Power Platform World Tour

PowerBIUG PowerAppsUG FlowUG

EmPower your BI Architecture

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Think Big. Move Fast.

10 years in Microsoft «Data Realm»

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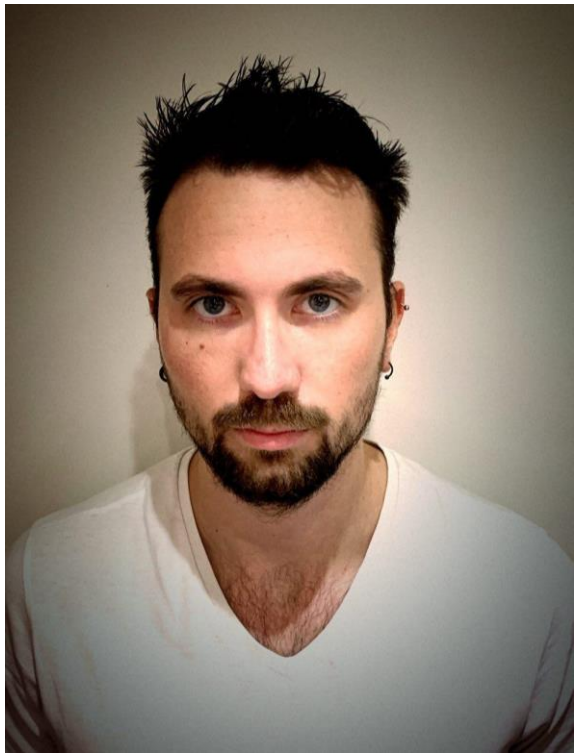
PowerBIUG damag

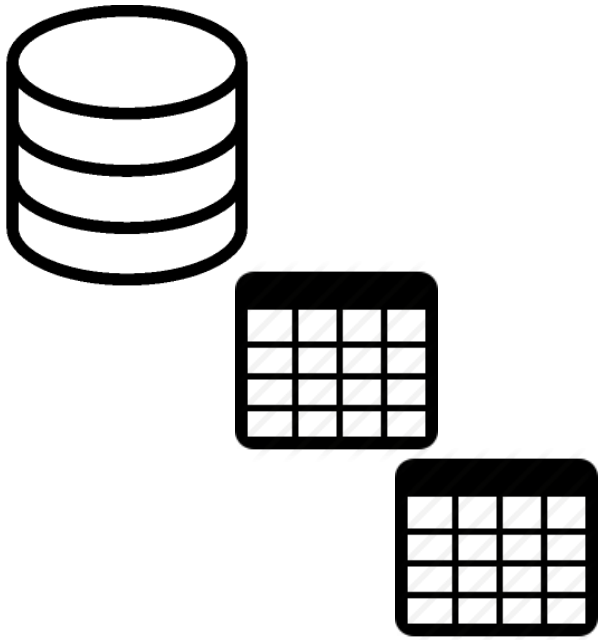


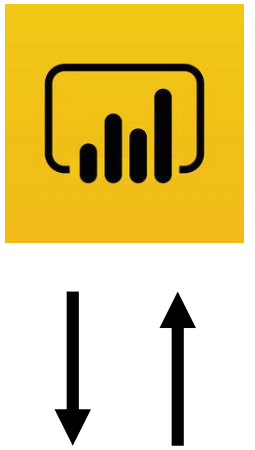
Agenda? The Right Questions

1. What's Storage Mode and which one best suits to me?
2. Do I need an On-premises Data Gateway?
3. How to refresh my data?
4. Is it just on-cloud solution?
5. Can I «encapsulate» PowerBI?
6. Do I need to care about dataflows?
7. Can I have some advisable scenarios?

What’s Storage Mode and which one best suits to me?

Storage Mode: Import Mode



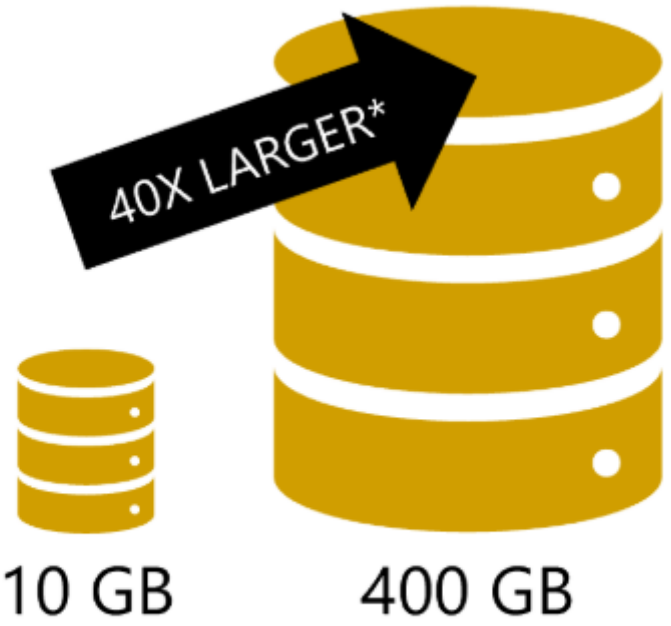


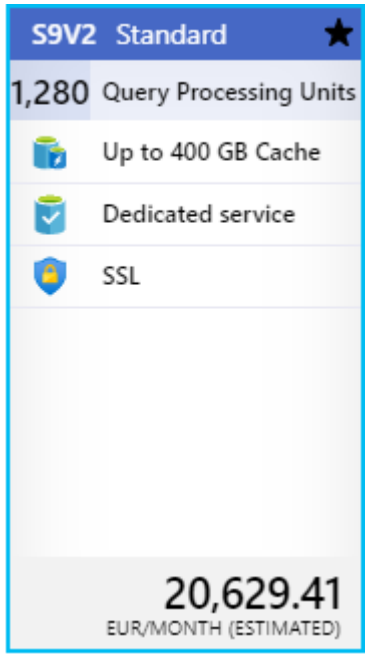
Data Model Cached into RAM

Storage Mode: Import Mode

- Model **Cached** inside Power BI Service
- High **Compression** thanks to VertiPaq (*)
- Full **Power BI functionalities and DAX** functions support
- **Multiple Data Sources** mashup (all available)
- **10 GB** model size for PREMIUM / **1 GB** for PRO

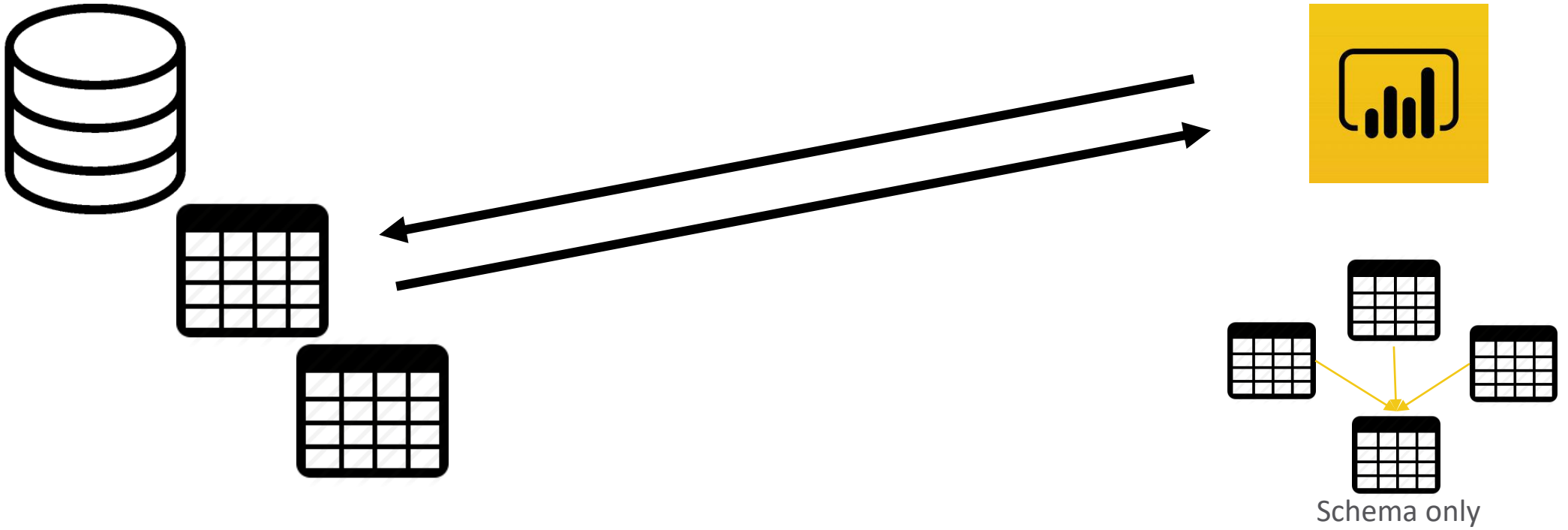
Large models for Power BI Premium





** Up to available memory on your capacity, excluding memory required for query execution and processing, which is often 20-30% of total memory.*

Storage Mode: Direct Query

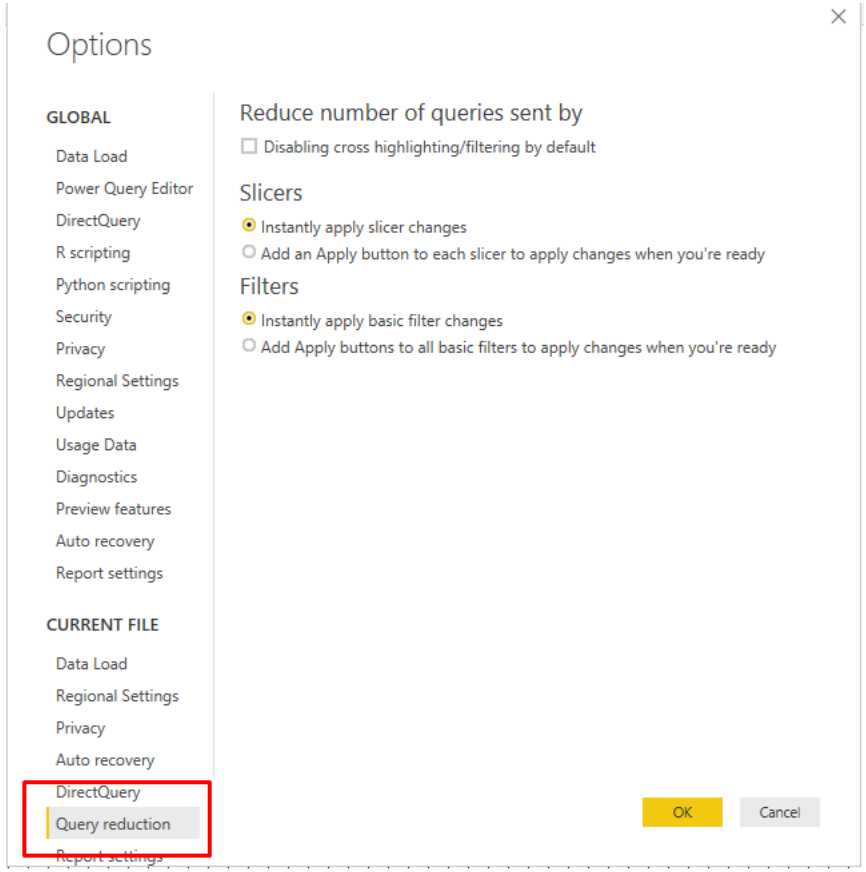


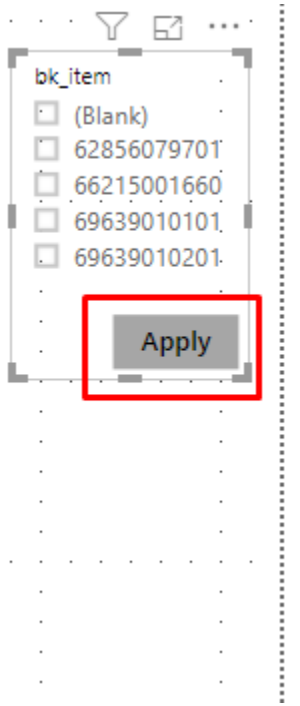
Storage Mode: Direct Query

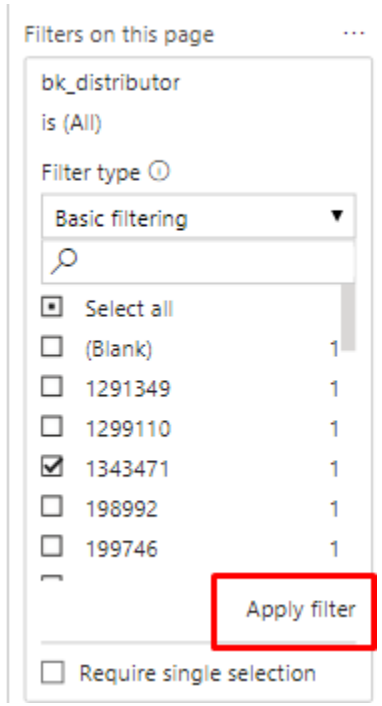
- **Limited data sources**
- Not full **Power Query and DAX** support
- Pay attention to **performance** (1 render = 1 query)

- Overcome model **size limits**
- **Real-time / Near Real-time** scenarios

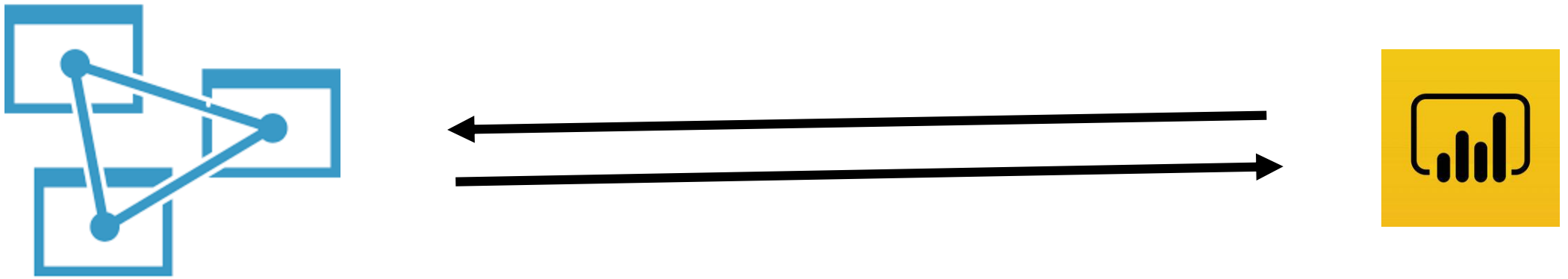
Direct Query: Quick Tip







Storage Mode: Live Connection



PowerBI acts just like an interface

Storage Mode: Live Connection

- Data Sources: **AAS**, **SSAS** Tabular/Multidimensional and **PBI dataset**
- Data **Preparation** and Data **Modeling** done in the source
- Interaction with report = **DAX query sent to source**

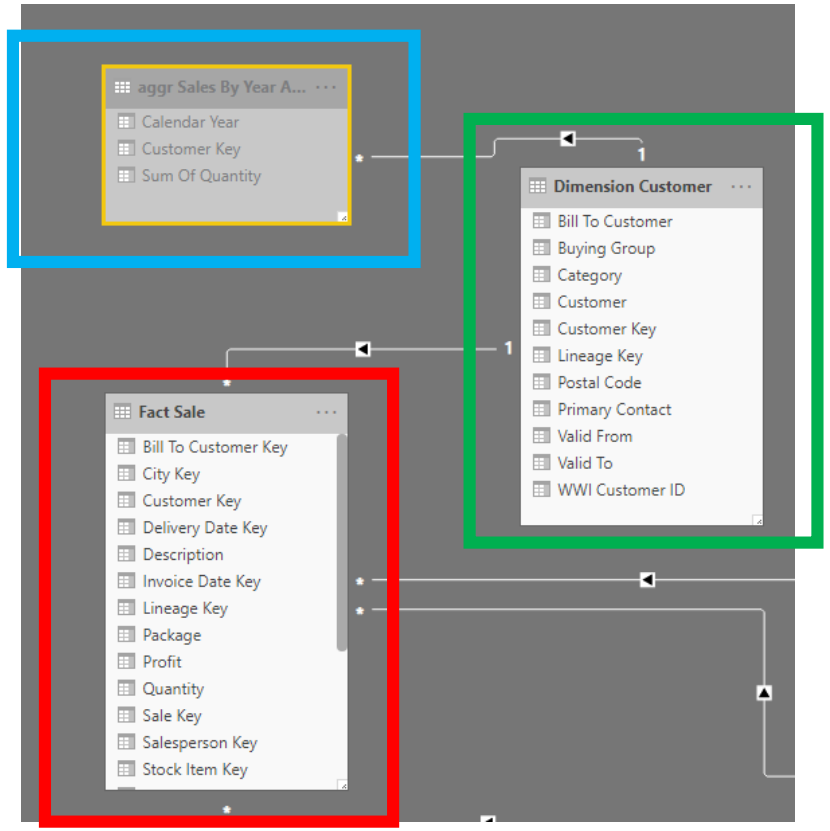
- **Overcome** model **size limits**
- **Partitioned Load**
- Tends to be **faster than DQ**

- **Never prefer «Import»** over «Live Connection» for supported sources

Storage Mode: Composite Mode

Import Mode

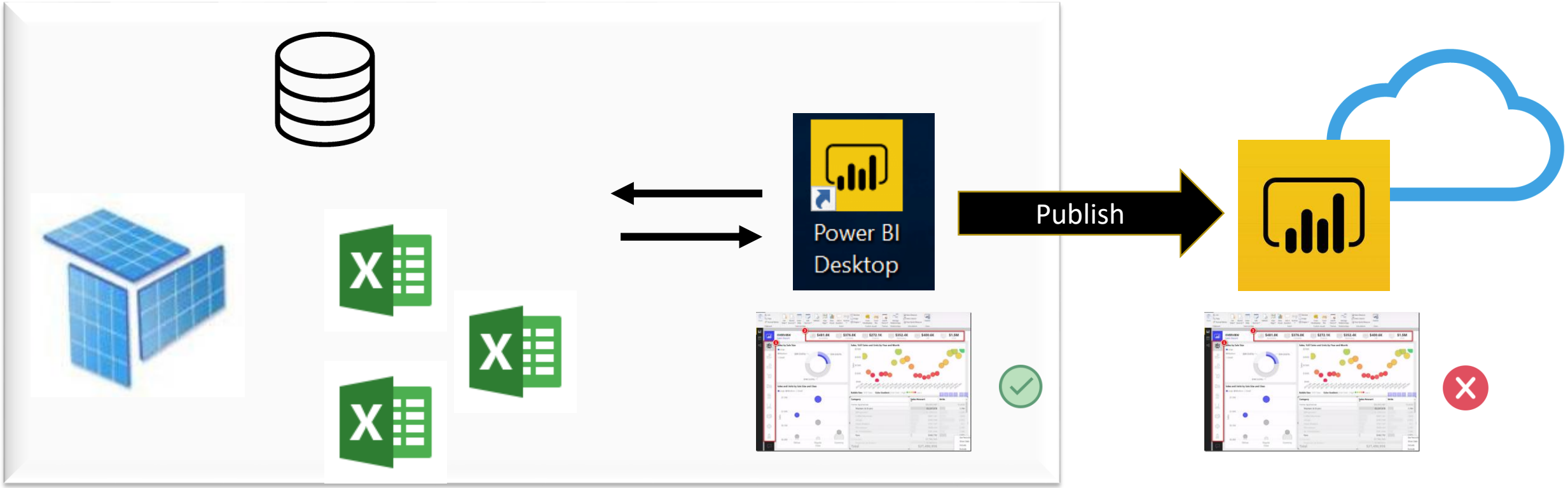
Direct Query



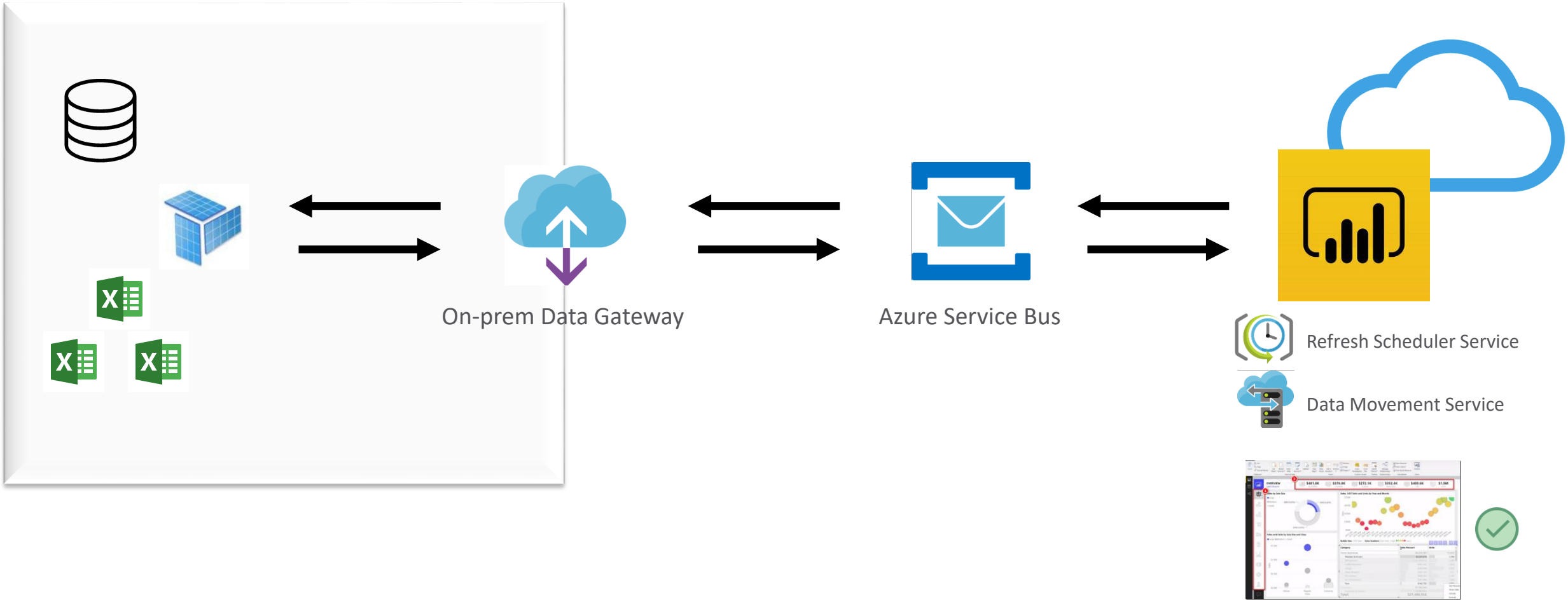
Dual Mode

Do I need an On-premises Data Gateway?

Let’s draw a typical scenario



On-Prem Data Gateway is the way



2 Gateway types

On-premises data gateway (Enterprise)

All Storage Mode Support

Scheduled Refresh Support

On-premises data gateway (Personal mode)

Import Mode Support

Scheduled Refresh Support

Gateway: Architecture security

- **Credentials stored locally** and in Power BI Service
- **Data Source credentials encrypted** and stored in the cloud only gateway can decrypt

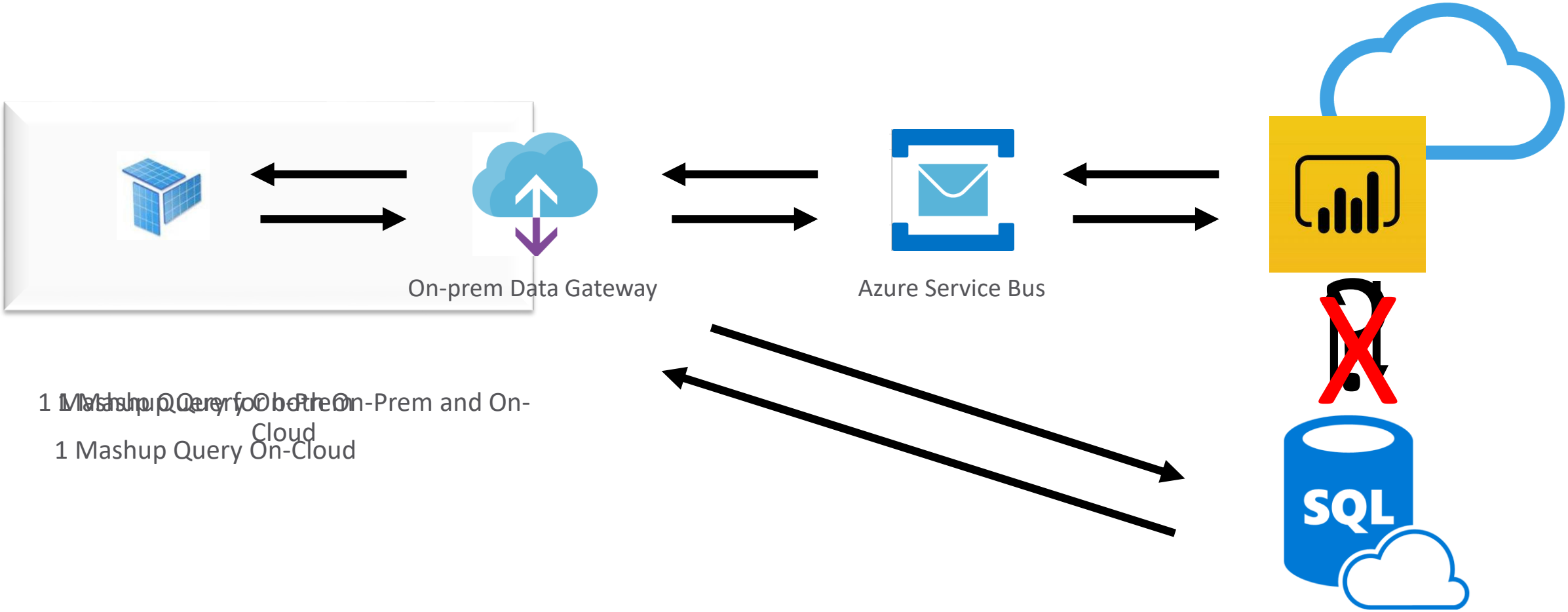
- **Gateway polling** → No inbound port to open
- **Outbound port** to open TCP: 443, 5671, 5672, 9530...9534

Gateway: Considerations

- Keep gateways' name/**recovery key** in a safe place (migration, take over and recovery)
- **Do not install Personal and then Enterprise**
- **Sometimes 2 gateways** are needed: Import + DQ/Live
- **Create a cluster for High-Availability**: round robin or balanced load
- **On-premises data gateway app** helps you
- New **Powershell 6 cmdlets** to manage Gateway

Demo Preview

On-prem & On-Cloud Mashup

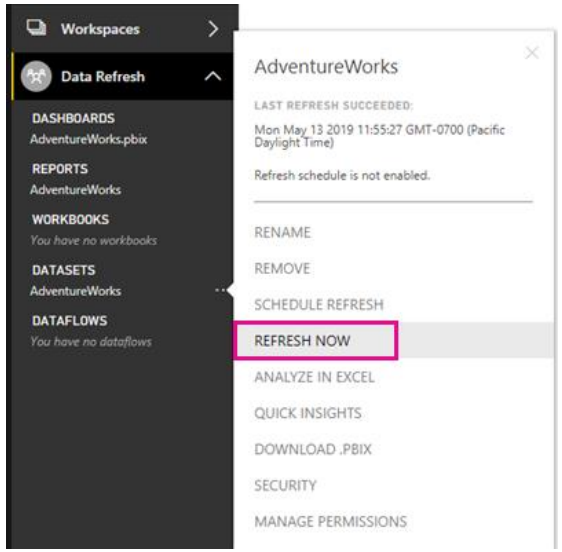


Demo: Mashup and Gateway

How to refresh my data?

Data are old… let's refresh!

Storage Mode	Refresh Needed	Max Refresh Per Day	Max Refresh Time
Import Mode Pro	✓	8	2 hours
Import Mode Premium	✓	48	5 hours
Direct Query	✗		-
Live Connection	✗		-



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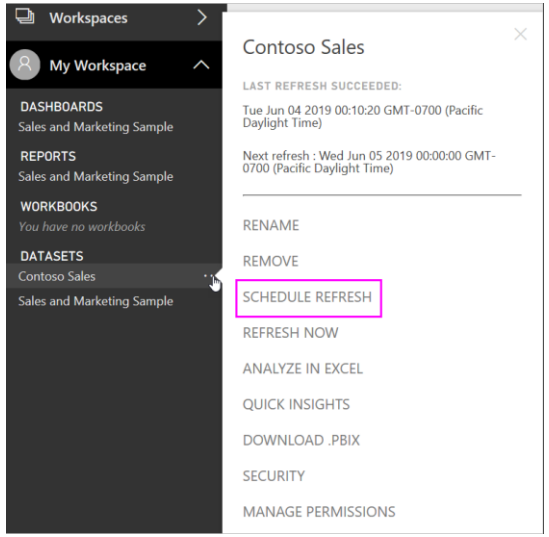
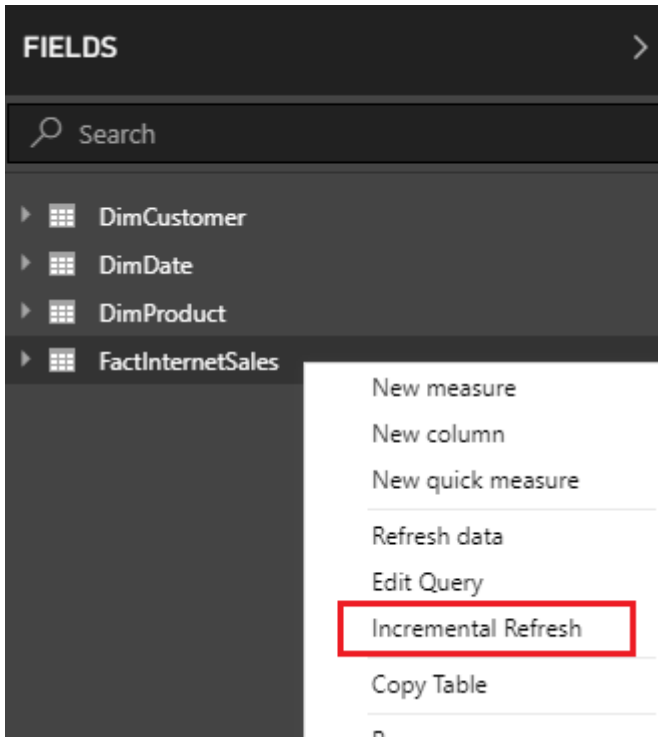
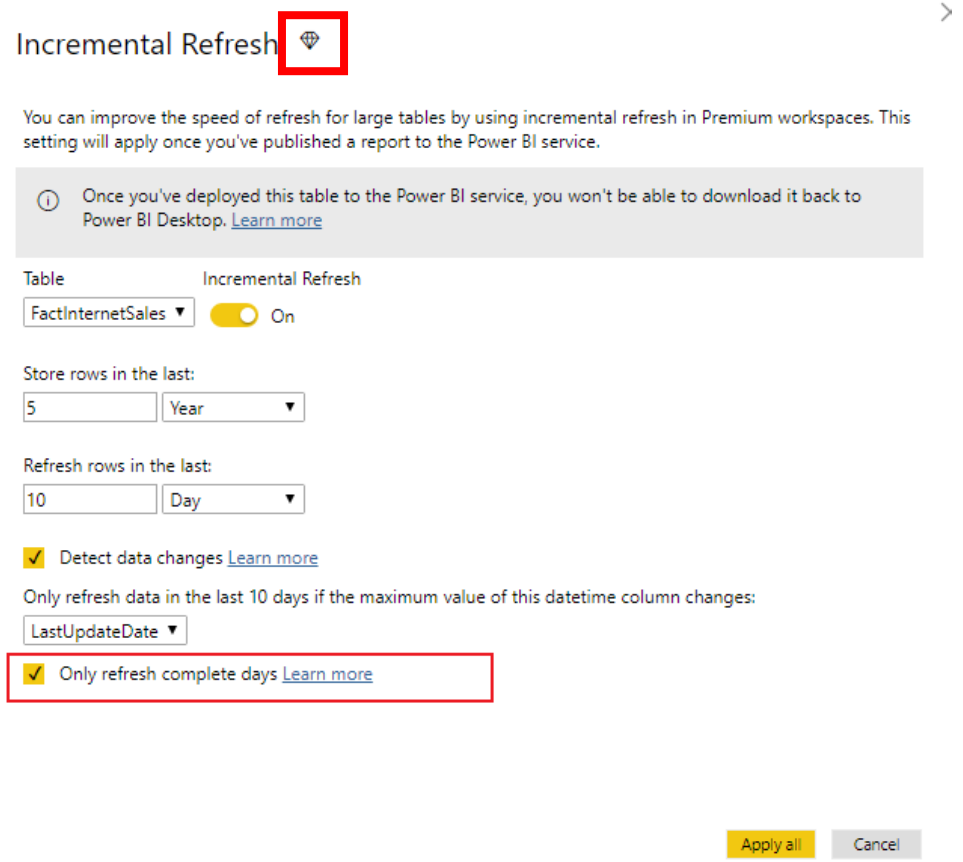


Too much data?

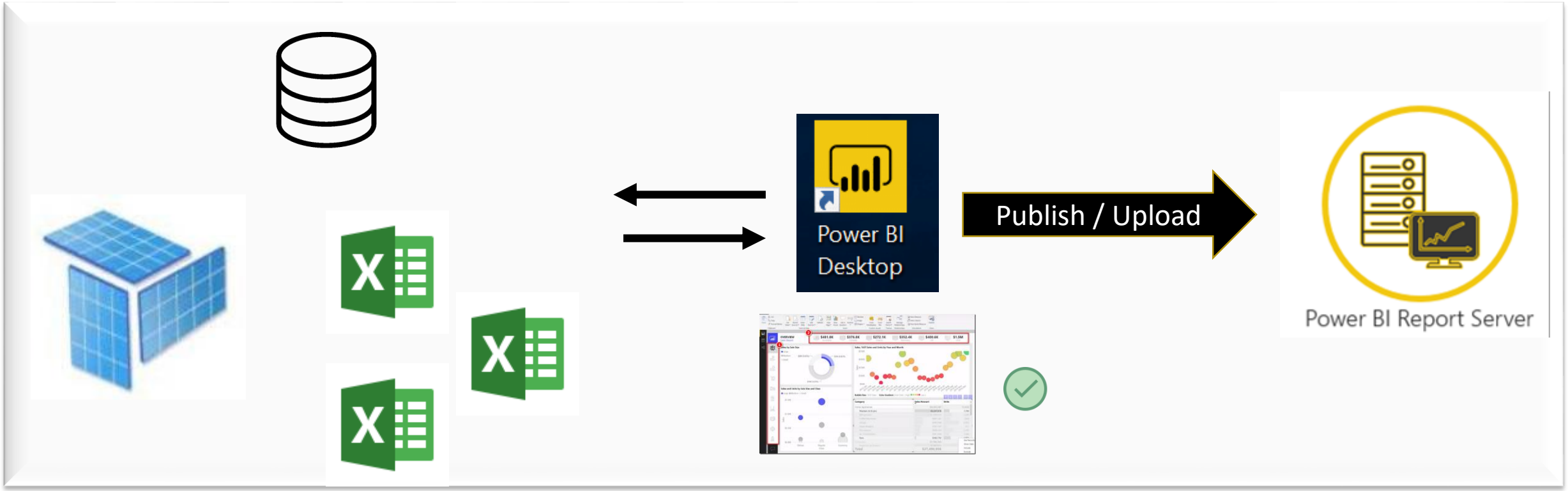




FOR PRO IS COMING

Is it just on-cloud solution?

Cloud is not the only option

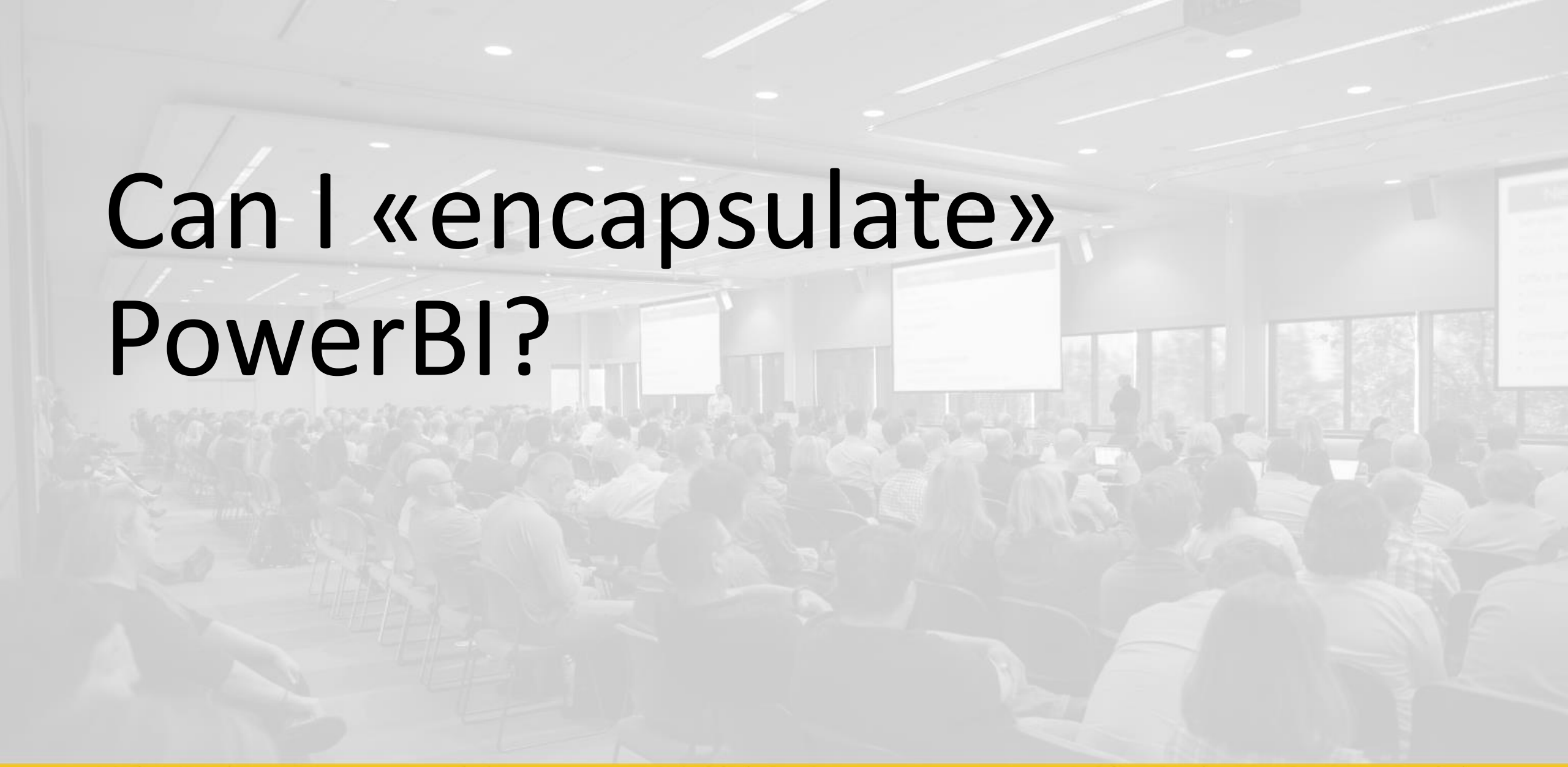


PBI Service Vs PBI Report Server

	PBI Service	PBI Report Server

https://docs.microsoft.com/it-it/power-bi/report-server/compare-report-server-service

Can I «encapsulate» PowerBI?



Encapsulate Power BI: 2 options

Opt. 1: Embedded in SharePoint Online

Pros

- Centralized UX
- Easy setup

Cons

- Only reports
- Users won’t use service
- Permissions management

Opt. 2: Power BI Embedded

Pros

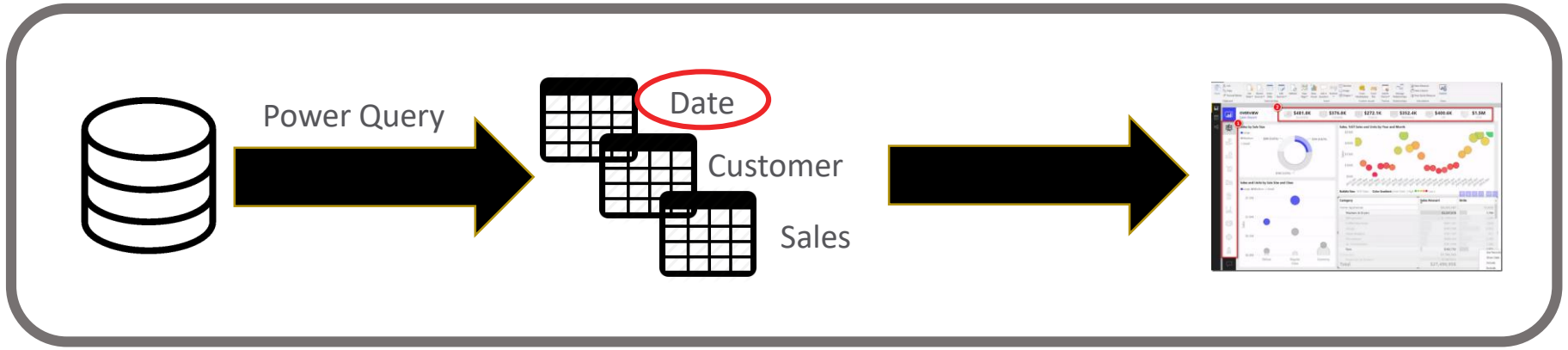
- Full custom application
- Reports, Dashboards, Datasets and also Q&A
- End user do not need a Power BI Pro License

Cons

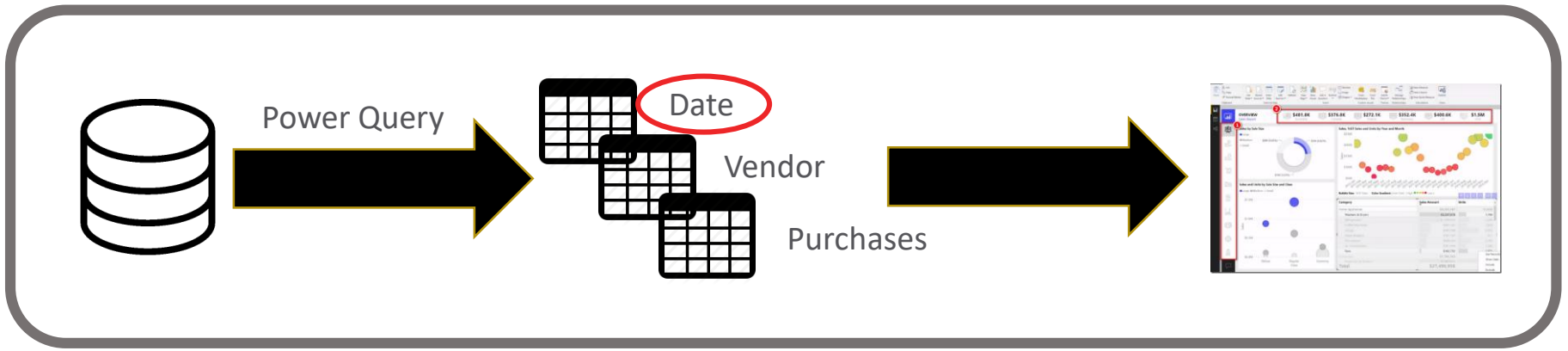
- Licensing: buckets of range renders
- Registration and management
- Not all service's features
- Web developer needed

Do I need to care about dataflows?

dataflows: as-is

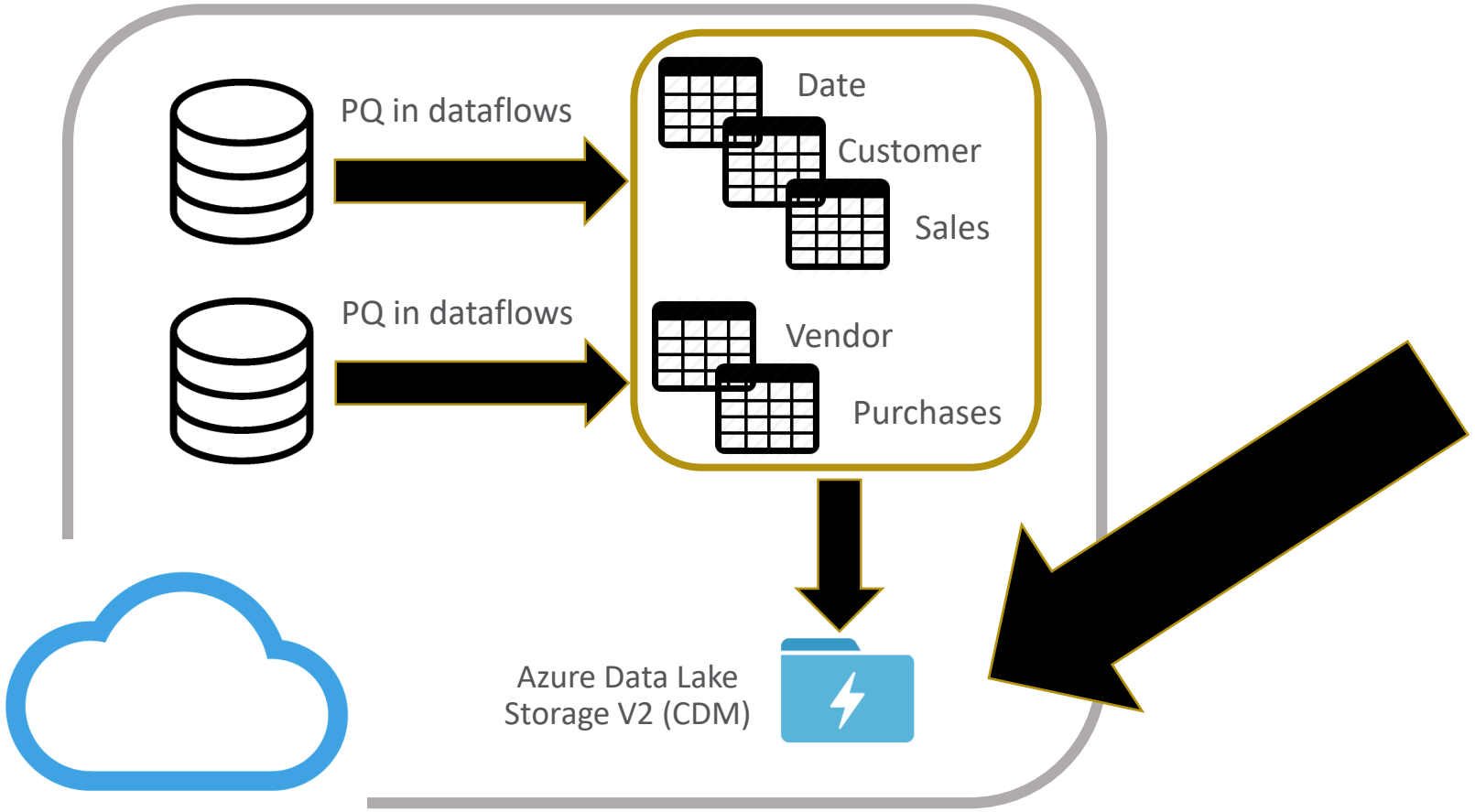


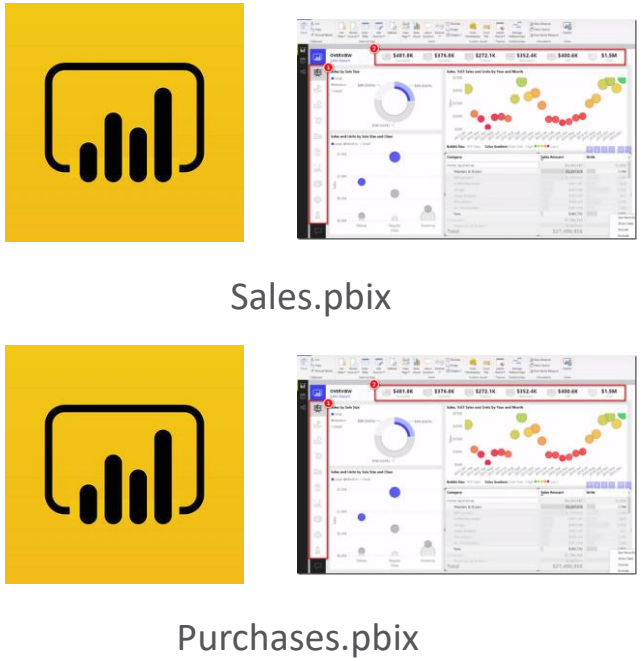
Sales.pbix



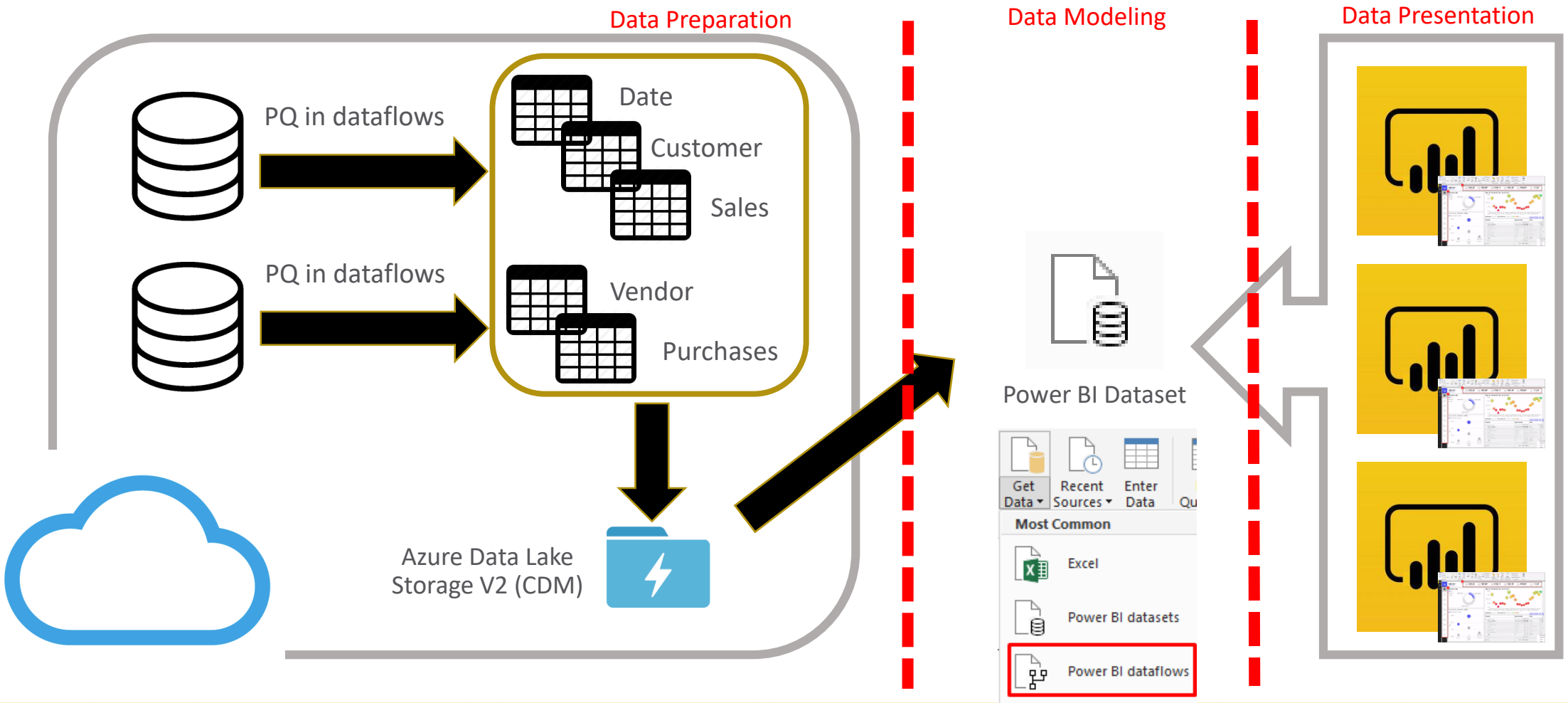
Purchases.pbix

dataflows: a new paradigm





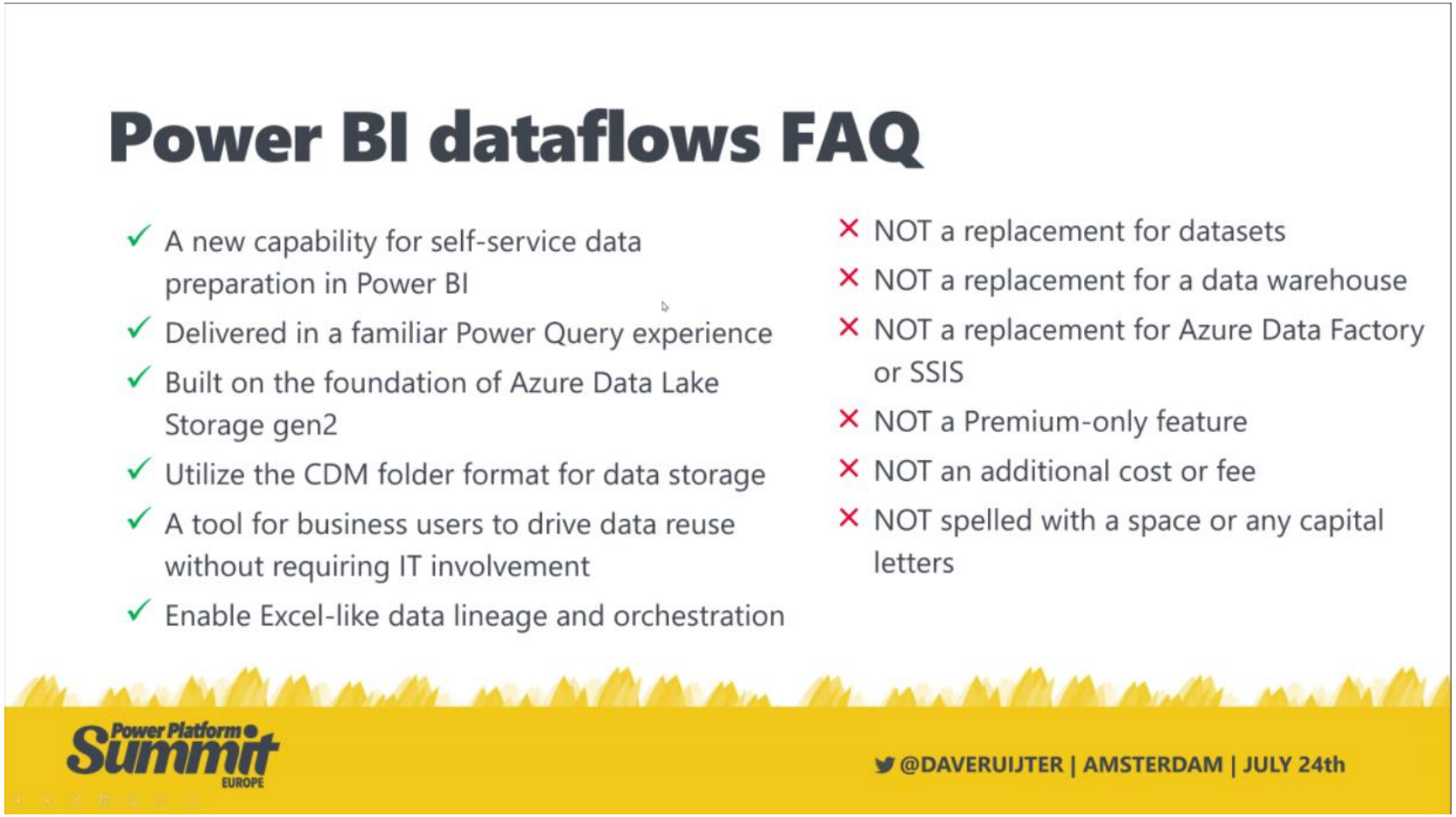
dataflows: 2 steps forward



dataflows: pros

- Centralization of data preparation (reusability and standardization)
- Isolating refresh (1 table a time)
- Attach an existing ADLS v2 (preview)
- Speed up dataset refresh

dataflows: summary pt. 1



Storage Mode: Live Connection

	Power BI dataflows	Power BI datasets
Implementation	CDM folder	Analysis Services tabular model
Storage[2]	CSV files	Vertipaq
Metadata[3]	Common Data Model – model.json	BISM
Development	Power Query Online	Power Query in Power BI Desktop
Primary purpose[4]	Data reuse	Data analysis
Reuse[5]	Acts as data source in multiple datasets	Shared datasets across workspaces
Scope of reuse[6]	Entity level reuse	Dataset level reuse
Mashup with other data sources[7]	Yes	No
Used for reporting[8]	Not directly	Yes
Reuse outside Power BI[9]	Yes, through ADLSg2	Yes, through XMLA
Data access methods[10]	Import	Import, DirectQuery
Connection methods[11]	Import	Live Connection
What else am I missing?	Please let me know!	Seriously, you should let me know.

https://ssbipolar.com/2019/10/14/power-bite-dataflows-vs-datasets/

Demo: dataflows, datasets, refresh... all in!

Can I have some advisable scenarios?

Some guidelines

Relational DWH	AAS/SSAS	Model Size	Advice
Yes	No	Under 1 GB	Storage Mode: Import Data License: Pro Data Preparation: Power Query or dataflows
No	No	Under 1 GB	Storage Mode: Import Data (also shared dataset) License: Pro Data Preparation: dataflows
Yes	Yes	-	Storage Mode: Live Query Connection License: Pro
Yes/No	No	Over 1 GB	Storage Mode: Import Data License: Premium Data Preparation: Power Query or dataflows
Yes/No	No	Over 1 GB	Storage Mode: Direct Query or Dual Mode with Aggregations License: Pro Data Preparation: Power Query

Useful Links

- Live or Import? http://tiny.cc/fa9uaz
- Gateway http://tiny.cc/lb9uaz
- PowerShell Cmdlets for data gateway: http://tiny.cc/ebia1
- Incremental Refresh: http://tiny.cc/4c9uaz
- dataflows & CDM: http://tiny.cc/5d9uaz
- Dataflows best practices: http://tiny.cc/dmgebi
- Shared Datasets replace SSAS: http://tiny.cc/8imtbz

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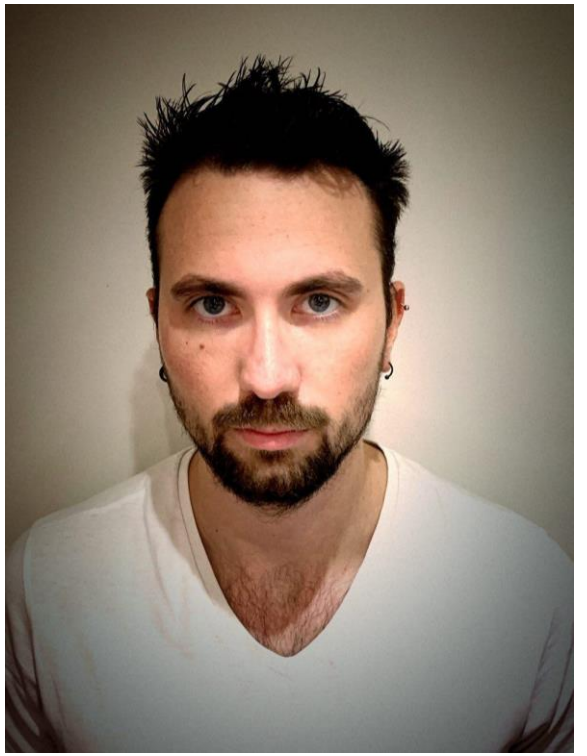

Q&A

Thank You

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