



# Brian Bønck Rueløkke

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Microsoft

FastTrack Recognized  
Solution Architect  
Power BI  
2022 >>



Microsoft

Certified Trainer  
Data Platform

2018 >>

# Agenda

The Kusto engine

Data modelling in Power BI

Runthrough of the Fabric Kusto

Demo

Kusto / ADX / SDX

Azure Data  
Explorer

Synapse  
Data  
Explorer

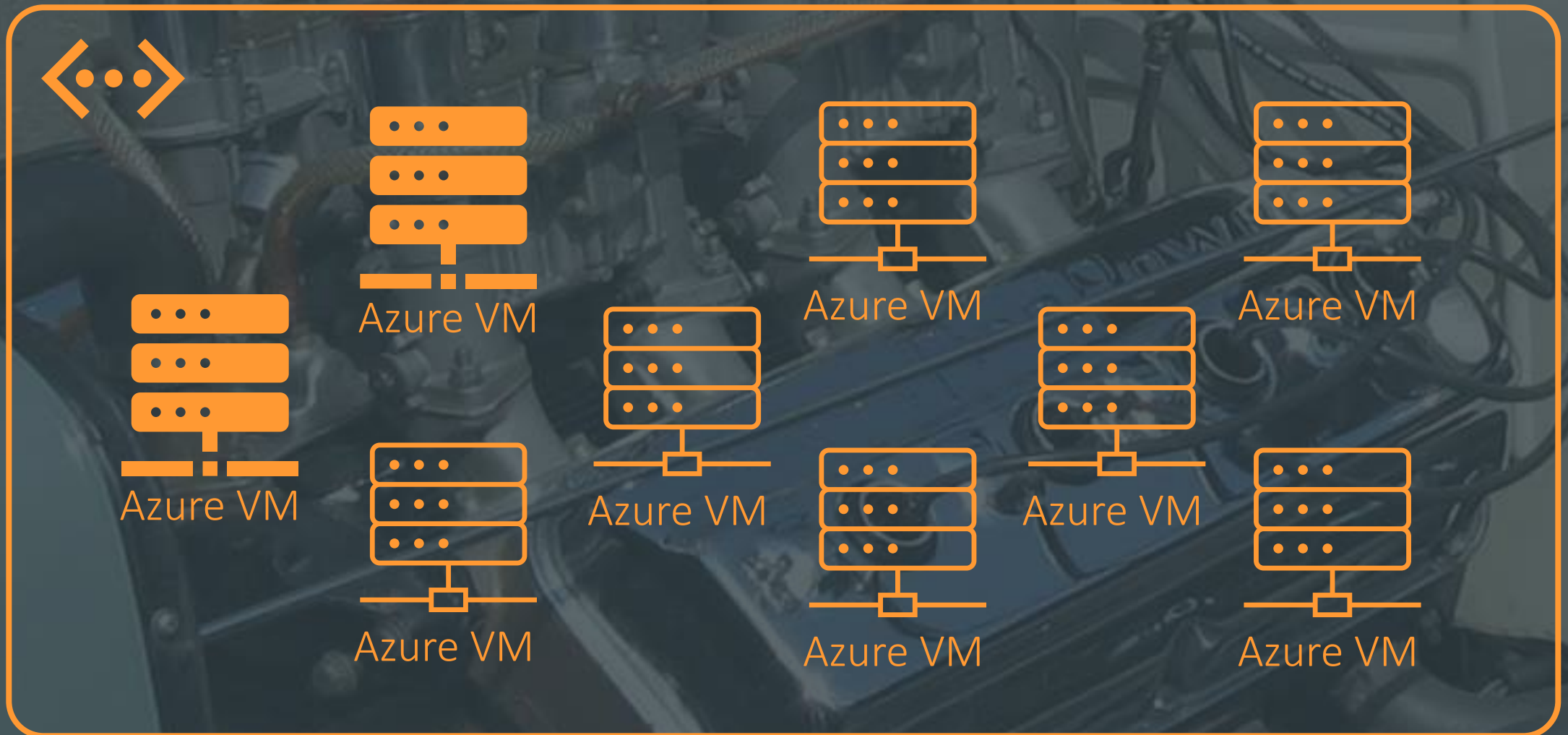
Fabric  
KQL  
database

Kusto engine

# Kusto / ADX / SDX

- Distributed engine on several disks (SSD or spinning)
- Columnar storage → read only needed columns and not all data
- Clusters are Azure VMs → highly parallel
  - For Fabric we don't know yet
- Read-only, delete rarely and no updates
- Fast ingestion → no consistency checks

# Kusto / ADX / SDX





# Kusto / ADX / SDX



**Admin node:**  
responsible for maintaining the overall cluster metadata

**Query Head:**  
Responsible for accepting and processing Kusto query, when you see, Kusto engine or Kusto query planer, usually refer to query head node.

**Data Node:**  
The most common role, like its name indicates, this node is responsible for: first. storing data; second. contribute the CPU and memory when executing the Kusto query.

**Gateway Node:**  
Responsible for processing external API calls, authentication, and request dispatches.

# Data modelling Kusto in Power BI

Some standard guidelines of data modelling does not apply

- Single table reporting can be a good option, if you can include all columns from dimensions to the table
- M:M relations are hard to avoid, but not a big deal → all queries will be translated to KQL

Customer
CustomerKey
Name
Birth Date
Marital Status
Education
Occupation
Continent
CountryRegion

Sales
ProductKey
Quantity
Delivery Date
CustomerKey
Sales Amount
Margin
Margin %

Date
Date
Year
Month
MonthNumber
Day of Week
DayNumber

Purchases
Delivery Date
Order Date
ProductKey
Quantity
Invoice Cost
Purchase Amount

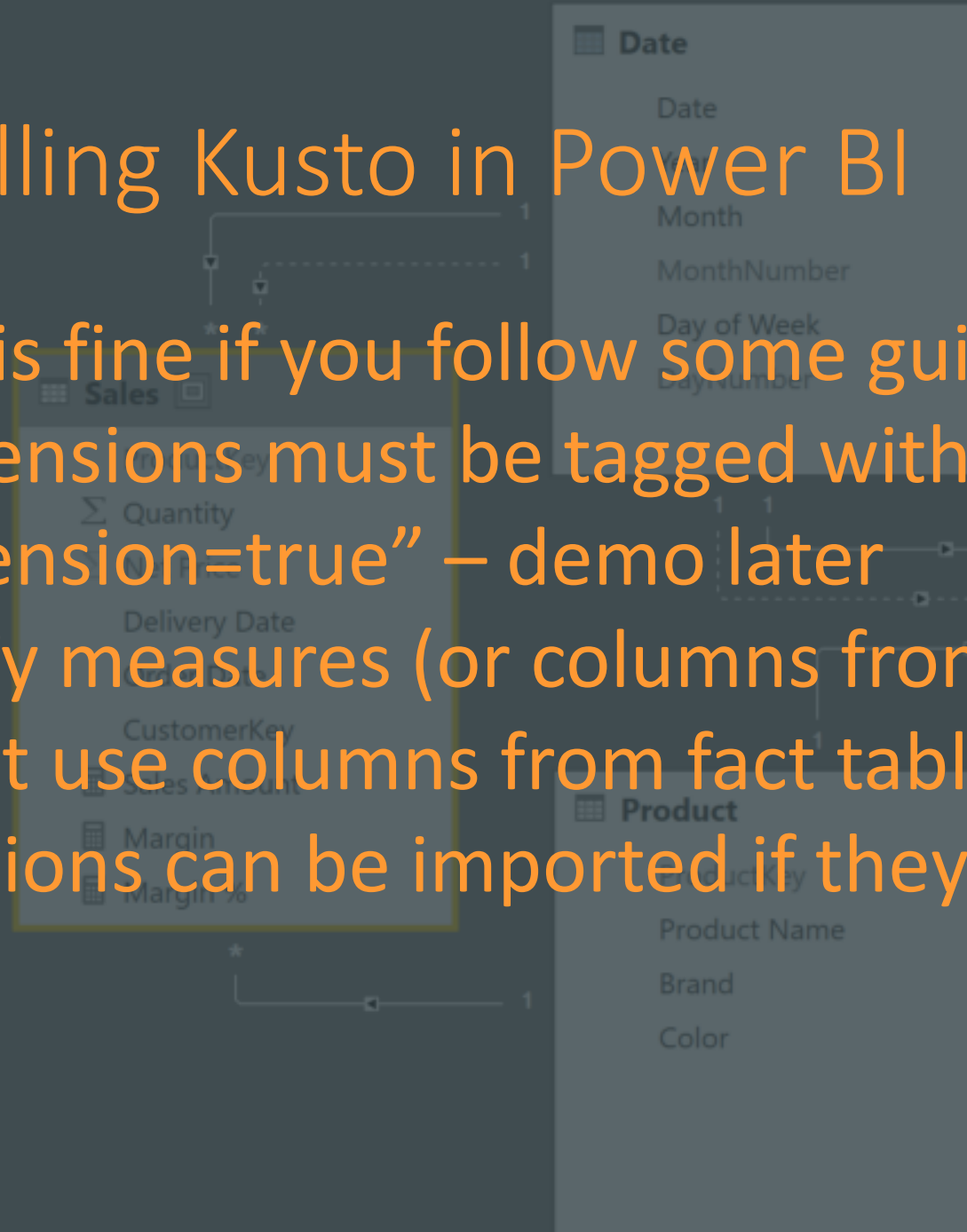
Product
ProductKey
Product Name
Price
Color

# Data modelling Kusto in Power BI

Star schema is fine if you follow some guidelines:

- All dimensions must be tagged with “IsDimension=true” – demo later
- Use only measures (or columns from dimensions) – do not use columns from fact tables
- Dimensions can be imported if they are <1 mio rows.

Customer
CustomerKey
Name
Birth Date
Marital Status
Education
Occupation
Continent
CountryRegion



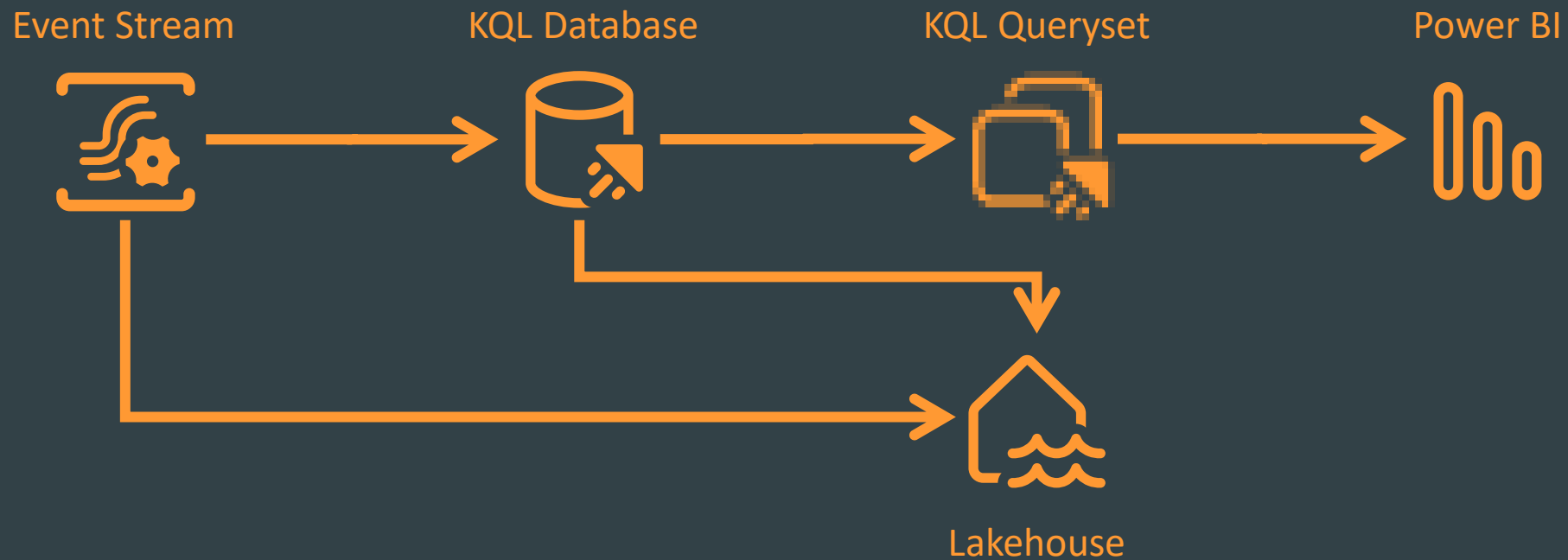
Purchases
Delivery Date
Order Date
ProductKey
Quantity
Purchase Amount

Date
Date
Year
Month
MonthNumber
Day of Week
DayNumber

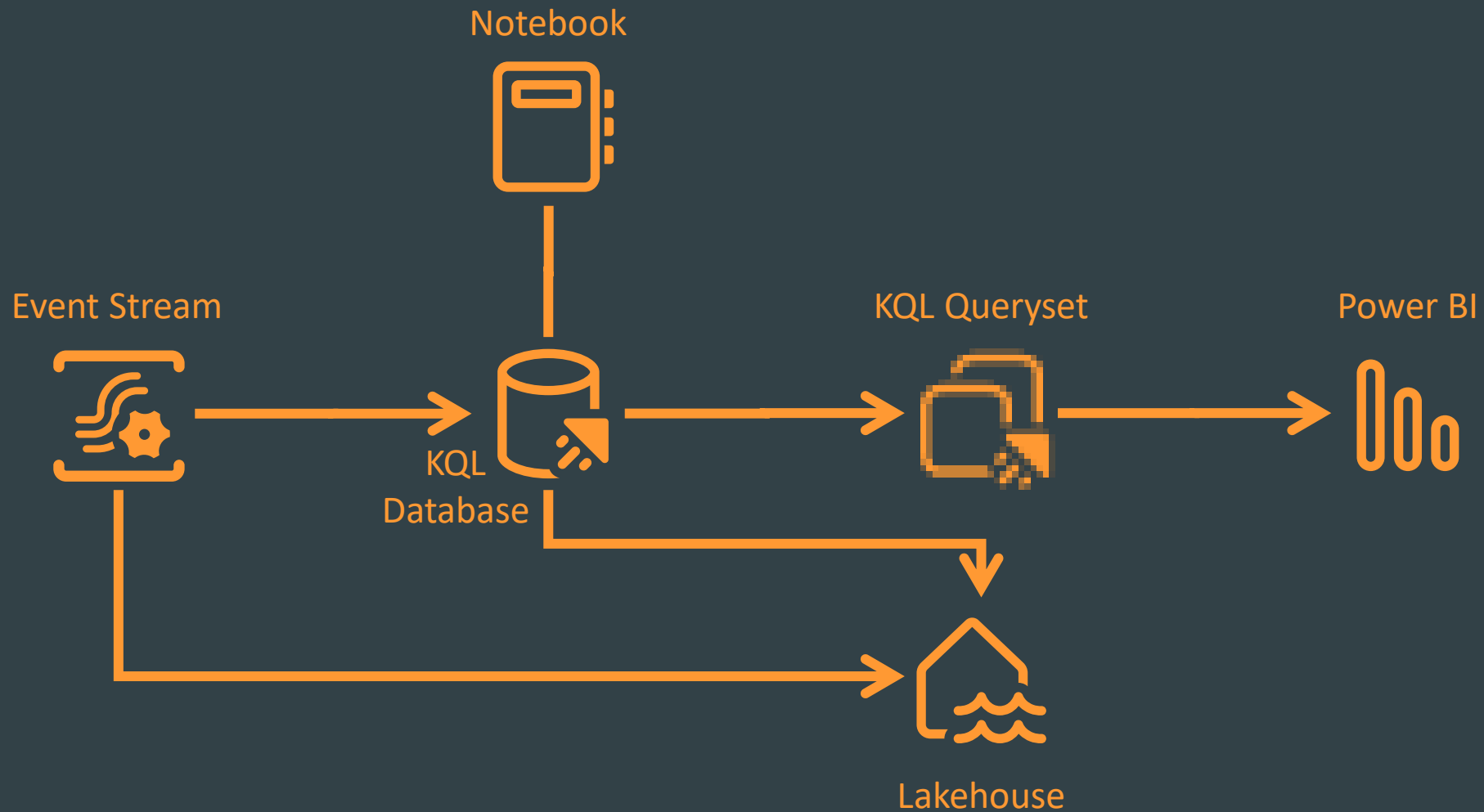
Product
ProductKey
Product Name
Brand
Color



# Kusto in Fabric – aka Real-Time Analytics



# Kusto in Fabric – aka Real-Time Analytics



# Kusto in Fabric – aka Real-Time Analytics



# Kusto experience in Fabric

# DEMO

Live coding  
(hopefully no demo-ghost )



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