



# Introduzione a Microsoft Fabric, la nuova piattaforma di analisi basata sull'AI

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# Ci presentiamo!

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Accompagniamo le aziende clienti nell'adozione di servizi di **tecnologia innovativa**, progetti di **formazione IT** e servizi di **conservazione** e **gestione documentale**.

Ci contraddistingue la nostra competenza nella **consulenza** e nella **personalizzazione** delle soluzioni.

Come **Gold Partner Microsoft**, decliniamo la nostra specializzazione in M365 attraverso molti dei nostri servizi.

**40**

**DGROOVERS**

Un team in continua  
crescita in numero e  
competenze

**34**

**ANNI**

Di esperienza  
attentamente costruita in  
ambito ICT

**9**

**PARTNER STRATEGICI**

Con i quali condividiamo  
obiettivi, risultati e  
soprattutto valori



# Linee di Offerta

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## System Integration

- Consulenza sistemistica
- Servizi di consulenza e migrazione M365
- Sicurezza
- Gestione attacchi informatici

## Sviluppo applicazioni custom

- Sviluppo applicazioni custom ed integrazione con software esistenti;
- Refactoring di software legacy
- Microsoft Azure
- SharePoint
- Power Platform
- Angular, .NET

## Industria 4.0

- Soluzione *Place 4 You*
- Soluzioni custom di raccolta dati
- Soluzioni e consulenza Augmented Reality e Mixed reality
- Supporto finanza agevolata per l'Industria 4.0

## Gestione documentale

- Software di gestione documentale *DocSuite Next*
- Consulenza normativa
- Consulenza archivistica
- Sviluppo custom
- Soluzioni di conservazione e certificazione documenti

## Education & Training

- Formazione, certificazione, Training on the job
- IT e Soft skills
- Gestione piani finanziati
- Sede territoriale PCSNET
- Testing center Pearson Vue e EC-Council

Tecnologie Innovative | Consulenza | Progettazione | Formazione | Training on the job | Service & Customer Care



Buon ascolto!

# Chi è Règolo Farm



Règolo Farm S.r.l. è un'azienda specializzata nell'adozione di soluzioni Microsoft orientate ai temi di organizzazione aziendale, business work flow e business Intelligence (Power BI). Rileviamo le informazioni dettagliate necessarie per prendere decisioni strategiche. Automatizziamo il lavoro d'ufficio consolidando i dati storici e correnti, presentando i risultati in formati visivi intuitivi



# Chi Sono

Consulente e formatore in ambito business intelligence

Nel 2023 Fondatore e CTO start-up Regolo Farm per Business Intelligence e Power Platform

Nel 2020 Fondatore e CTO start-up Cargo BI per insurance data analytics per le compagnie assicurative

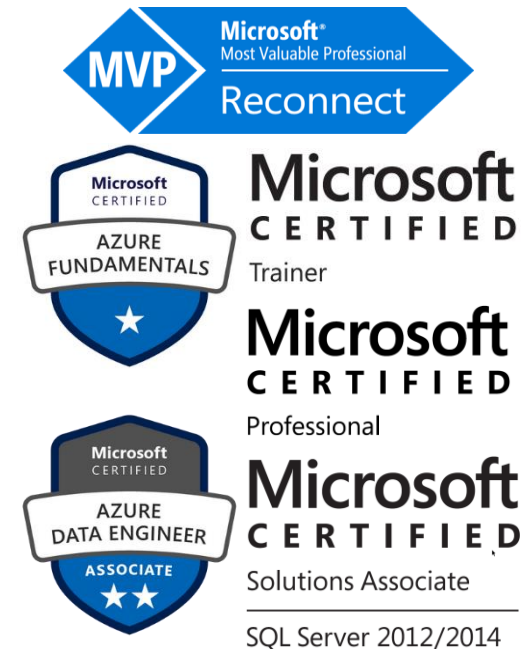
Dal 2017 mi occupo di architetture big Data e in generale di tutta la proposizione data platform di Microsoft.

Docente all'Università di Pordenone per i corsi IFTS di analisi Big Data

Community Lead di 1nn0va ([www.innovazionefvg.net](http://www.innovazionefvg.net))

MCP,MCSA,MCSE dal 2017 MCT e dal 2014 MVP, Azure Data Engineer e relatore in diverse conferenze sul tema.

- [Marco.pozzan@regolofarm.com](mailto:Marco.pozzan@regolofarm.com)
- [@marcopozzan.it](https://www.marcopozzan.it)
- [www.marcopozzan.it](http://www.marcopozzan.it)



# Microsoft Fabric

## WHAT IS MICROSOFT FABRIC?

A UNIFIED SaaS  
PLATFORM FOR ALL YOUR  
ANALYTICS NEEDS

### REAL-TIME ANALYTICS

INGEST & QUERY REAL-TIME DATA  
WITHIN SECONDS

STORE REALTIME DATA IN ONELake

### BI

REPORTS &  
DASHBOARDS  
WITH  
POWER BI

### DATA SCIENCE

RUN NOTEBOOKS WITHIN SECONDS  
WITHOUT MANAGING CLUSTERS  
TRAIN MODELS AND EXPERIMENT  
BETWEEN DIFFERENT MODELS VERSIONS

### DATA WAREHOUSE

POWERED BY DELTA PARQUET  
ACCESSIBLE THROUGH SQL AND SPARK  
DECOUPLED STORAGE & PROCESSING  
ORGANIZED AROUND WORKSPACES

### ONELake

UNIFIED  
LAKEHOUSE  
WITH AN OPEN  
FORMAT

### DATA INTEGRATION

USE NO-CODE OR NOTEBOOKS FOR  
ETL OR ELT JOBS  
SCHEDULE & RUN JOBS WITHOUT  
MANAGING (SPARK) CLUSTERS

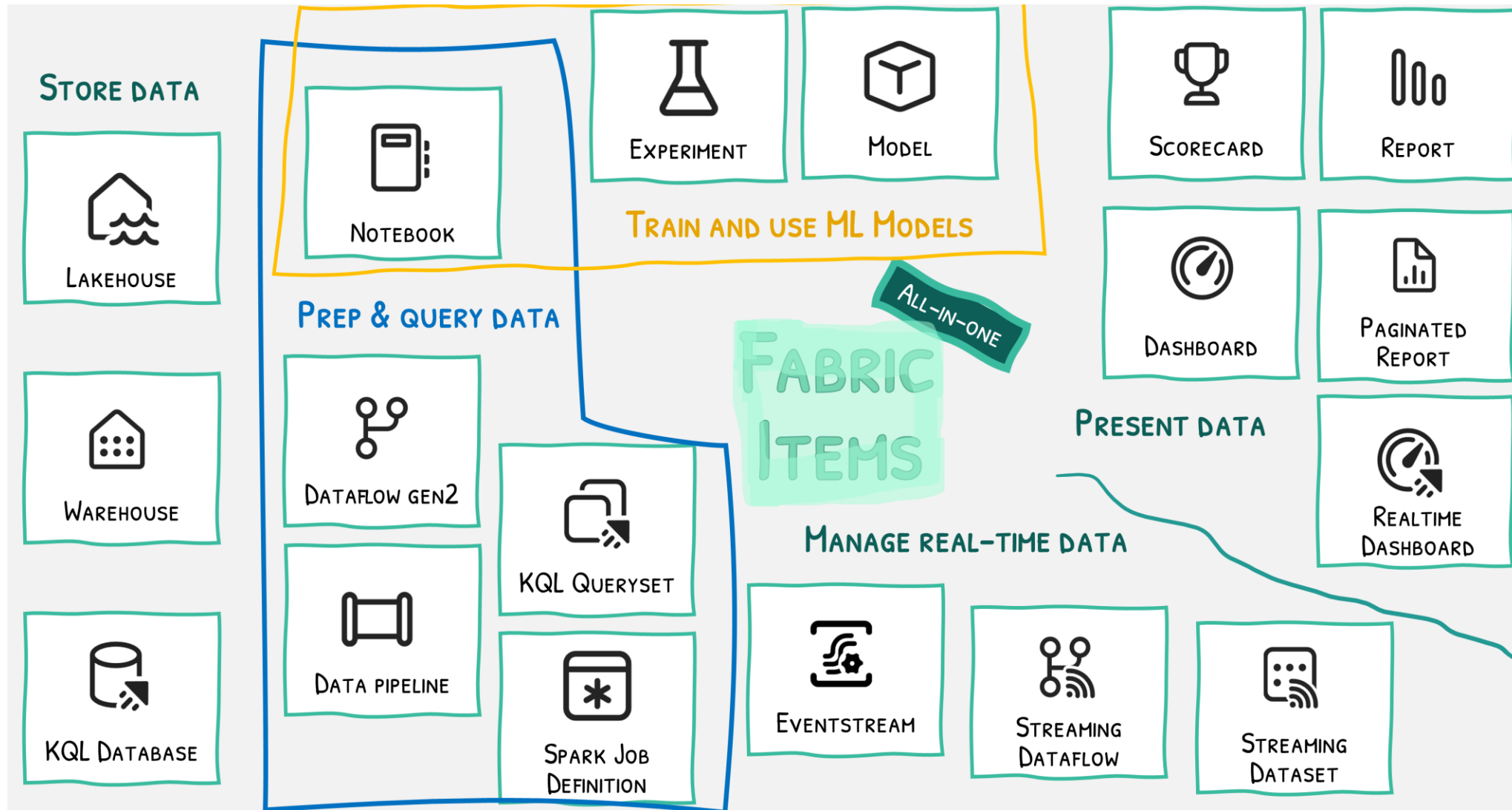


### UNIFIED SECURITY

ACROSS ALL TYPES OF  
DATA STORES & ENGINES

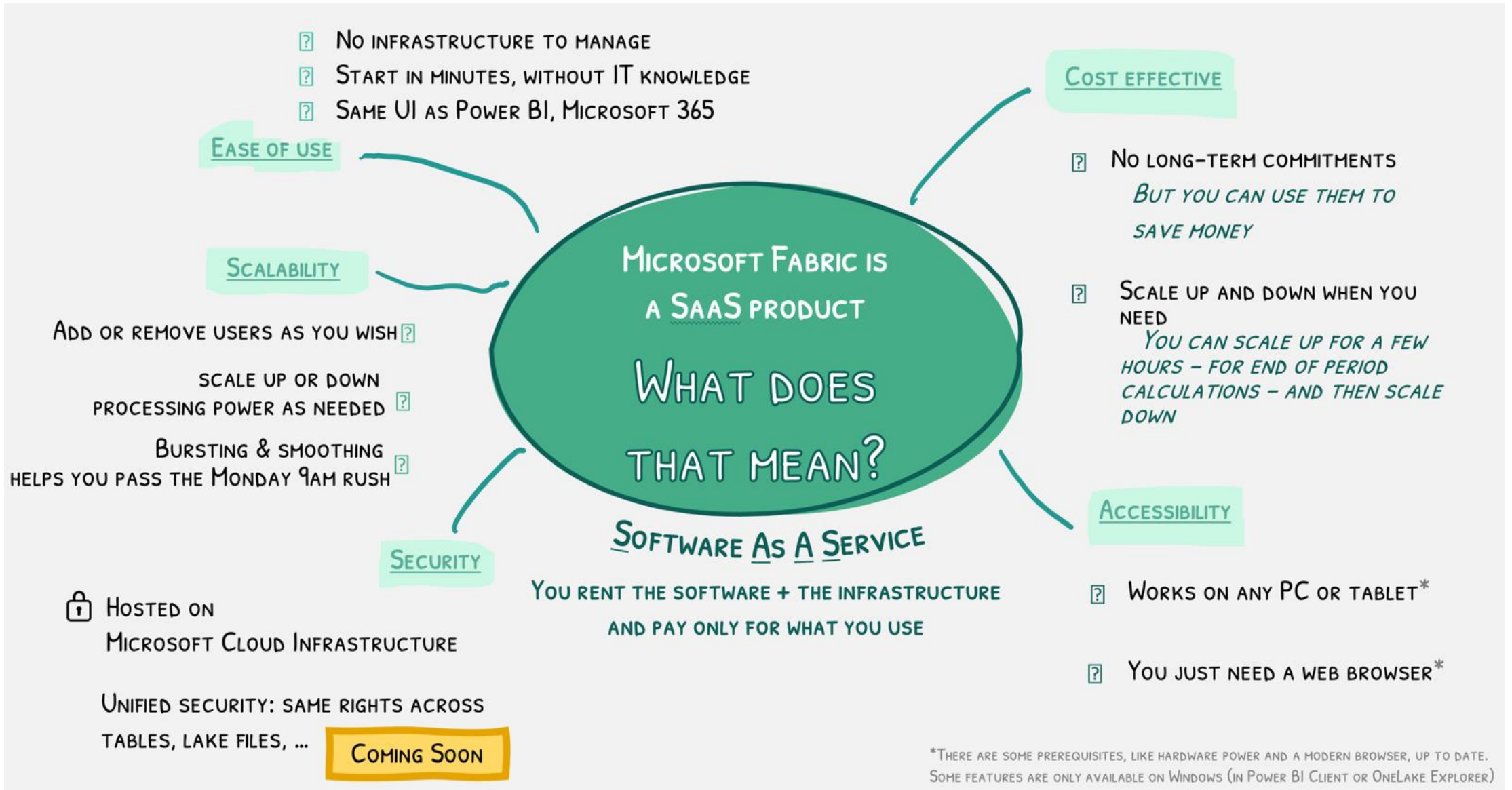
SHORTCUTS EASY ACCESS TO DATA STORED IN OTHER CLOUDS

# Microsoft Fabric





# Microsoft Fabric



# Microsoft Fabric

## ONELake

"THE ONEDRIVE  
FOR YOUR DATA"

VISUALLY  
EXPLAINED

EACH FABRIC ORGANIZATION HAS  
ONE DATA LAKE, ENTIRELY MANAGED FOR YOU  
IT'S UNIFIED ACROSS ALL REGIONS & YOU PAY  
PER GB STORED (NO SCALING NEEDED).

ALL ANALYTICAL ENGINES CAN ACCESS ONELake DATA

SQL

SPARK

POWER BI

KQL DB

DATA Lake + WAREHOUSE  
= LAKEHOUSE

WITH FABRIC, YOUR  
WAREHOUSE  
DATA IS ALSO STORED  
IN ONELake, AND  
ACCESSIBLE IN AN OPEN  
FORMAT

THIS IS A  
**LAKEHOUSE**

IT ALLOWS YOU TO DISTRIBUTE  
OWNERSHIP TO ORGANIZATIONS,  
AND EASILY COLLABORATE ON  
DATA

IT CONTAINS



A FILES  
AREA



A TABLES  
AREA

**SHORTCUTS**

ALLOW YOU TO QUERY  
DATA FROM ONE LAKEHOUSE  
TO ANOTHER WITHOUT DATA  
MOVEMENT

SHORTCUTS LINK  
TO OTHER CLOUDS  
TOO!

THE FILES AREA CAN CONTAIN UNSTRUCTURED  
& SEMI-STRUCTURED DATA.

IT'S NOT UNCOMMON TO ORGANIZE THEM IN  
THREE "AREAS": BRONZE, SILVER & GOLD

**ONELake**

ADLS GEN2  
SDK & APIs  
CAN NATIVELY ACCESS ONELake



# Microsoft Fabric

## ONELAKE SHORTCUTS

SHORTCUTS ALLOW YOU TO CREATE A VIRTUALIZED DATA LAKE,  
ELIMINATING COPIES OF DATA BETWEEN ORGANIZATION DOMAINS,  
ANALYTICAL ENGINES, OR CLOUDS

### INTERNAL



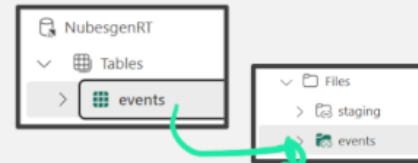
FROM A LAKEHOUSE FOLDER TO A LAKEHOUSE FOLDER



FROM A LAKEHOUSE TABLE TO A LAKEHOUSE TABLE



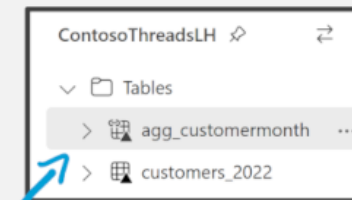
FROM A WAREHOUSE TABLE TO A LAKEHOUSE TABLE



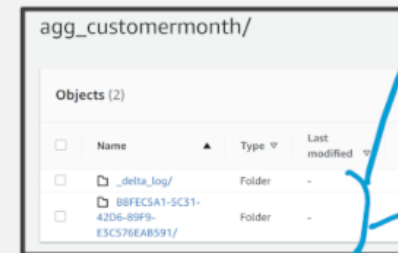
FROM A KQL DATABASE  
TABLE TO A LAKEHOUSE  
FOLDER

### TWO TYPES OF SHORTCUTS

### EXTERNAL



FROM AN ADLS  
GEN2/S3 FOLDER  
TO A LAKEHOUSE  
FOLDER



FROM AN ADLS  
GEN2/S3 FOLDER TO  
A TABLE

S3 SHORTCUTS ARE READ-ONLY



# Microsoft Fabric

## INSIDE THE APACHE PARQUET FORMAT IT'S OPEN SOURCE!

IN TRADITIONAL DATABASES (POSTGRES, SQL SERVER\*) AND FILE TYPES (CSV, JSON), DATA IS STORED AS ROWS...

FIRST_NAME	LAST_NAME	STREET	ISPREMIUMC USTOMER	NEXT MONTH BUYING PROBABILITY
ABIGAIL	HAYES	4009 9TH STREET	1	1
AMANDA	CLARK	87 5TH STREET	0	2
MELISSA	CLARK	12650 5TH STREET NORTH	1	0.5438465585898219
SARA	BENNETT	203 STATE STREET	0	0.15856312140709694
ISAAC	HENDERSON	732 MAGNOLIA DRIVE	1	0.19389081059172666
EMMA	STEWART	47 ROUTE 32	1	0.8833057932776623
SEAN	MORRIS	254 LINCOLN AVENUE	0	0.4156333382834478
JASON	SANCHEZ	26050 MADISON AVENUE	0	0.5862717219123177
ALEXANDER	WALKER	54051 VALLEY ROAD	1	0.5941814808482648
MEGAN	MORRIS	31 DELAWARE AVENUE	1	0.6289626353900487

**Customers.csv**

```
first_name,last_name,street,isPremiumCustomer,nextmbuyprob
Abigail,Hayes,4009 9th Street,1,0.26340968441351104
Amanda,Clark,87 5th Street,0,0.17177893540625921
Melissa,Clark,12650 5th Street North,1,0.5438465585898219
Sara,Bennett,203 State Street,0,0.15856312140709694
Isaac,Henderson,732 Magnolia Drive,1,0.19389081059172666
Emma,Stewart,47 Route 32,1,0.8833057932776623
Sean,Morris,254 Lincoln Avenue,0,0.4156333382834478
Jason,Sanchez,26050 Madison Avenue,0,0.5862717219123177
Alexander,Walker,54051 Valley Road,1,0.5941814808482648
Megan,Morris,31 Delaware Avenue,1,0.6289626353900487
```

IN PARQUET, DATA IS STORED AS COLUMNS

**Customers.parquet**

**first\_name** Abigail Amanda Melissa Sara Isaac Emma Sean Jason

**last\_name** Hayes Clark Clark Bennett Henderson Stewart Morris Sanchez

**isPremiumCustomer** 1 0 1 0 1 0 1 0 x2 0 x2

**Category** 0.263409684 0.171778935 0.543846559 0.158563121 0.193890811 0.883305793 0.415633338 0.586271722

**Col 1 STRING Col 2 STRING Col 3 BOOLEAN Col 4 UINT\_32**

FILE STRUCTURE IS SIMPLIFIED, OMITTING DETAILS LIKE ROW GROUPS.



PARQUET EMBEDS THE DATA SCHEMA

WANT THE NUMBER OF PREMIUM CUSTOMERS? YOU CAN COMPUTE THAT AGGREGATE WITHOUT READING ANY OTHER UNNECESSARY DATA!



WE CAN EFFICIENTLY COMPRESS REPETITIVE DATA LIKE THIS ONE

...WHICH IS NOT OPTIMAL FOR ANALYTICAL NEEDS:

- 🔊 FOR SOME FILE TYPES (LIKE CSV), THERE IS NO EMBEDDED SCHEMA
- 🔊 COMPRESSION IS NOT GOOD (YOU'RE KINDA LIMITED TO TEXT COMPRESSION)
- 🔊 YOU NEED TO SCAN(READ) ALL THE ROWS

WITH FABRIC, YOU CAN EASILY READ PARQUET FILES STORED IN ONELAKE OR IN OTHER CLOUDS

\*UNLESS YOU'RE USING COLUMNSTORE TABLES :)



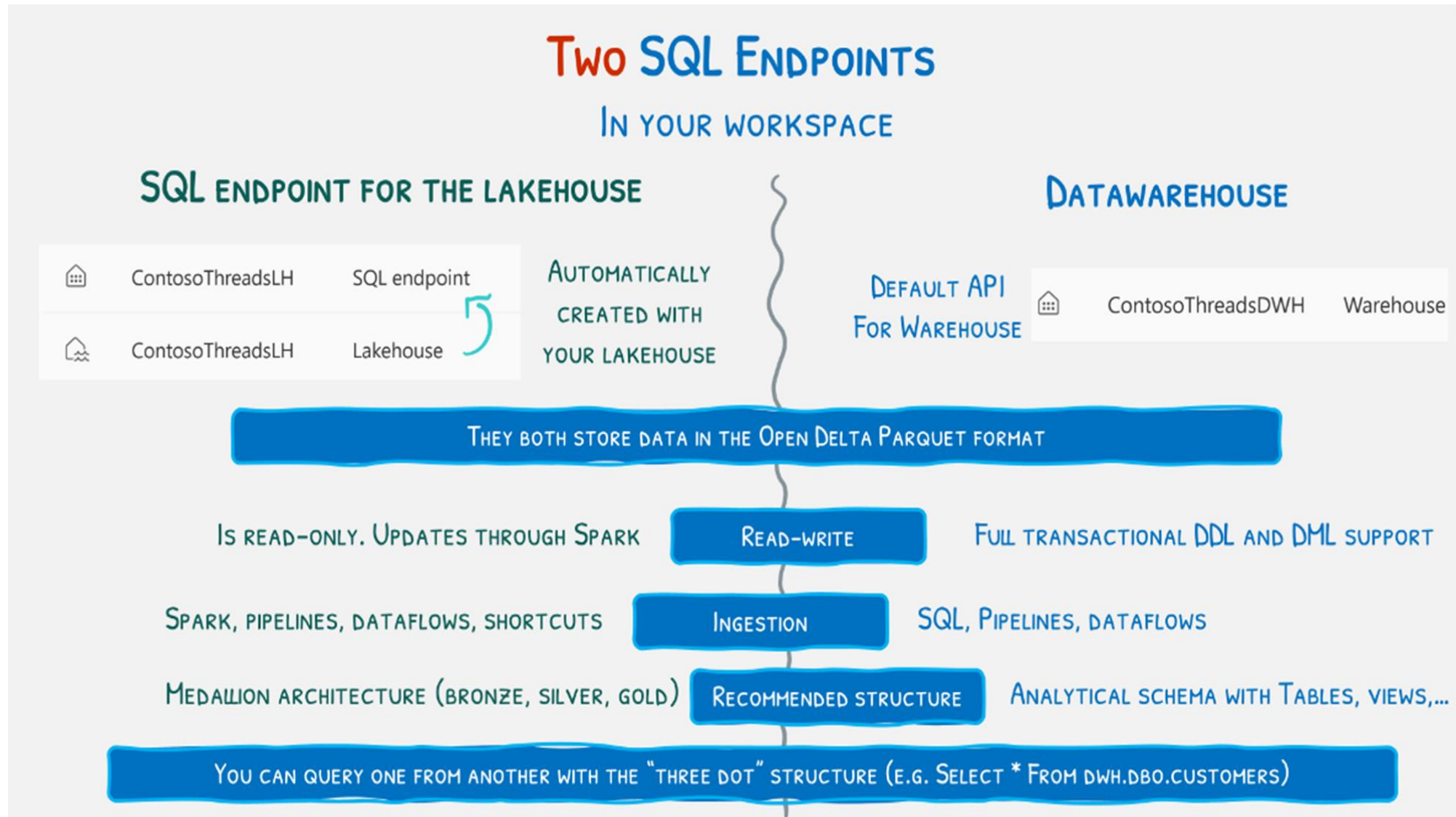
# Microsoft Fabric



Diversi Endpoint di Fabric e i loro scenari di utilizzo



# Microsoft Fabric



Diversi Endpoint di Fabric e i loro scenari di utilizzo





# Microsoft Fabric

## DIRECT LAKE

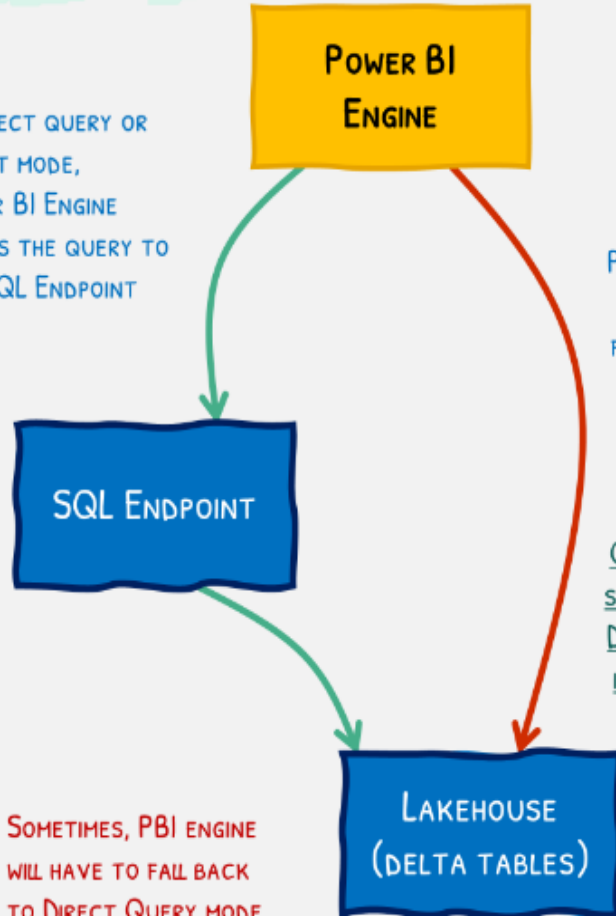
POWER BI

NEW SUPERPOWER




### HOW IT WORKS?

IN DIRECT QUERY OR IMPORT MODE, POWER BI ENGINE PASSES THE QUERY TO THE SQL ENDPOINT



IN DIRECT LAKE MODE, POWER BI ENGINE QUERY THE DELTA-PARQUET FILES IN THE LAKEHOUSE DIRECTLY, WITHOUT PASSING THROUGH AN SQL ENDPOINT.



QUERY PERFORMANCE IS SIMILAR TO IMPORT MODE.  
DATA UPDATES LATENCY IS IDENTICAL TO DIRECT QUERY (NO NEED TO REFRESH!)

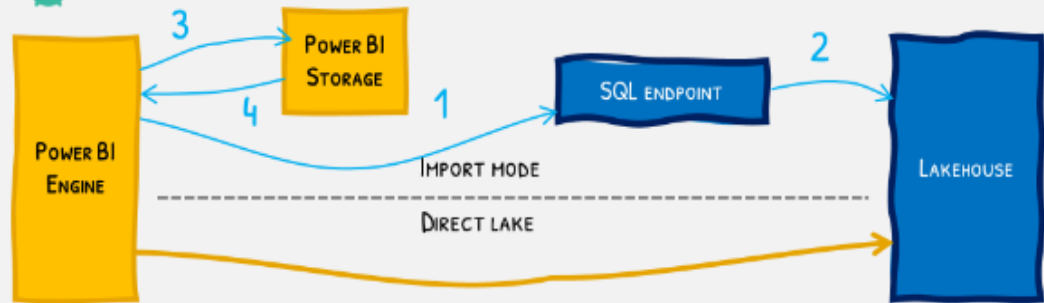
 SOMETIMES, PBI ENGINE WILL HAVE TO FALL BACK TO DIRECT QUERY MODE


### PREREQUISITES

- \* POWER BI PREMIUM / FABRIC F CAPACITY
- \* A LAKEHOUSE + A SQL ENDPOINT
- \* DELTA PARQUET TABLES WITH V-ORDER

### WHAT'S THE MAGIC TRICK?

-  PARQUET FORMAT IS ALREADY OPTIMIZED FOR ANALYTICS WORKLOADS
-  POWER BI CAN USE PARQUET FILES INSTEAD OF "PBI ANALYSIS SERVICES" STORAGE 

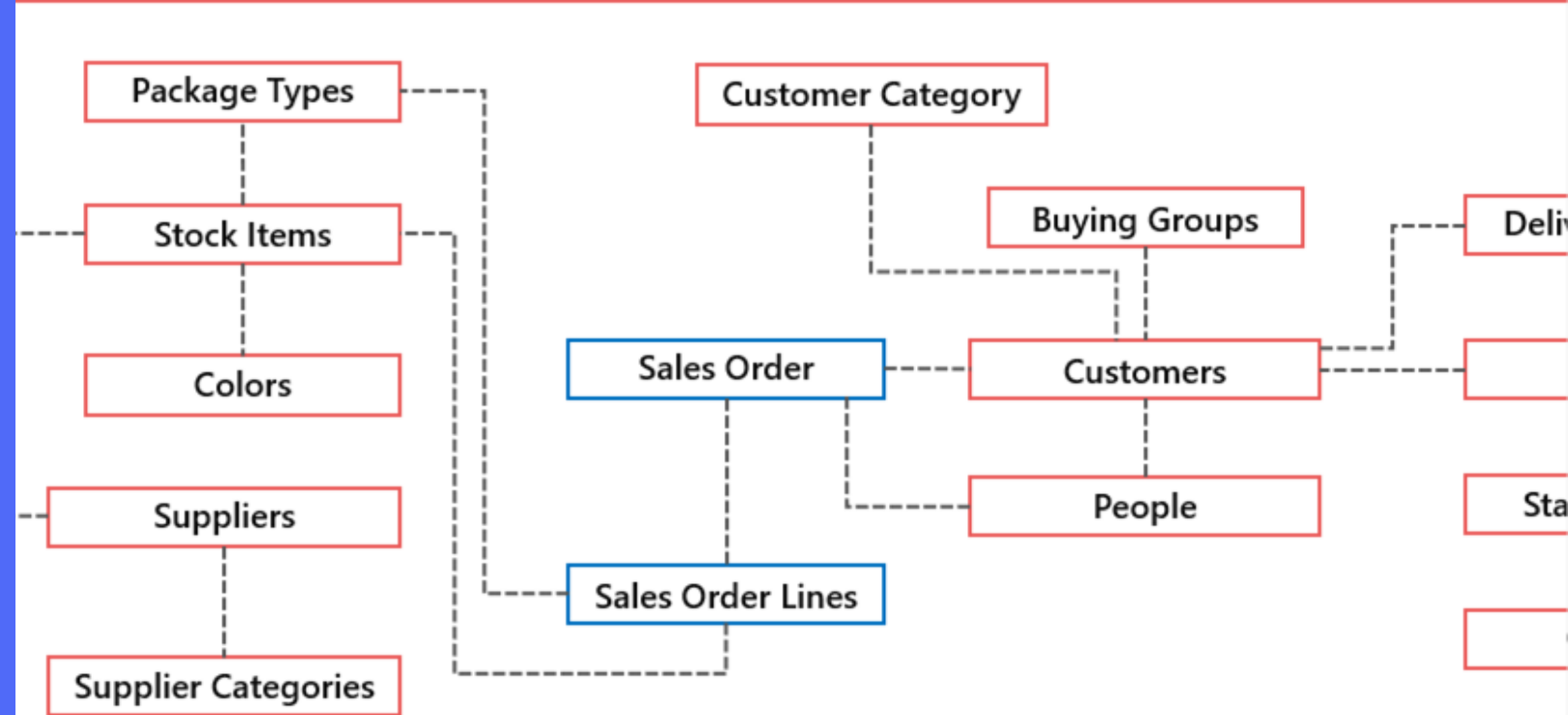


-  "V-ORDER" IS A FABRIC-OPTIMIZED WAY OF WRITING PARQUET FILES, PROVIDING BETTER QUERY PERFORMANCE, WHILE STILL BEING COMPATIBLE WITH PARQUET

-  ALL FABRIC ENGINES WRITE V-ORDERED PARQUET FILES BY DEFAULT

TRY IT YOURSELF AT  
[AKA.MS/DIRECTLAKE](https://aka.ms/directlake)

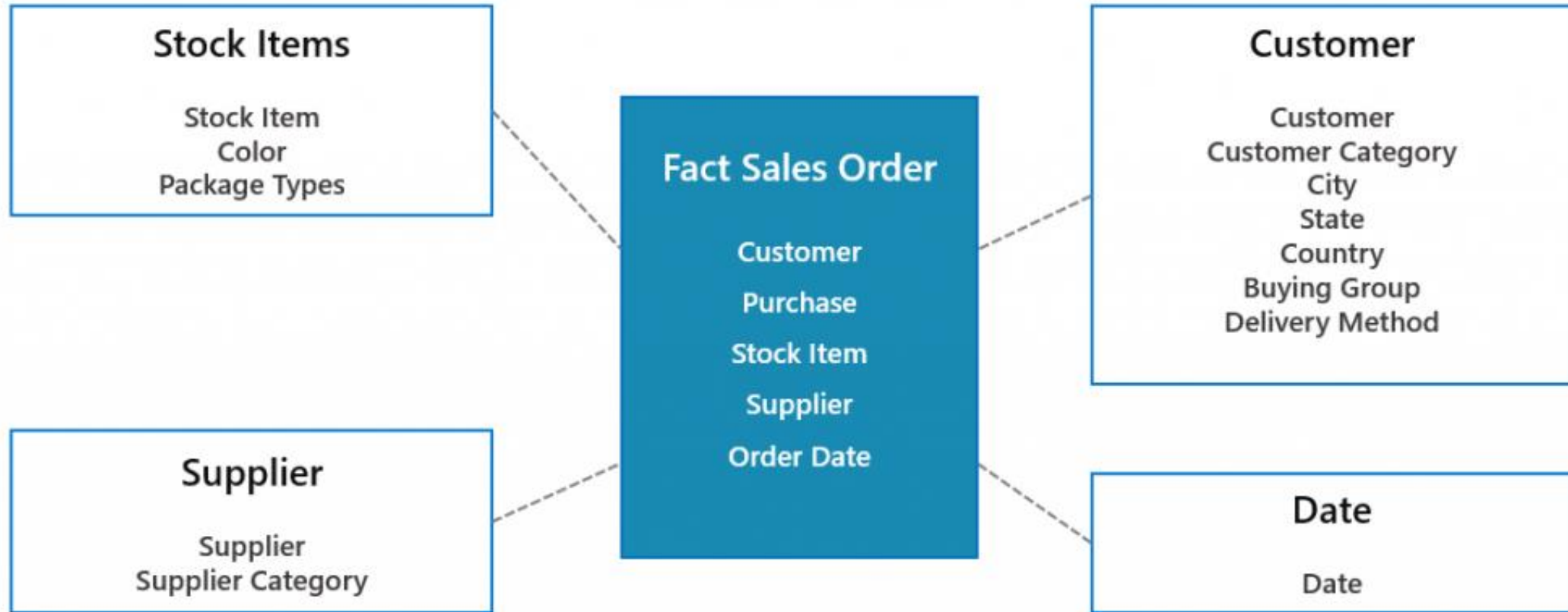
# DEMO



The diagram illustrates the mapping of DatePartition values to file names. On the left, a list of DatePartition values is shown: 2013-01-01, 2013-01-02, 2013-01-03, 2013-01-04, 2013-01-05, 2013-01-07, and 2013-01-08. On the right, two table snippets are shown. The top snippet shows a folder icon labeled 'part-00003-7e08e397-bbd2-434a-af0b-09b1935618a0' and a file icon labeled 'part-00003-7e08e397-bbd2-434a-af0b-09b1935618a0'. The bottom snippet shows a folder icon labeled 'part-00003-7e08e397-bbd2-434a-af0b-09b1935618a0' and a file icon labeled 'part-00003-7e08e397-bbd2-434a-af0b-09b1935618a0'. Red arrows point from 'DatePartition=2013-01-01' to the folder icon in the top snippet and from 'DatePartition=2013-01-02' to the file icon in the bottom snippet.



## *Demo - Load gold layer with sql queries*



License

# Licensing

## INFRASTRUCTURE

### CAPACITY

SHARED ACROSS ALL ANALYTICS WORKLOADS  
CAN BE RESIZED UP, DOWN AND EVEN PAUSED  
ATTACHED TO A SPECIFIC REGION  
SOLD AS CAPACITY UNIT (CU), FROM 2 TO 2048

**\$0.18/CU/Hour, MINIMUM 2 CU (ONLY \$9/DAY!)**

### STORAGE

YOU PAY FOR THE STORAGE YOU CONSUME.  
PRICE VARIES FROM REGION TO REGION  
**\$0.023/GB/MONTH FOR US WEST 2**

### NETWORK

CROSS-REGION DATA TRANSFER CHARGES,  
EGRESS CHARGES FOR MULTI-CLOUD SHORTCUTS



## INDIVIDUAL LICENSE

EACH FABRIC USER NEEDS A LICENCE. THERE ARE 3 TYPES OF LICENCE: FREE, PRO AND PREMIUM.

### FREE

ACCESS FABRIC WEB APP  
CREATE FABRIC WORKSPACES  
CREATE NON-POWER BI ITEMS IN FABRIC WORKSPACES  
SHARE NON-POWER BI ITEMS IN FABRIC WORKSPACES  
VIEW SHARED POWER BI ITEMS IF WORKSPACE HAS A FABRIC CAPACITY => 64CU

### PRO

\$10/USER  
/MONTH

VIEW SHARED CONTENT  
CREATE POWER BI ITEMS IN ALL WORKSPACES

### PREMIUM

\$20/USER/MONTH

ENABLE POWER BI PREMIUM FEATURES

You only pay what goes beyond the limit that is provided by default for OneLake (1TB)



# Licensing

SKU	Capacity unit (CU)	Pay-as-you-go (hourly)	Pay-as-you-go (monthly)
F 2	2	\$0.36	\$262.80
F 4	4	\$0.72	\$525.60
F 8	8	\$1.44	\$1,051.20
F 16	16	\$2.88	\$2,102.40
F 32	32	\$5.76	\$4,204.80
F 64	64	\$11.52	\$8,409.60
F 128	128	\$23.04	\$16,819.20
F 256	256	\$46.08	\$33,638.40
F 512	512	\$92.16	\$67,276.80
F 1024	1024	\$184.32	\$134,553.60
F 2048	2048	\$368.64	\$269,107.20



# Licensing

## Pay as you Go:

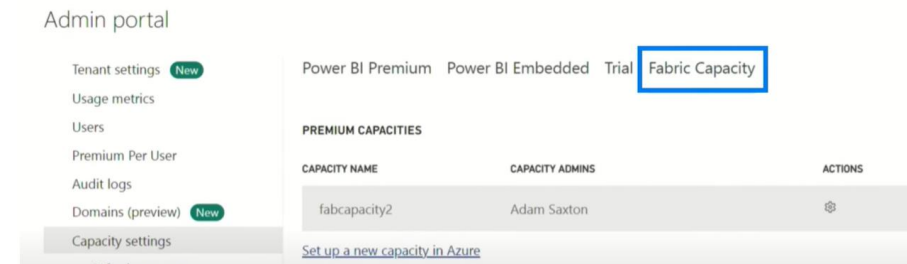
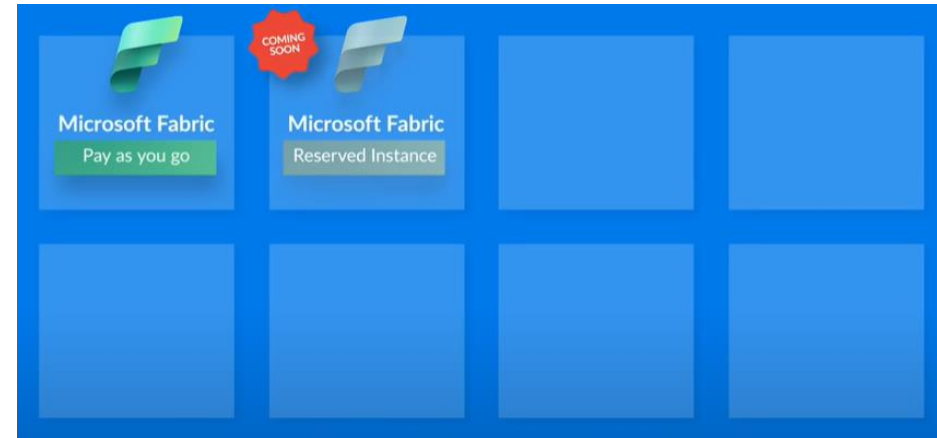
Microsoft Fabric has two declinations, one as a pay-as-you-go service within Azure.

With the Power BI P1 SKU you have the equivalent of the Fabric F64 SKU as seen in the table below

The CU (Capacity Units) are used to measure the computing power available for each SKU while for Power BI SKU we still think about V-Cores

## Reserved Instance

Corresponds to Power BI Premium Capacity



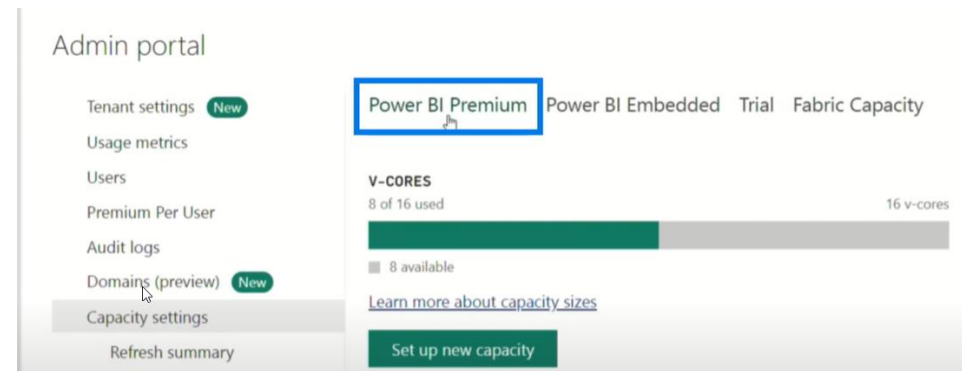
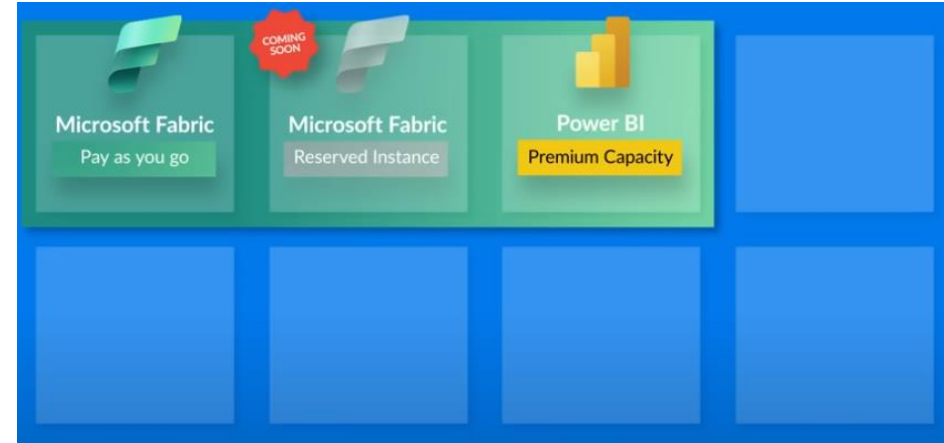
Fabric SKU	Capacity Units (CU)	Power BI SKU	Power BI V-Cores
F2	2	-	0.25
F4	4	-	0.5
F8	8	EM/A1	1
F16	16	EM2/A2	2
F32	32	EM3/A3	4
F64	64	P1/A4	8
F128	128	P2/A5	16
F256	256	P3/A6	32
F512	512	P4/A7	64
F1024	1024	P5/A8	128
F2048	2048	-	256

# Licensing

## Power BI Premium Capacity

Power BI Premium Capacity provide all the features of Fabric

Recall that Microsoft Fabric (reserved Instance) is the same thing as Premium capacity but it is different 😊 as they are different only where you buy one through Microsoft 365 and the other from the Azure portal



# Licensing

## Power BI Embedded

Power BI Embedded can always be purchased through the Azure portal

It includes only one A SKU and therefore **only Power BI features and not Fabric features**

For each A SKU there are equivalent licenses in Fabric as shown in the table below to purchase



### Admin portal

Tenant settings New  
Usage metrics  
Users  
Premium Per User  
Audit logs

Power BI Premium **Power BI Embedded** Trial Fabric Capacity

CAPACITY NAME	CAPACITY ADMIN
pbembeddedtest	Adam Saxton

Fabric SKU	Capacity Units (CU)	Power BI SKU	Power BI V-Cores
F2	2	-	0.25
F4	4	-	0.5
F8	8	EM/A1	1
F16	16	EM2/A2	2
F32	32	EM3/A3	4
F64	64	P1/A4	8
F128	128	P2/A5	16
F256	256	P3/A6	32
F512	512	P4/A7	64
F1024	1024	P5/A8	128
F2048	2048	-	256

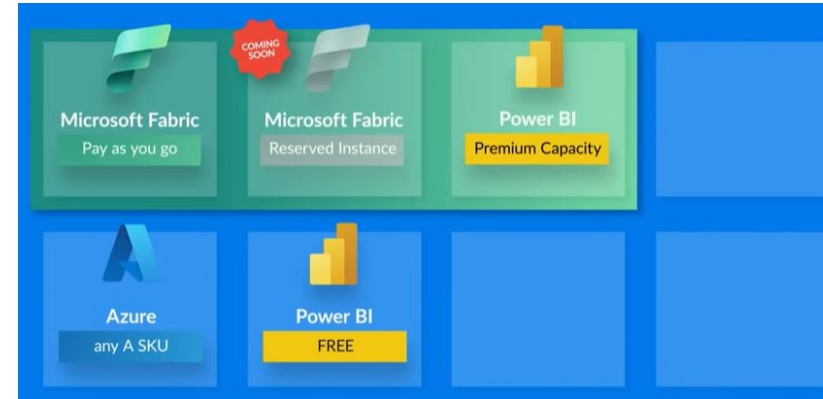
# Licensing

## Power BI Fabric

Power BI Fabric replaces the old Power BI Free license

It has no trial period

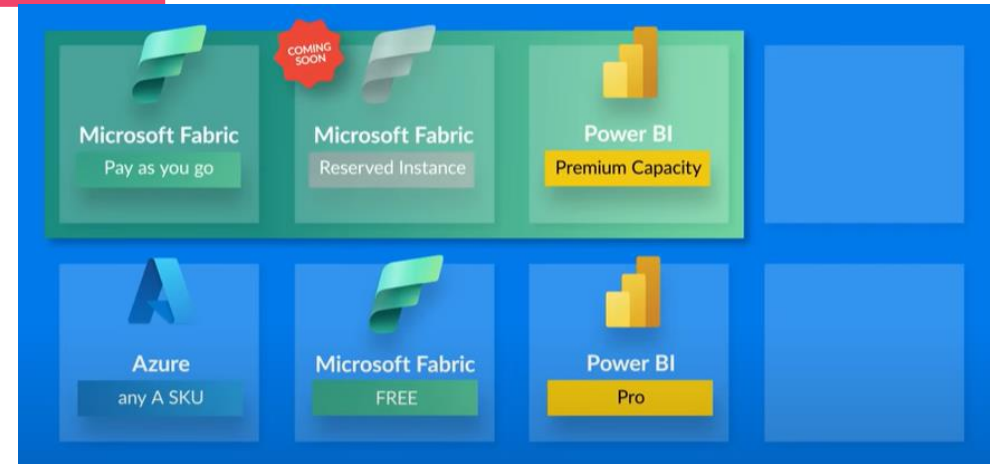
**A user with a free license can consume contents if the respective workspaces are created in a Fabric F64 or in Power BI P1 SKU (all the colored part in the table)**



Fabric SKU	Capacity Units (CU)	Power BI SKU	Power BI V-Cores
F2	2	-	0.25
F4	4	-	0.5
F8	8	EM/A1	1
F16	16	EM2/A2	2
F32	32	EM3/A3	4
F64	64	P1/A4	8
F128	128	P2/A5	16
F256	256	P3/A6	32
F512	512	P4/A7	64
F1024	1024	P5/A8	128
F2048	2048	-	256



# Licensing



## Power BI Pro

Power BI Pro is the same as before and does **not include Fabric features**

Power BI functionality within a Fabric workspace requires a Power BI Pro license

**A user needs a Power BI Pro license if their workspaces are created in a Fabric lower than F64 or anything lower than Power BI P1 SKU (all colored part in the table)**

Fabric SKU	Capacity Units (CU)	Power BI SKU	Power BI V-Cores
F2	2	-	0.25
F4	4	-	0.5
F8	8	EM/A1	1
F16	16	EM2/A2	2
F32	32	EM3/A3	4
F64	64	P1/A4	8
F128	128	P2/A5	16
F256	256	P3/A6	32
F512	512	P4/A7	64
F1024	1024	P5/A8	128
F2048	2048	-	256



# Licensing

## Power BI Premium per User

Power BI Premium per user offers features similar to Premium Capacity with partial access to Fabric obviously at a lower cost of \$20 per user

Ideal for small companies or small work teams



# Licensing

## Power BI Premium Government

This remains the same for US Government customers and will be released after Fabric general availability



Grazie





dgroove