakehouse
SQL Queries
Power BI Analysis Services
DAX Queries
Reports

"Import Mode"
Latent & duplicative but fast

Database files
Tables
Storage
Scan
Data Warehouse/ Lakehouse
Import
Power BI Analysis Services
Copy of Tables
DAX Queries
Reports

"Direct Lake Mode"
Perfect!

Parquet/Delta Lake
Tables
OneLake
Data Warehouse/ Lakehouse
Scan
Power BI Analysis Services
DAX Queries
Reports

Taking One Copy to the Next Level

Shortcuts

Data Factory · **Synapse Data Engineering** · **Synapse Data Science** · **Synapse Data Warehousing** · **Synapse Real Time Analytics** · **Power BI** · **Data Activator**

Customers 360 · Finance · **OneLake** · Service Telemetry · Business KPIs
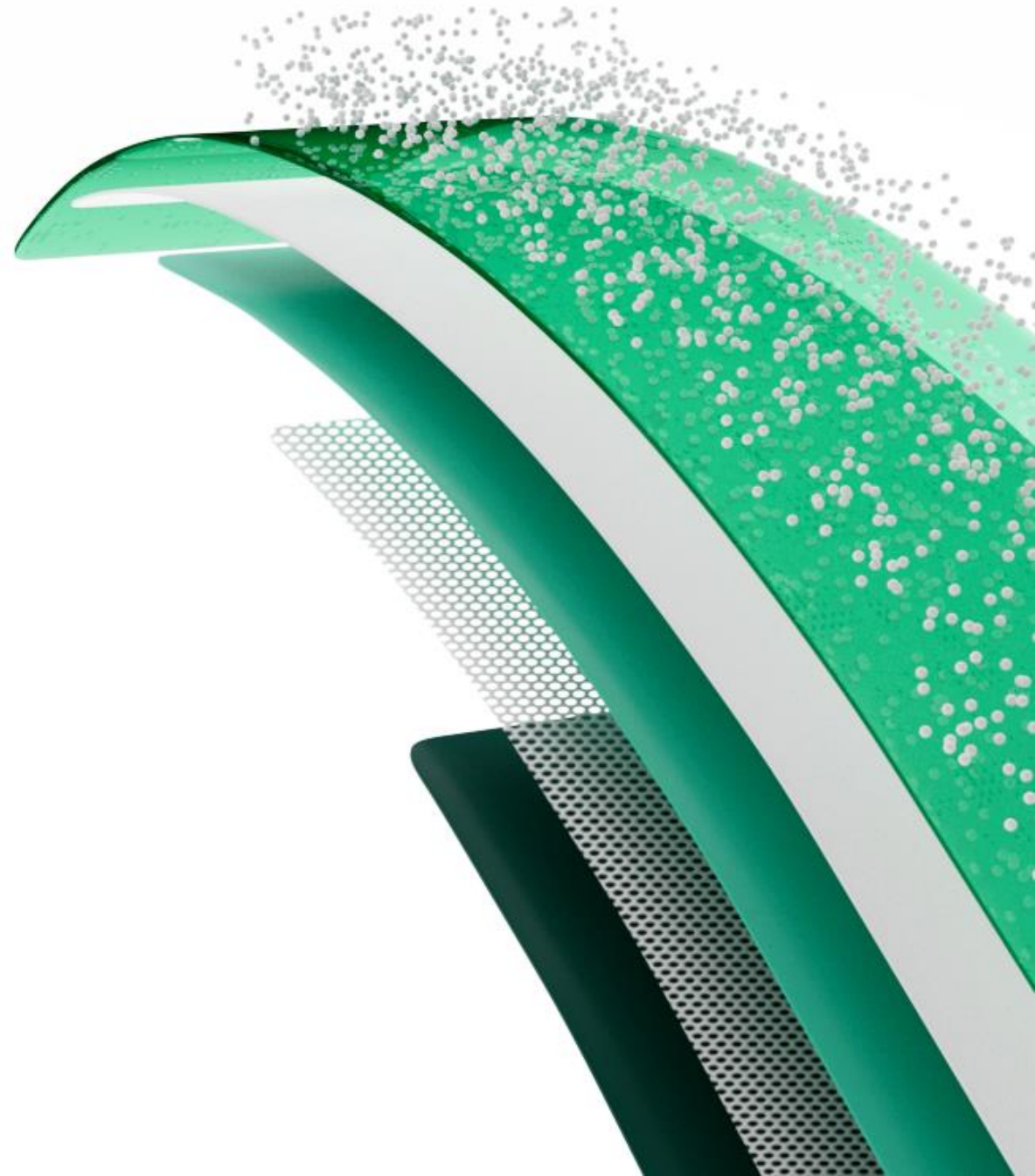
Azure · **Amazon** · **Google**
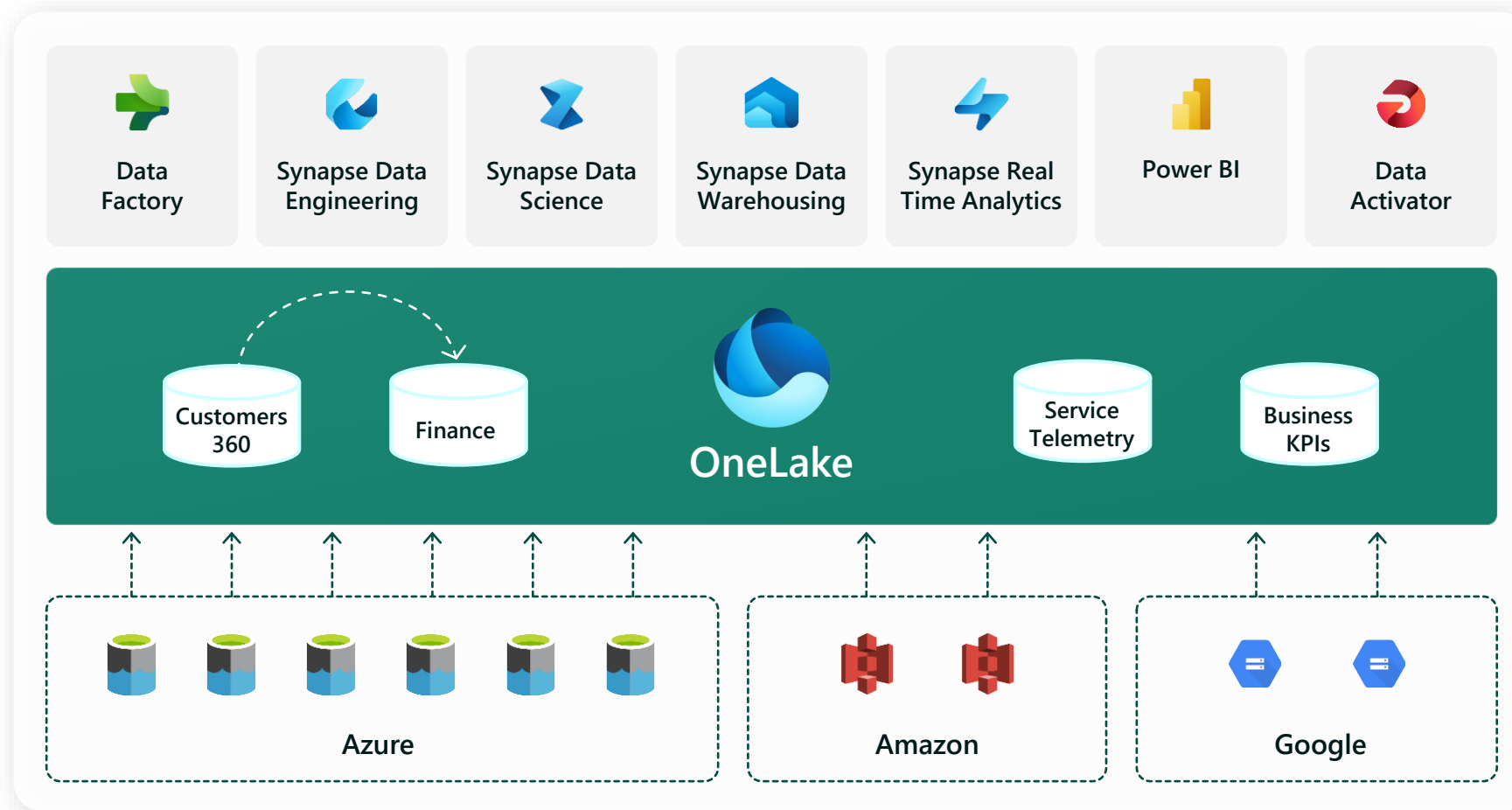
- Sharing data in OneLake is as easy as sharing files in OneDrive, removing the needs for data duplication

- With **shortcuts**, data throughout OneLake can be composed together without any data movement

- Shortcuts also allow instant linking of data already existing in Azure and in other clouds, without any data duplication and movement, making **OneLake the first multi-cloud data lake**

- With support for industry standard APIs, OneLake data can be directly accessed by any application or service

DEMO: One Lake Shortcuts

Search

Home

Lakehouse

Get data | New Power BI dataset | Open notebook

Explorer

customer

Showing <50> rows

- Marketing
  - Tables
    - businessunit
    - calendar
    - campaign
    - channel
    - customer
    - customercall
    - geography
    - product
    - promotion
    - vendor
  - Files

	FirstName	LastName	CompanyN...	Address	City	County	State	Zip	HomePhone	WorkPhone	Email
1	James	Smith	Benton, Joh...	6649 N Blu...	New Orleans	Orleans	LA	70116	504-621-89...	504-845-14...	jsmith@gm...
2	Josephine	Darakjy	Chanay, Jeff...	4 B Blue Ri...	Brighton	Livingston	MI	48116	810-292-93...	810-374-98...	josephine_d...
3	Art	Venere	Chemel, Ja...	8 W Cerrito...	Bridgeport	Gloucester	NJ	8014	856-636-87...	856-264-41...	art@venere...
4	Lenna	Paprocki	Feltz Printin...	639 Main St	Anchorage	Anchorage	AK	99501	907-385-44...	907-921-20...	lpaprocki@...
5	Donette	Foller	Printing Di...	34 Center St	Hamilton	Butler	OH	45011	513-570-18...	513-549-45...	donette.foll...
6	Simona	Morasca	Chapman, ...	3 Mcauley Dr	Ashland	Ashland	OH	44805	419-503-24...	419-800-67...	simona@m...
7	Mitsue	Tollner	Morlong As...	7 Eads St	Chicago	Cook	IL	60632	773-573-69...	773-924-85...	mitsue_toll...
8	Leota	Dilliard	Commercial...	7 W Jackso...	San Jose	Santa Clara	CA	95111	408-752-35...	408-813-11...	leota@hot...
9	Sage	Wieser	Truhlar And...	5 Boston Av...	Sioux Falls	Minnehaha	SD	57105	605-414-21...	605-794-48...	sage_wieser...
10	Kris	Marrier	King, Christ...	228 Runam...	Baltimore	Baltimore C...	MD	21224	410-655-87...	410-804-46...	kris@gmail...
11	Minna	Amigon	Dorl, James...	2371 Jerrol...	Kulpsville	Montgomery	PA	19443	215-874-12...	215-422-86...	minna_ami...
12	Abel	Maclead	Rangoni Of...	37275 St Rt...	Middle Island	Suffolk	NY	11953	631-335-34...	631-677-36...	amaclead@...
13	Kiley	Caldarera	Feiner Bros	25 E 75th St...	Los Angeles	Los Angeles	CA	90034	310-498-56...	310-254-30...	kiley.caldar...
14	Graciela	Ruta	Buckley Mill...	98 Connecti...	Chagrin Falls	Geauga	OH	44023	440-780-84...	440-579-77...	gruta@cox...
15	Cammy	Albares	Rousseaux, ...	56 E Moreh...	Laredo	Webb	TX	78045	956-537-61...	956-841-72...	calbares@g...

Fabric Trial:
59 days left

OneLake data hub

Discover, manage, and use data from across your org. Learn more about OneLake data hub ⧉

Sales ⌄

Recommended ⓘ

Business Dataset 🛡	US Retail Sales	Contoso Dataset 🛡	Supplier-Quality-Analysis-Sampl... 🛡	Operating Report 🔒
Owner: Arun Ulag	Owner: hcl-admin	Owner: Arun Ulag	Owner: Arun Ulag	Owner: Arun Ulag
Details ⌄	Details ⌄	Details ⌄	Details ⌄	Details ⌄

All   My data   Endorsed in your org

Filter by keyword   Filter ⌄

Explorer «

Search

⊡ All
Contoso Sales
Sales HQ
Sales Report - Contoso

Name	Type	Owner	Refreshed	Location	Endorsement	Sensitivity
Business Dataset	Dataset	Arun Ulag	9/6/22, 5:20:24 PM	Sales Report - Contoso	–	Confidential GDPR ⓘ
US Retail Sales	Dataset	hcl-admin	10/20/19, 10:42:15 PM	Sales HQ	–	–
Contoso Dataset	Dataset	Arun Ulag	3/17/22, 8:04:24 PM	Contoso Sales	–	General ⓘ
Supplier-Quality-Analysis-Sample-...	Dataset	Arun Ulag	3/22/20, 3:12:13 AM	Sales HQ	–	General ⓘ
Operating Report	Dataset	Arun Ulag	10/5/19, 1:20:04 AM	Sales HQ	–	Confidential\Intern... ⓘ

Home
Create
Browse
OneLake data hub
Apps
Metrics
Monitoring hub
Deployment pipelines
Learn
Workspaces
Contoso CRM...
Power BI

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
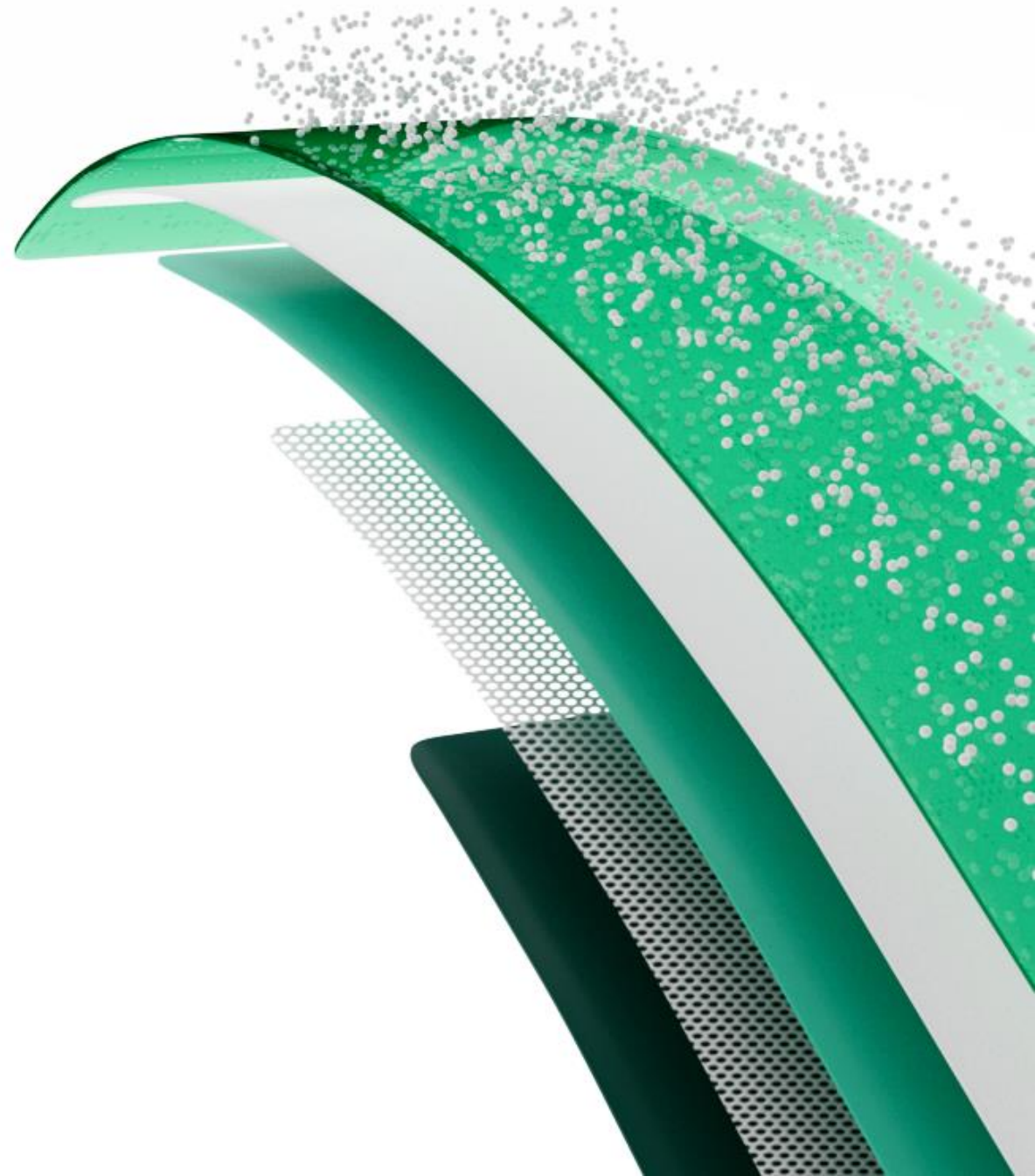
Built into Microsoft 365

Insight to action

AI Powered

Copilot accelerated

ChatGPT on your data

AI driven insights

DEMO: Office Integration

Power BI   Home   Create   Browse   Data hub   Learn   About

Give us feedback

Home

Metrics

Apps

Workspaces

Contoso Sal...

Good evening, Patrick

Find and share actionable insights to make data-driven decisions

+ New report

Recommended

You frequently open this	You favorited this	Will Thompson (HE/HIM) featured this	Mohammad Ali opened this	You frequently open tl
Power BI	2021 - TeamsNotificationUsage	COVID Bakeoff	Intelligence Platform LT Dashboard	Workforce Planning

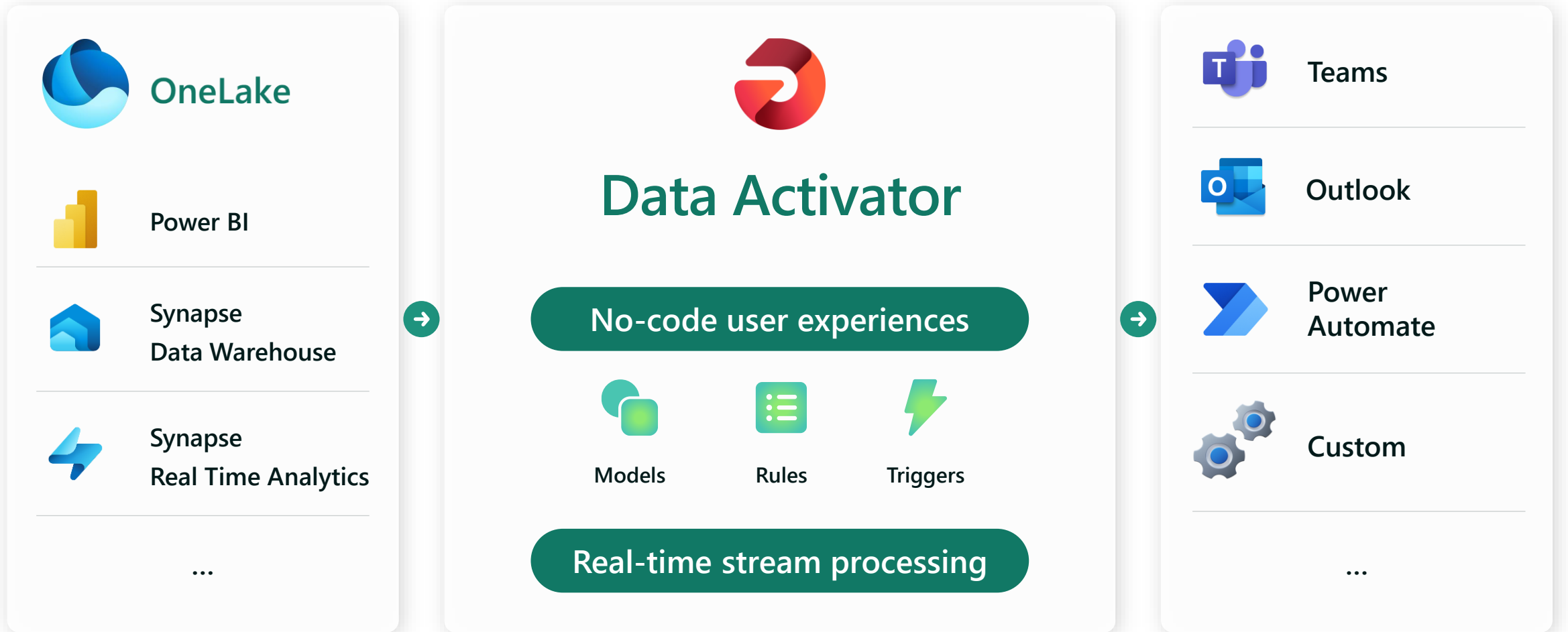Recent   In Teams   Favorites   My apps   From external orgs

Filter by keyword   Filter

	Name	Type	Opened	Location	Endorsement	Sensitivity
	Sales Pipeline	Report	39 seconds ago	Contoso Sales Excellence	—	Confidential\Microsoft Extended
	Goals Usage(Kusto)	Report	9 days ago	Goals	—	Confidential\Microsoft FTE
	Workforce Demographics (Demo Mid)	Report	12 days ago	My workspace	—	General
	Goals usage - Client events - Feature usage	Report	13 days ago	Goals usage metrics	—	Confidential\Microsoft FTE
	Workforce Hiring Summary	Report	14 days ago	My workspace	—	General
	My workspace	Workspace	14 days ago	Workspaces	—	—

41°F
Cloudy

Search

10:39 PM
2/8/2023

Announcing

Data Activator

Introducing Data Activator

OneLake

Power BI

Synapse Data Warehouse

Synapse Real Time Analytics

...

Data Activator

No-code user experiences

Models   Rules   Triggers

Real-time stream processing

Teams

Outlook

Power Automate

Custom

...

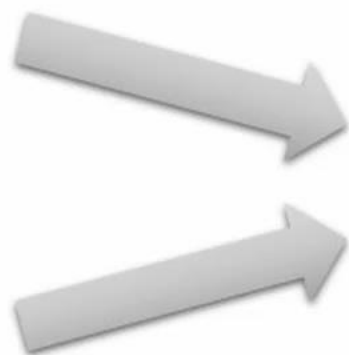# DEMO: Data Activator

Demo scenario – delivery logistics
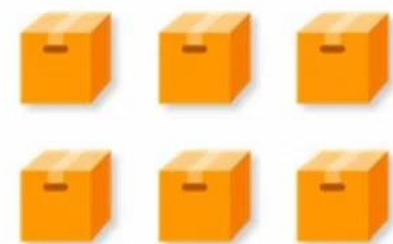
PACKAGES

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

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
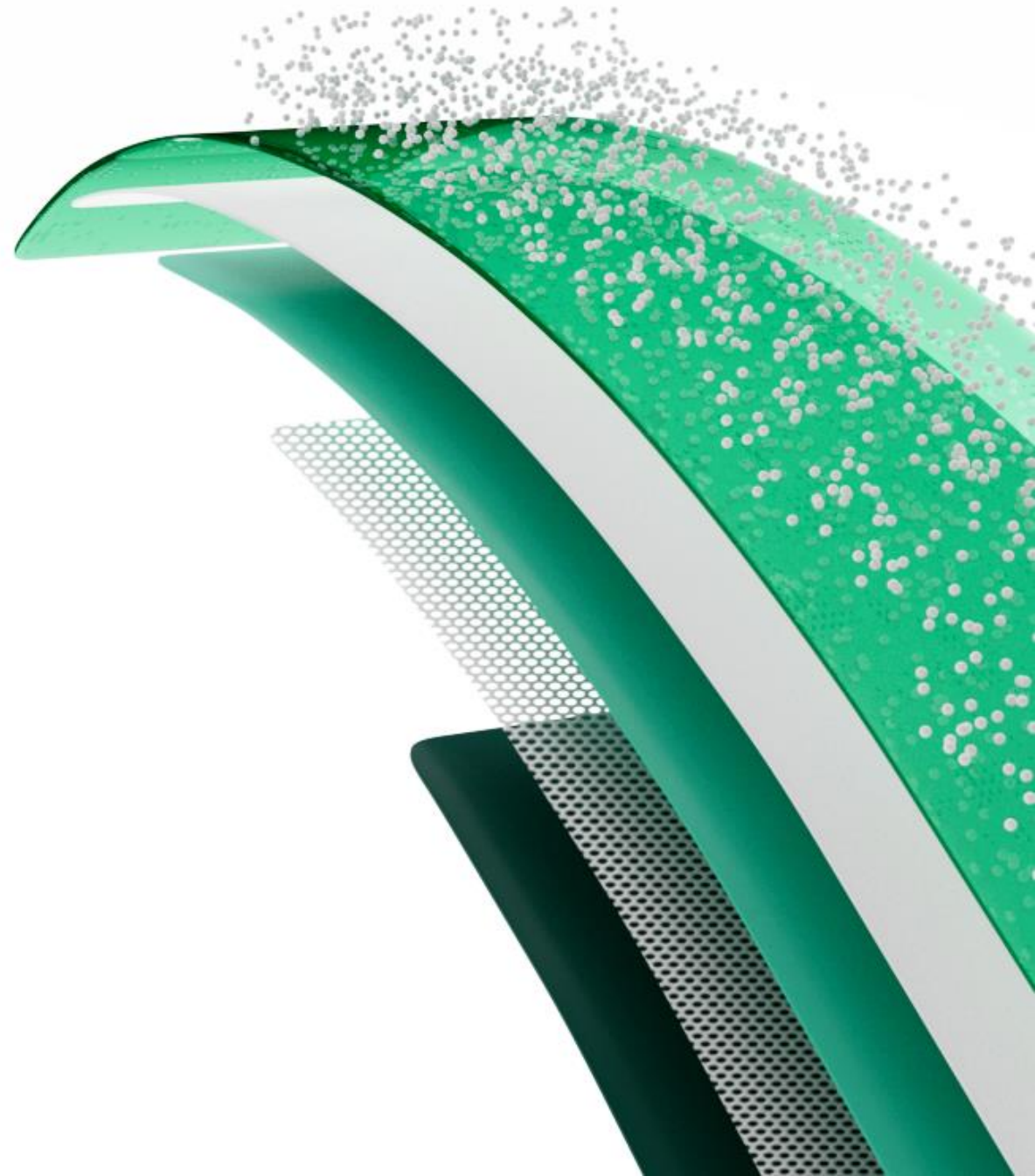
Built into Microsoft 365

Insight to action

AI Powered

Copilot accelerated

ChatGPT on your data

AI driven insights

DEMO: Copilot accelerated – Synapse Data Science

Home   View   Data

Editing

Add Code Cell   Run all   Stop session   Language   PySpark (Python)   Trident Assistant   Open in VS code   Sensitivity

Comments   Share

Sales Lakehouse

Search

Tables
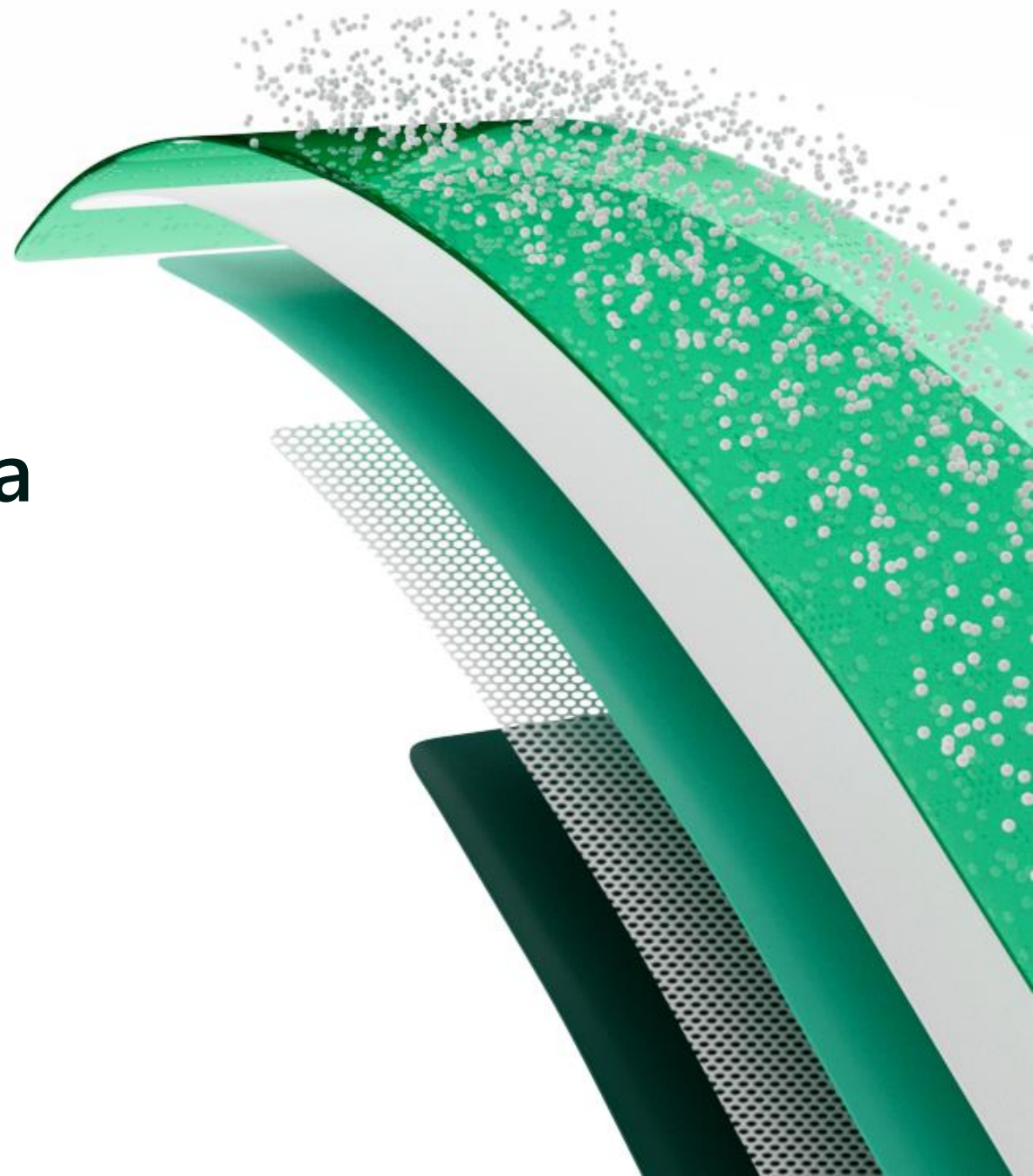 Clickstream Telemetry
  Customer
  Geography
  Product
  Sales
  Store
Files
  Support_Call_Audio
  Reviews

```
1  # Get started by typing in your code
2
3
[1]  Press shift + enter to execute cells
```

Connected

10 of 10 cells

DEMO: ChatGPT on your data

Search

Home

Lake mode | Share

↻ ⚙ | Get data ∨ | New dataset | Open Spark job definition ∨ | Open notebook ∨ | Sensitivity ∨ | Add Copilot Plugin

Sales lakehouse

Search

Tables > Revenue

> Tables
  > Calendar
  > Geography
  > Revenue ...
  > Vendors
> Files
  > Sales
  > CustomerFeedback

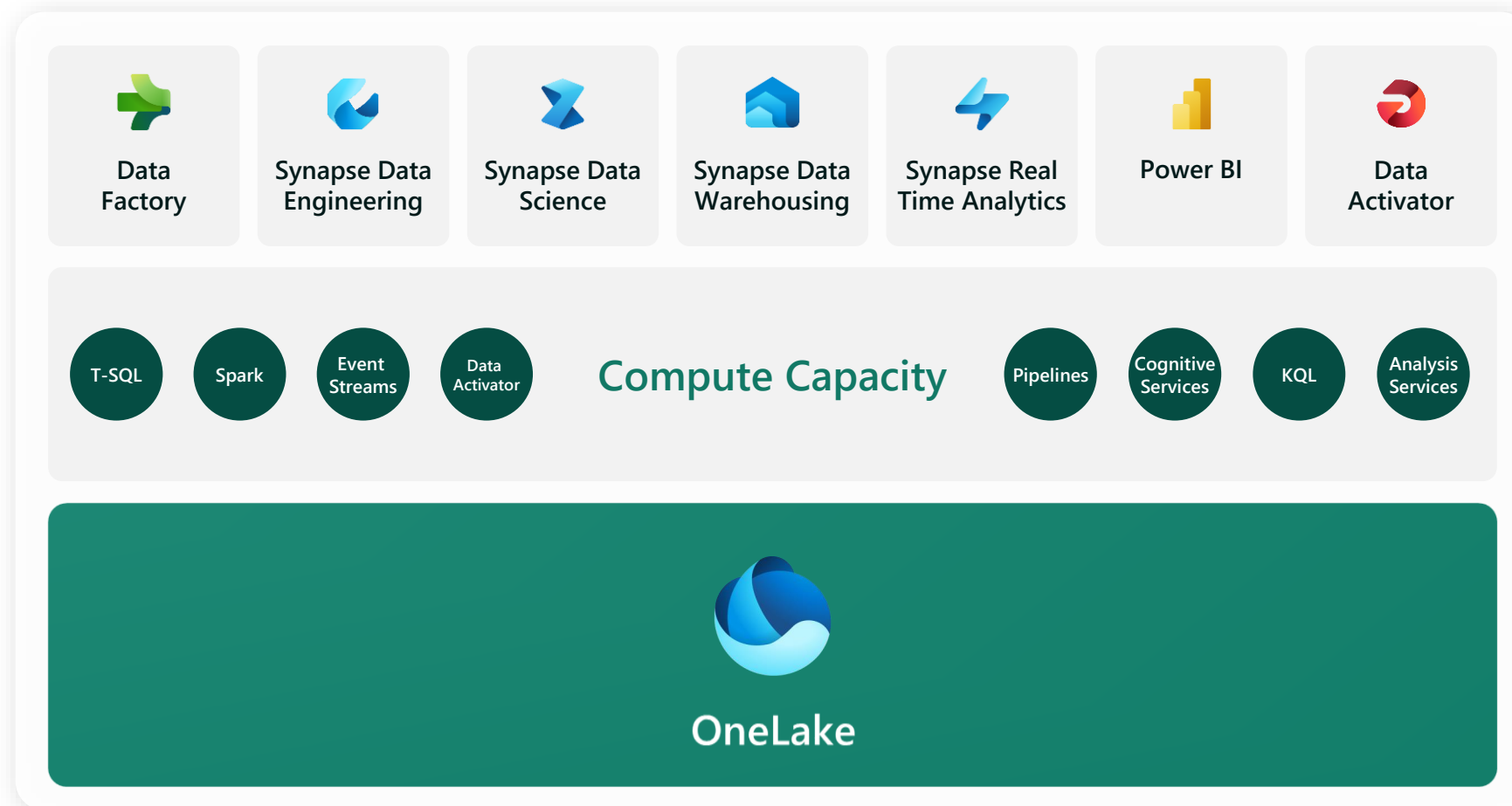|	AB CustomerName	12 CustomerId	AB CustomerCategory	⊕ Country	AB Region	12 ZipCode	AB Email	AB LoyaltyLevel
1	Maria Anders	323576-32372332-10	Sales	Berlin	Europe	10115	jackson.graham@example.com	Regular
2	Ana Trujillo	323576-32372332-11	Representative	México D.F.	South America	46958	sara.cruz@example.com	Regular
3	Antonio Moreno	323576-32372332-12	Owner	México D.F.	South America	46864	jessica.hanson@example.com	Regular
4	Thomas Hardy	323576-32372332-13	Owner	London	Europe	533425	deanna.curtis@example.com	Regular
5	Christina Berglund	323576-32372332-14	Sales	Luleå	Europe	533625	nevaeh.simmons@example.com	Regular
6	Hanna Moos	323576-32372332-15	Representative	Mannheim	Europe	533550	tim.jennings@example.com	Frequent
7	Frédérique Citeaux	323576-32372332-16	Order Administrator	Strasbourg	Europe	533537	felicia.reid@example.com	Regular
8	Martín Sommer	323576-32372332-17	Sales	Madrid	Europe	10115	dolores.chambers@example.com	Regular
9	Laurence Lebihan	323576-32372332-18	Representative	Marseille	Europe	254876	debbie.baker@example.com	Regular
10	Elizabeth Lincoln	323576-32372332-19	Marketing Manager	Tsawassen	Europe	46864	michelle.rivera@example.com	Regular
11	Victoria Ashworth	323576-32372332-20	Owner	London	Europe	533425	michael.mitc@example.com	Regular
12	Patricio Simpson	323576-32372332-21	Owner	Buenos Aires	Europe	533625	georgia.young@example.com	Frequent
13	Francisco Chang	323576-32372332-22	Accounting	México D.F.	South America	533561	willie.jennings@example.com	Frequent
14	Yang Wang	323576-32372332-23	Manager	Bern	Europe	533527	bill.sanders@example.com	Frequent
15	Pedro Afonso	323576-32372332-24	Sales	Sao Paulo	Europe	10117	tanya.hill@example.com	Frequent
16	Elizabeth Brown	323576-32372332-25	Representative	London	Europe	46959	jessica.hanson@example.com	Regular
17	Yang Wang	323576-32372332-26	Sales Agent	Aachen	Europe	46864	debbie.baker@example.com	Regular
18	Yang Wang	323576-32372332-27	Marketing Manager	Nantes	Europe	533425	kenzi.lawson@example.com	Regular

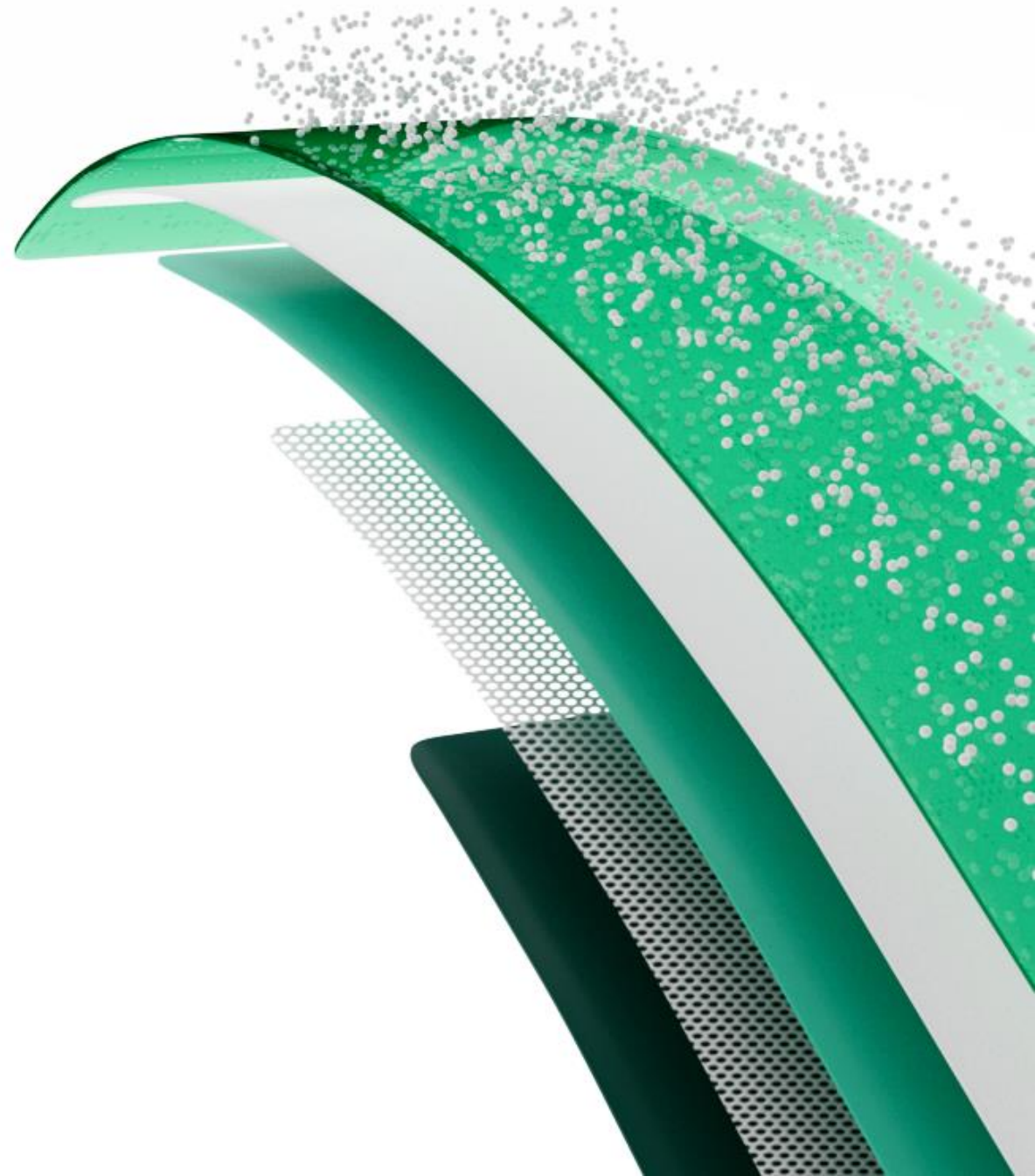# DEMO: AI Driven Insights – Power BI

Fabric Capacities:
Universal Compute
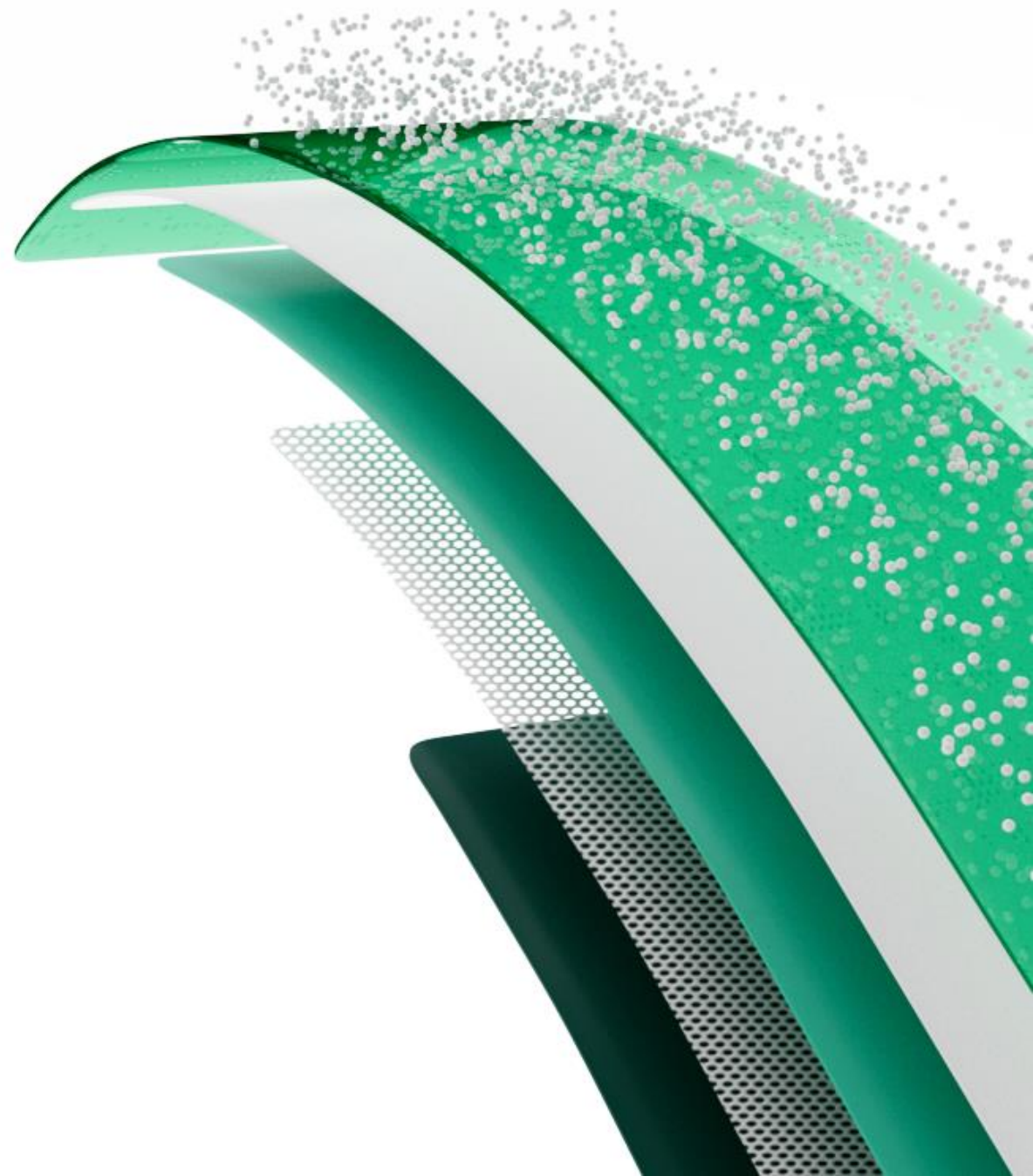
Universal compute capacities

"All in one"

Data Factory | Synapse Data Engineering | Synapse Data Science | Synapse Data Warehousing | Synapse Real Time Analytics | Power BI | Data Activator

T-SQL · Spark · Event Streams · Data Activator · **Compute Capacity** · Pipelines · Cognitive Services · KQL · Analysis Services

OneLake

- Analytics vNext comes with a rich set of compute engines

- Universal Compute Capacities provide the power to the various engines

- "All in One" – Each of the compute capacity can power all the engines

- There is no need to size in advance the individual engines, or to split the capacity across the engines

- All Power BI Premium capacities are upgraded automatically to the Universal Compute Capacities, no additional purchase required

Upgrading to Microsoft Fabric

Upgrade to Microsoft Fabric at your own pace

Continue building on Synapse Gen2, Azure Data Factory, Azure Data Explorer, Azure Databricks

1

Mount existing Synapse Gen2, Azure Data Factory, Azure Data Explorer to Microsoft Fabric, at zero cost/risk

2

Upgrade to full Microsoft Fabric experience with tooling and support from Microsoft

3

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
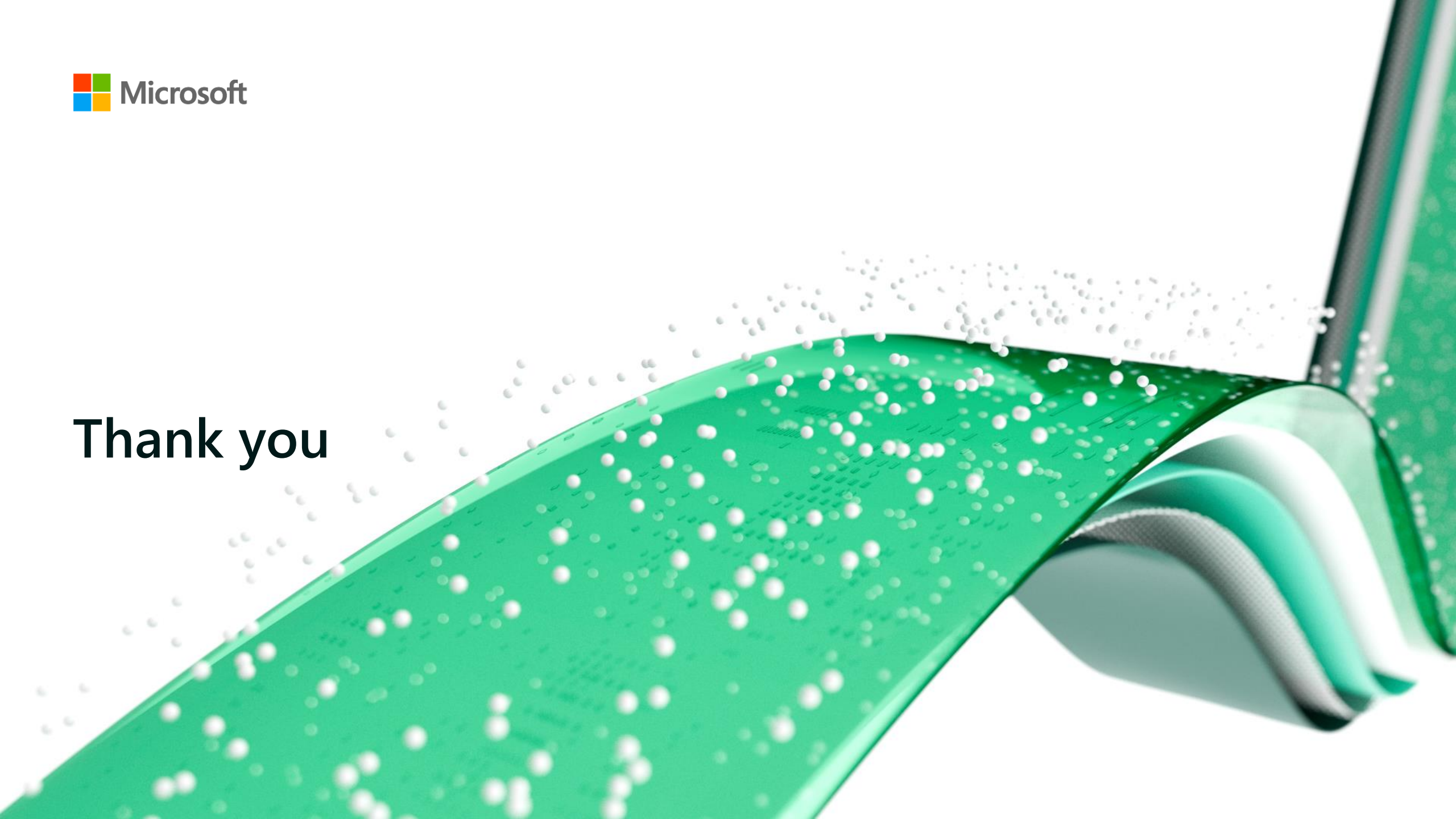
Power BI
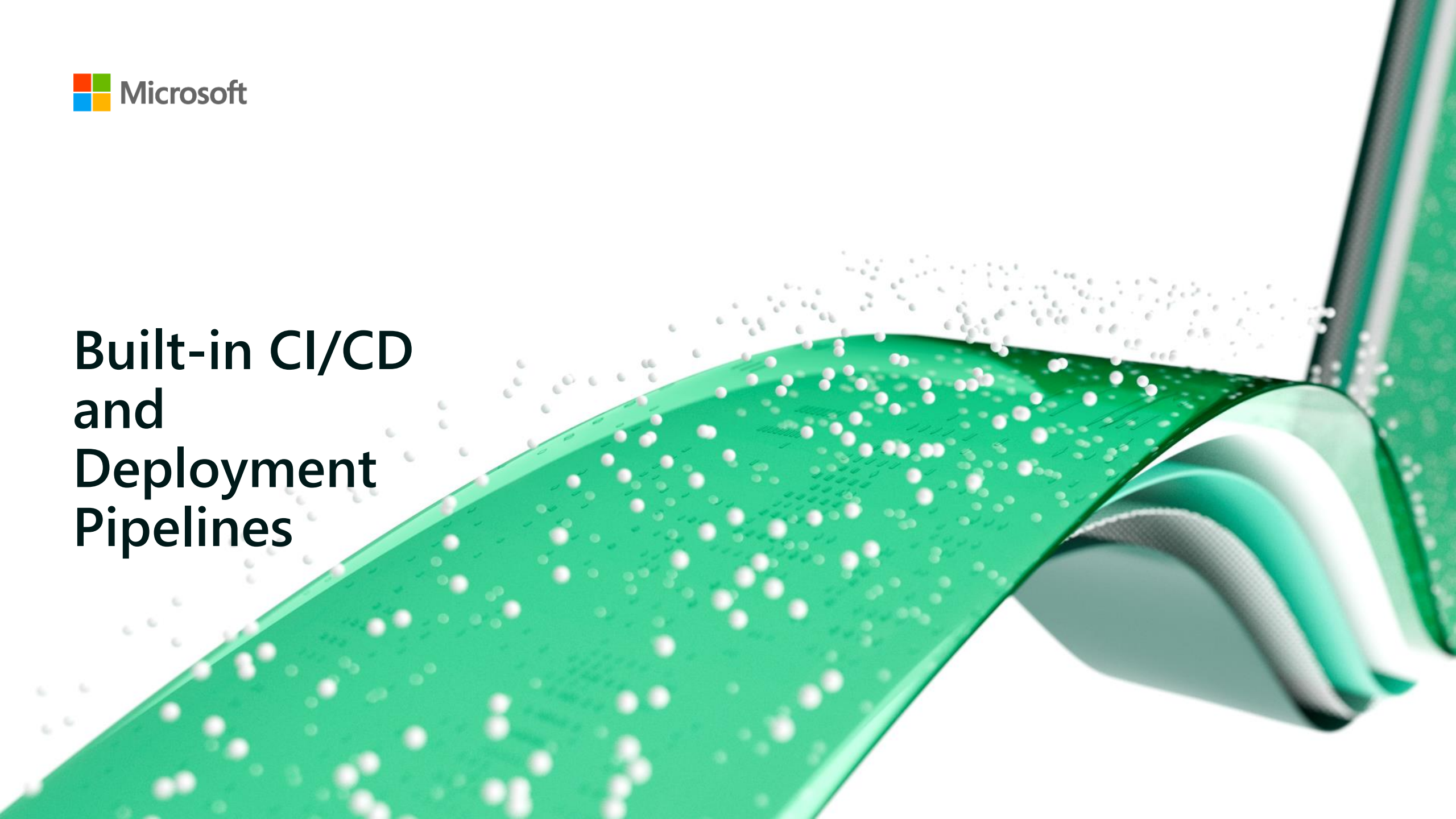
Data Activator

OneLake

Intelligent data foundation

Microsoft

Thank you

Appendix

Microsoft

Microsoft

Built-in CI/CD and Deployment Pipelines

Search

Trial:
18 days left

IT release pipeline

🕐 Deployment history   👥 Manage access   ⚙️ Settings   ⋯

🍴 Development   Learn more ⧉

Design, review, and revise your content in a development workspace. When it's ready for testing and previewing, deploy the content to the test slot.

📄 Test   Learn more ⧉

Design, review, and revise your content in a development workspace. When it's ready for testing and previewing, deploy the content to the test slot.

🌐 Production   Learn more ⧉

Design, review, and revise your content in a development workspace. When it's ready for testing and previewing, deploy the content to the test slot.

☁️ Contoso IT workspace ⧉   Deployed: 6/11/2019   ⋮

3	1	3 ↻	2	›
Dataflows	Datamarts (Preview)	⚠️ Datasets	Reports	

Show more ⌄   View app ⧉   **Deploy**

☁️ Contoso IT workspace [Test] ⧉   Deployed: 6/11/2019   ⋮

3	1	3 ↻	2	›
Dataflows	Datamarts (Preview)	⚠️ Datasets	Reports	

Show more ⌄   View app ⧉   **Deploy**

☁️ Contoso IT workspace [Production] ⧉   Deployed: 6/11/2019   ⋮

3	1	3 ↻	2	›
Dataflows	Datamarts (Preview)	⚠️ Datasets	Reports	

Show more ⌄   View app ⧉   **Deploy**