



Self-Service Analytics with SAP

Unlocking Access to SAP Data for Analysts & Data Scientists


Bowdark At a Glance



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Bowdark specializes in the design and development of custom software solutions using SAP, Microsoft, and cloud-based technologies. We're based in Flower Mound, TX and have been developing best-in-class solutions for customers since 2006.



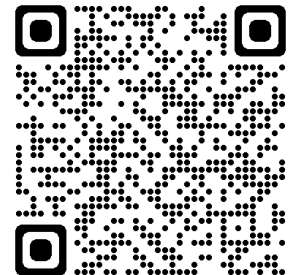
Expert Knowledge

- 2 SAP Mentors
- Authors of 16 books on SAP & related topics
- Deep knowledge in SAP, Azure, and Microsoft Power Platform

Microsoft
Partner



Gold Application Integration
Gold Application Development





What We'll Cover

- Resetting Expectations
- Establishing a Firm Foundation
- Building on Virtual Data Models
- Self-Service Visualization Concepts
- Practical Use Cases
- Wrap-Up



Resetting Expectations

Raising the Bar for BI, Analytics, & Data Science

Historical Challenges

- Data is locked away in on-premises BW / EDW systems which are difficult to work with
- SAP data is frequently isolated in a separate data warehouse (e.g., SAP BW) from the main EDW
- Visualization options are limited and require deep knowledge of proprietary tools such as BEx, Lumira, and BusinessObjects (BOBJ)
- Quality SAP BI resources are difficult to find and expensive
- It takes a long time to turn around report requests

Finding the Right BI Mix

Corporate BI

- Datasets owned & managed by IT
- Reports & dashboards developed and maintained by IT
- BI development teams are stretched too thin
- IT doesn't understand business requirements very well

Too Slow

Self-Service Visualization

- Datasets managed & curated by IT
- Reports & dashboards mostly developed by business analysts
- Enables data scientists to (safely) mine for insights
- Unlocks unprecedented agility

Just Right

Self-Service BI

- Datasets cobbled together by the business in inconsistent ways (e.g., Excel files)
- Reports and dashboards built and maintained by the business
- Limited scalability
- Can create security risks

Too Messy & Error Prone

Modern BI Requirements

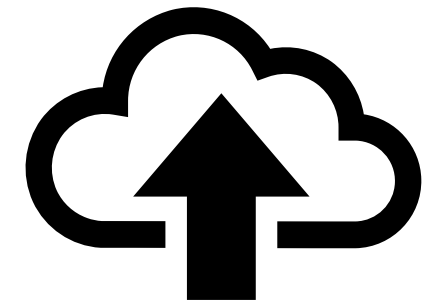
- Simplified and intuitive data models
- Integrated and secure access to disparate data sources (SAP, SaaS apps, unstructured data, & streaming)
- Performance: As data volumes continue to grow, the BI solution must be able to keep up
- Scalability and consumption-based pricing models
- Support for data exploration
- Access to AI & machine learning tools
- Governance & compliance

Establishing a Firm Foundation

Building on Modern Cloud Analytics Platforms

Look to the Cloud(s)

1. The cloud is where all the latest innovation is happening
2. Increased and flexible scaling options
3. Unlock access to a broad set of tools and cloud data services
4. Manage complexity and reduce administrative burden
5. Reduce TCO

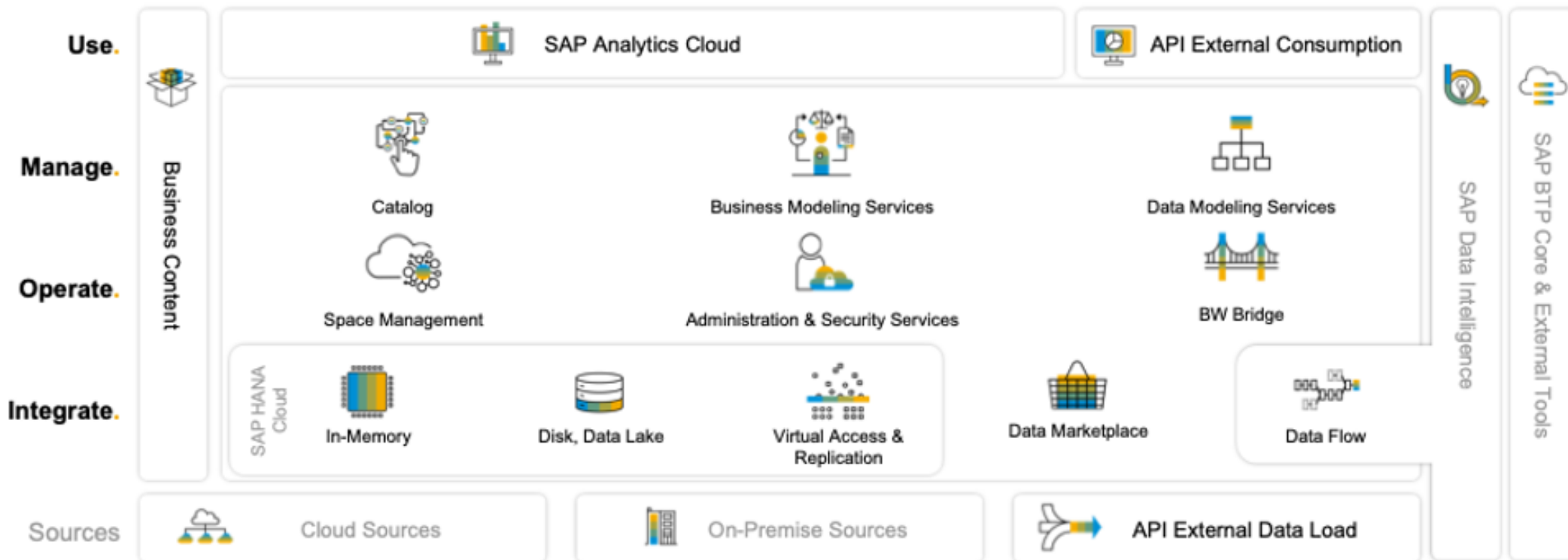


Examining the BI Marketplace



Source: Gartner (March 2022)

Introducing SAP Datasphere



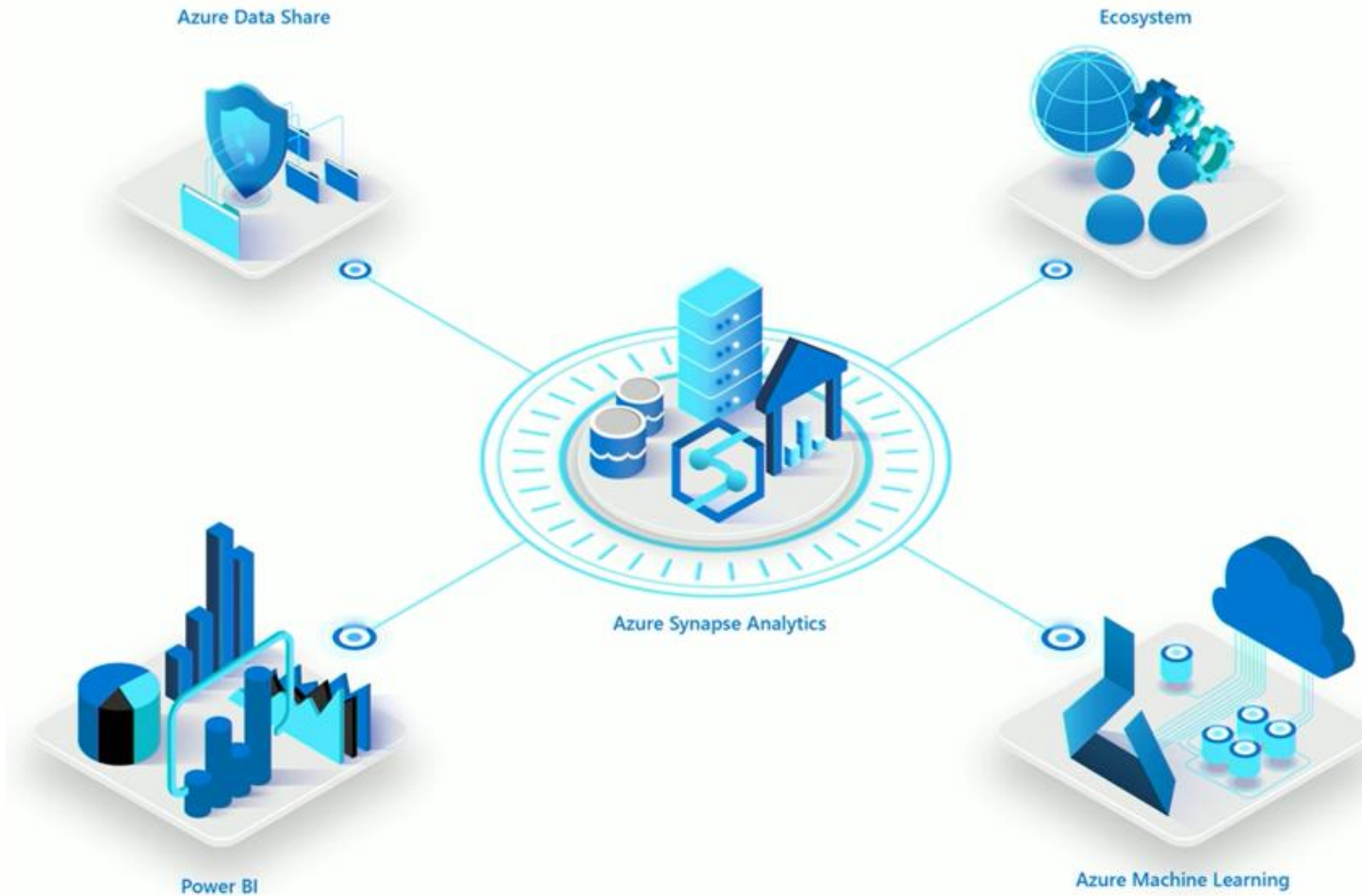


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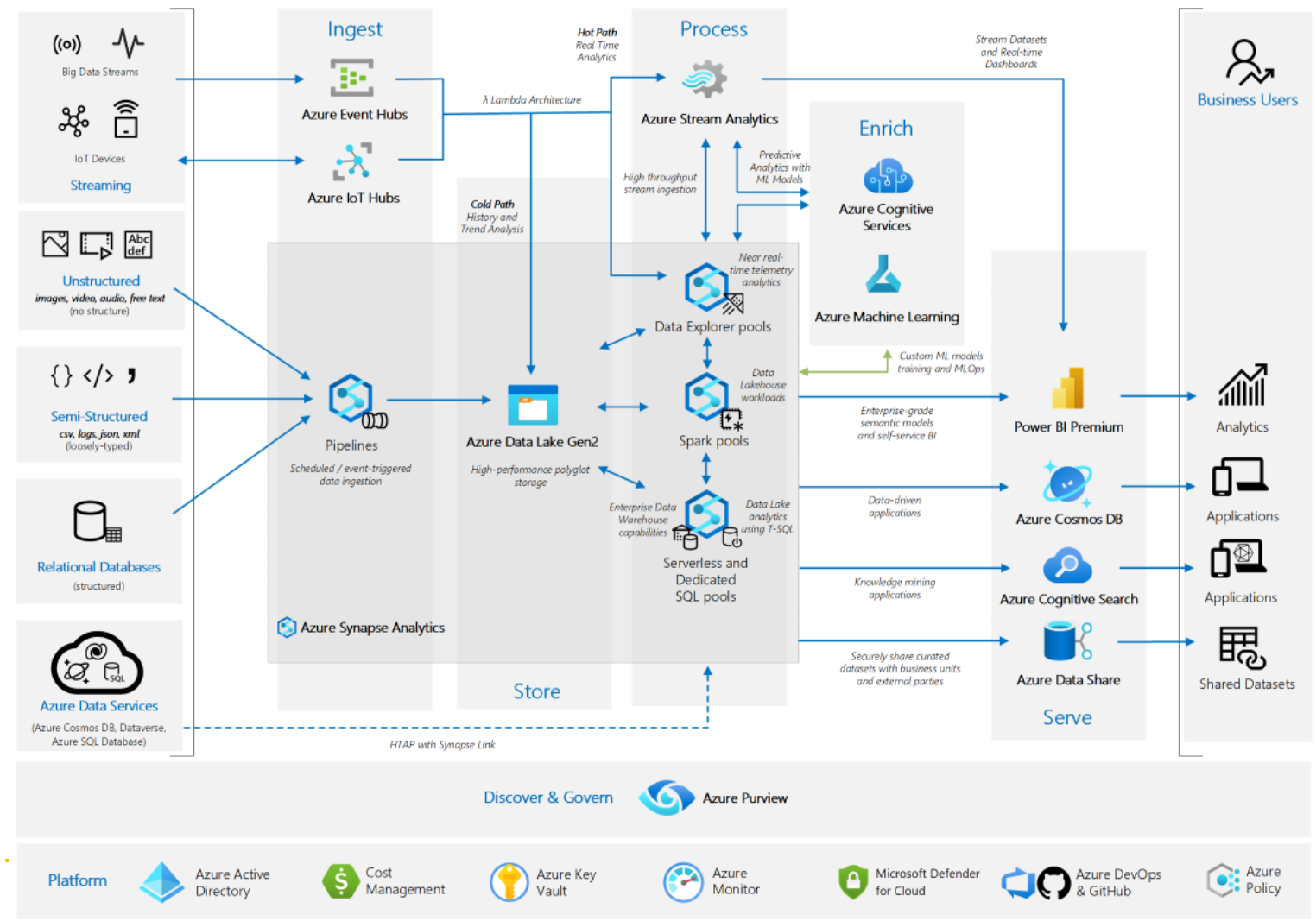
SAP's Key Competitors



Cloud Data Platform Concept



Microsoft Intelligent Data Platform



Building on Virtual Data Models

Leveraging SAP HANA + Core Data Services

Simplifying SAP Data Models

- Historically, one of the major challenges with harnessing SAP data has been parsing through all those German abbreviations
- Even experienced BI developers struggle to decipher what a LIFNR is and if it means the same thing as “vendor”
- Plus, due to SAP’s heavy use of database normalization techniques, it can be difficult to navigate between obscurely named tables such as VBAK, VBAP, VBEP, VBFA, and so forth

Introducing CDS & VDMs

- Core Data Services (CDS) is a new(ish) technology that enables ABAP developers to create database views that smooth out the complexities of SAP data models
- SAP, partners, and customers alike are using CDS to create *virtual data models* (VDMs) which make it much easier to interpret and navigate SAP data models
- SAP uses the VDM concept extensively within S/4 HANA, but legacy ECC customers can still take advantage of these capabilities – even if they're running on AnyDB

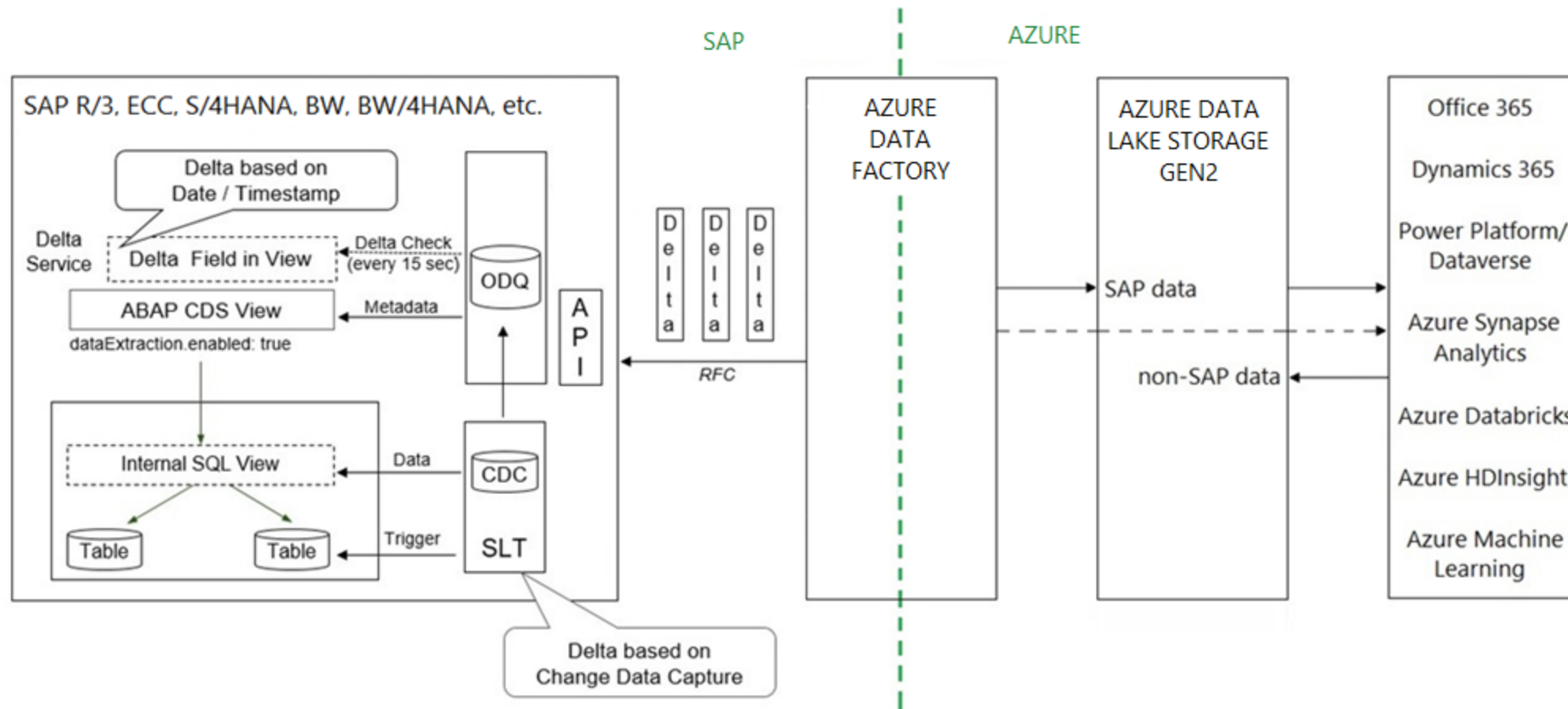
VDM Example

```
@EndUserText.label: 'Sales Order'  
...  
define view entity SalesOrder as select from vbak {  
  key vbeln as OrderNumber,  
  auart as OrderType,  
  ...  
  association [0..*] to SalesOrderItem as _Item  
    on $projection.OrderNumber = _Item.OrderNumber  
  ...  
}
```

SalesOrder

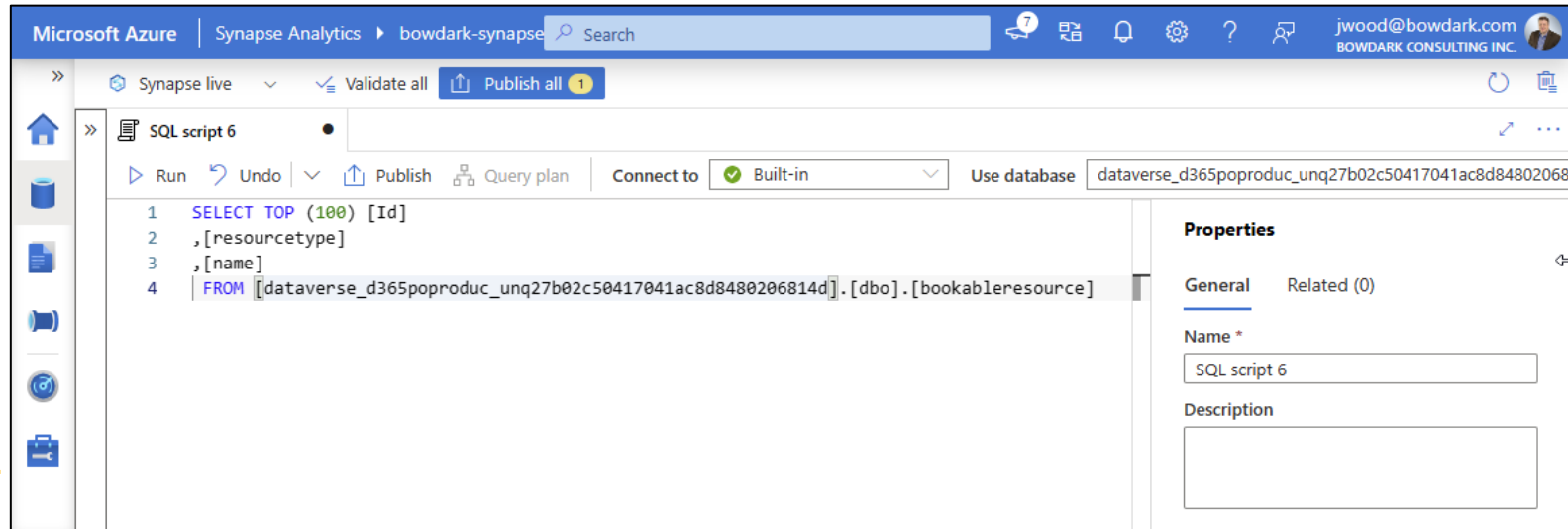
OrderNumber	OrderType	OrderTypeDesc	Customer	...
1234567890	TA	Standard Order	3456789012	...
2345678901	SO	Rush Order	4567890123	...

VDM Replication with Azure



Dimensional Data Modeling

- Within cloud data warehouses, developers can mix-and-match SAP and non-SAP data sources to create intuitive data models for the business
- For tools like Azure Synapse, Google BigQuery, or Amazon Redshift, this modeling can be done using pure SQL



The screenshot shows the Microsoft Azure Synapse Analytics interface. The top navigation bar includes "Microsoft Azure | Synapse Analytics | bowdark-synapse" and a search bar. The user profile "jwood@bowdark.com" is visible in the top right. The main workspace is titled "SQL script 6" and contains a SQL query:

```
1 SELECT TOP (100) [Id]
2 , [resourcetype]
3 , [name]
4 FROM [dataverse_d365poproduc_unq27b02c50417041ac8d8480206814d].[dbo].[bookableresource]
```

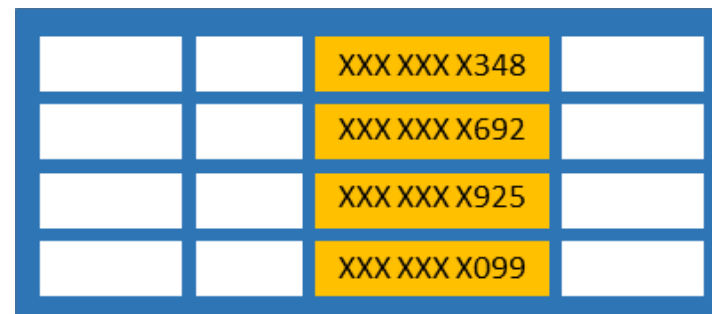
The interface also shows a "Properties" panel on the right with fields for "Name" (SQL script 6) and "Description".

Securing Data Access

- The final step in the data curation process is to implement role-based access control (RBAC)
- With RBAC, you can rest assured that data consumers can only access the data that they're authorized to see – no exceptions!



Row-Level Security



		XXX XXX X348	
		XXX XXX X692	
		XXX XXX X925	
		XXX XXX X099	

Dynamic Data Masking

Self-Service Visualization Concepts

Telling Stories with Your Data

Telling Stories with Your Data

- Fact: No one knows data better than the people that use it every day
- In the past, the barrier to self-service analytics was simplified data access
- With modern graphical BI tools such as SAP Analytics Cloud, Power BI, or Tableau, it's now possible for analysts to access their data without having to write a single line of SQL

~~SQL~~

Building Reports with Power BI



ACME
ANY-LEVEL CORPORATION

118.73M
Total Sales

16.89M
Total Profit

9.21M
Discounts

Sum of Units Sold by Country

Sum of Sales by Country

Sum of Units Sold by Country

Curated Data

At 25,029,830.17, United States of America had the highest Sum of Sales and was 19.48% higher than Mexico, which had the lowest Sum of Sales at 20,949,352.11.

United States of America accounted for 21.08% of Sum of Sales.

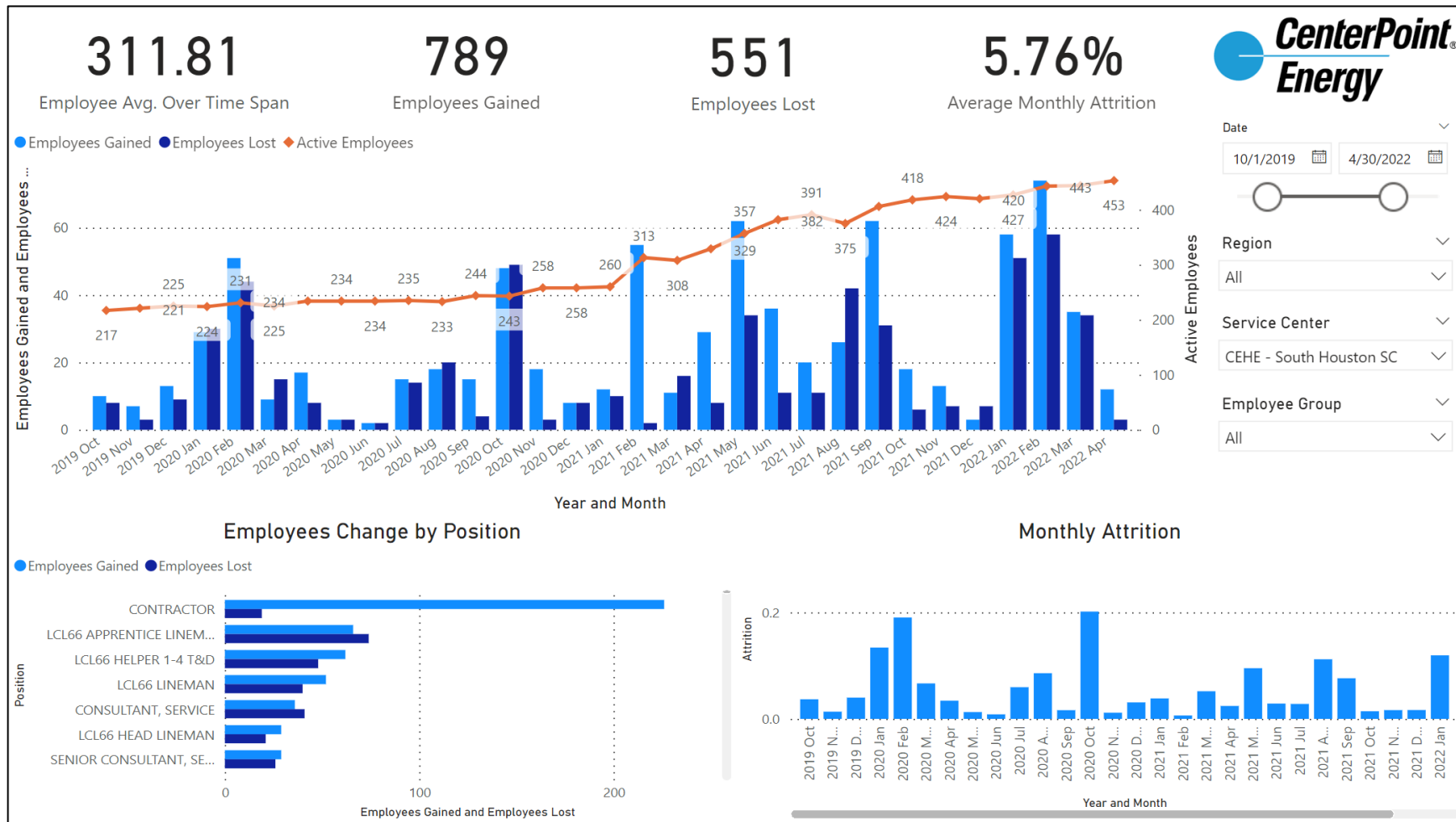
Across all 5 Country, Sum of Sales ranged from 20,949,352.11 to 25,029,830.17.



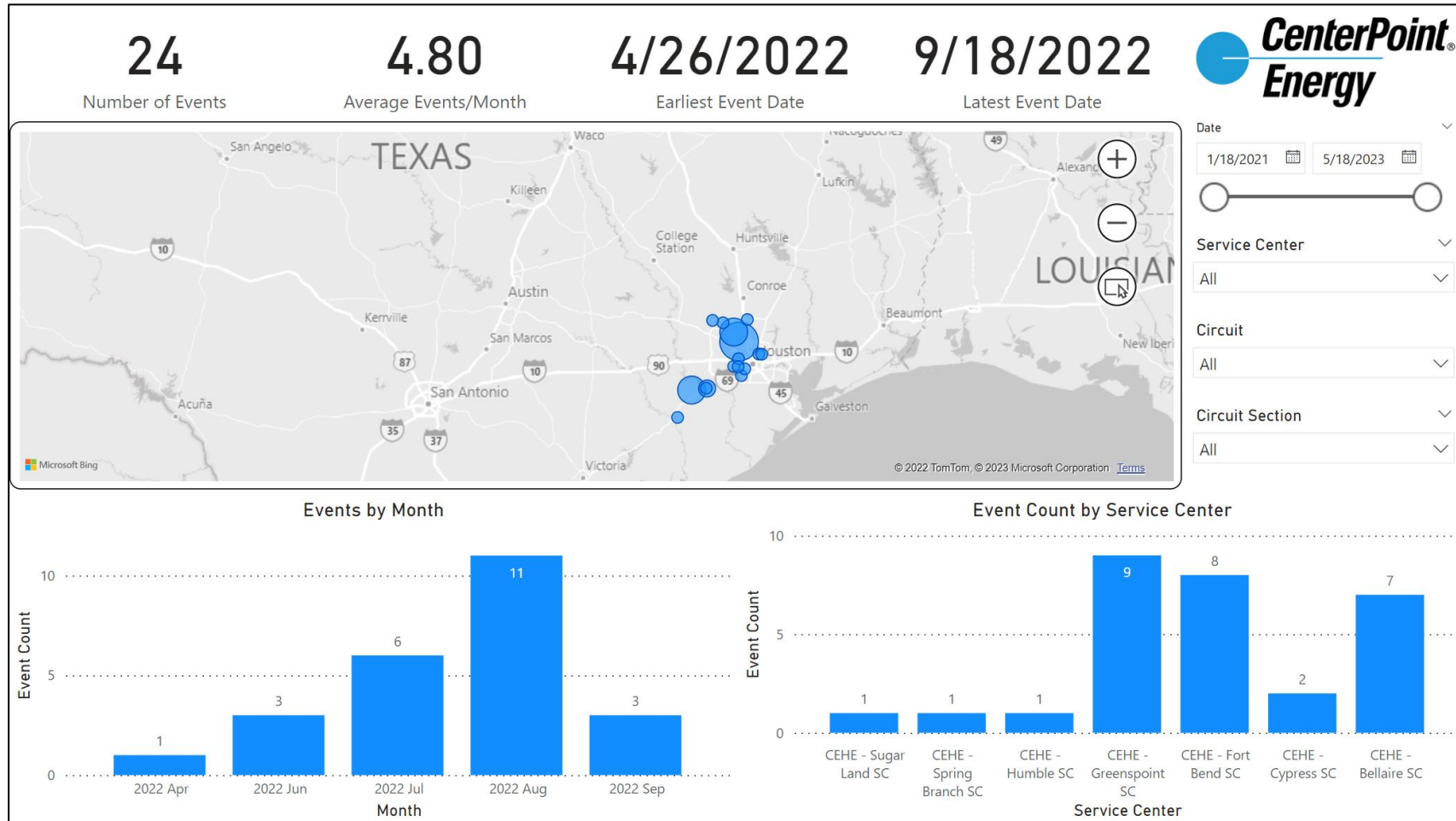
Practical Use Cases

Embedding Analytics & Decision Support Everywhere

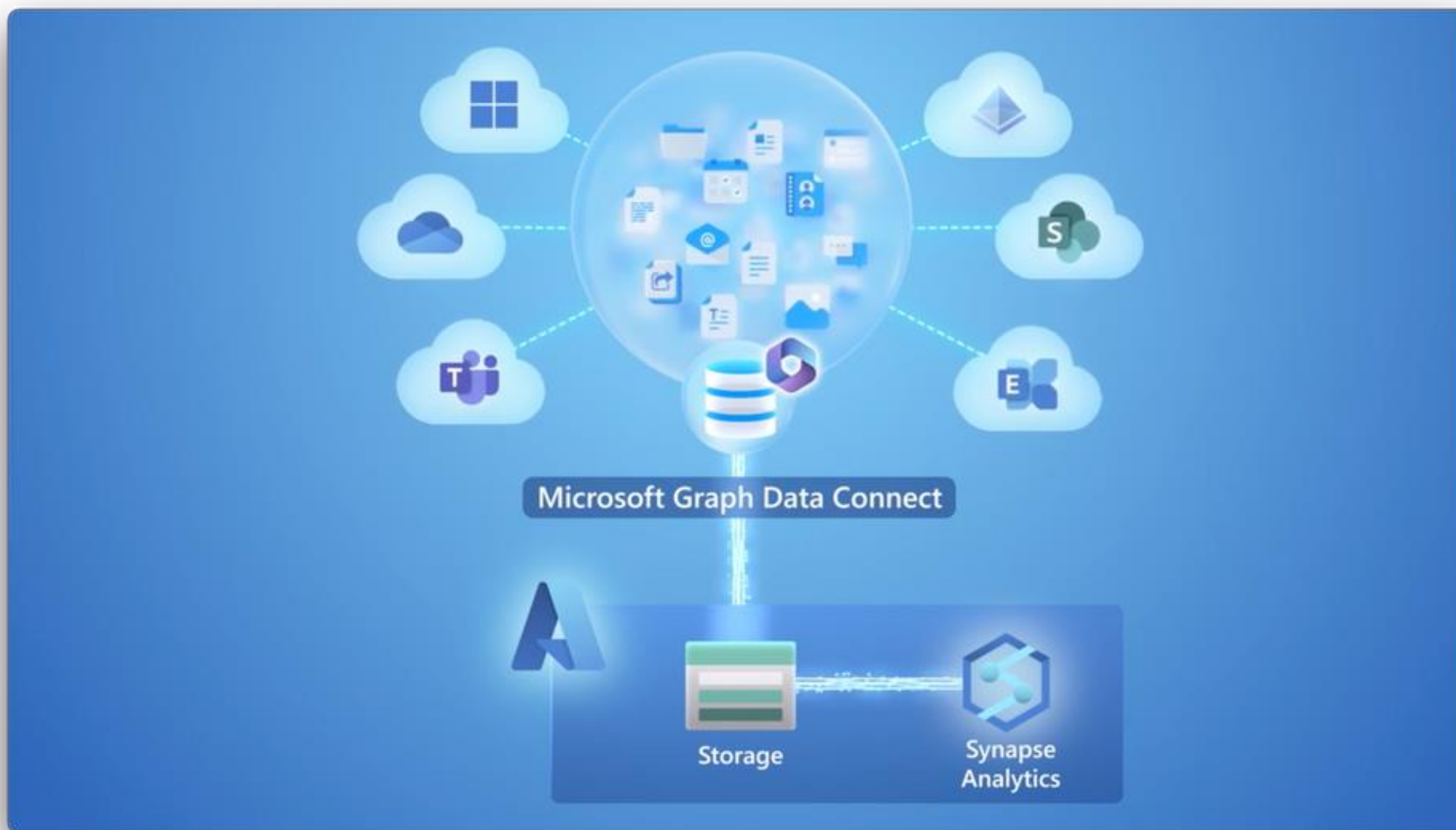
Interactive Dashboards



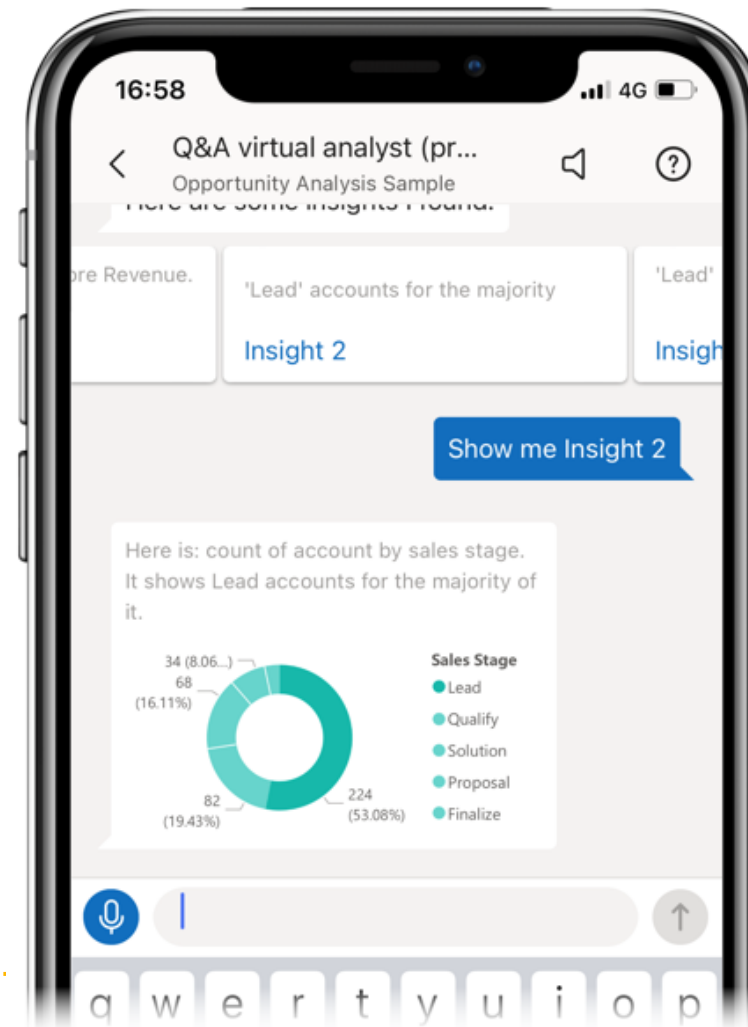
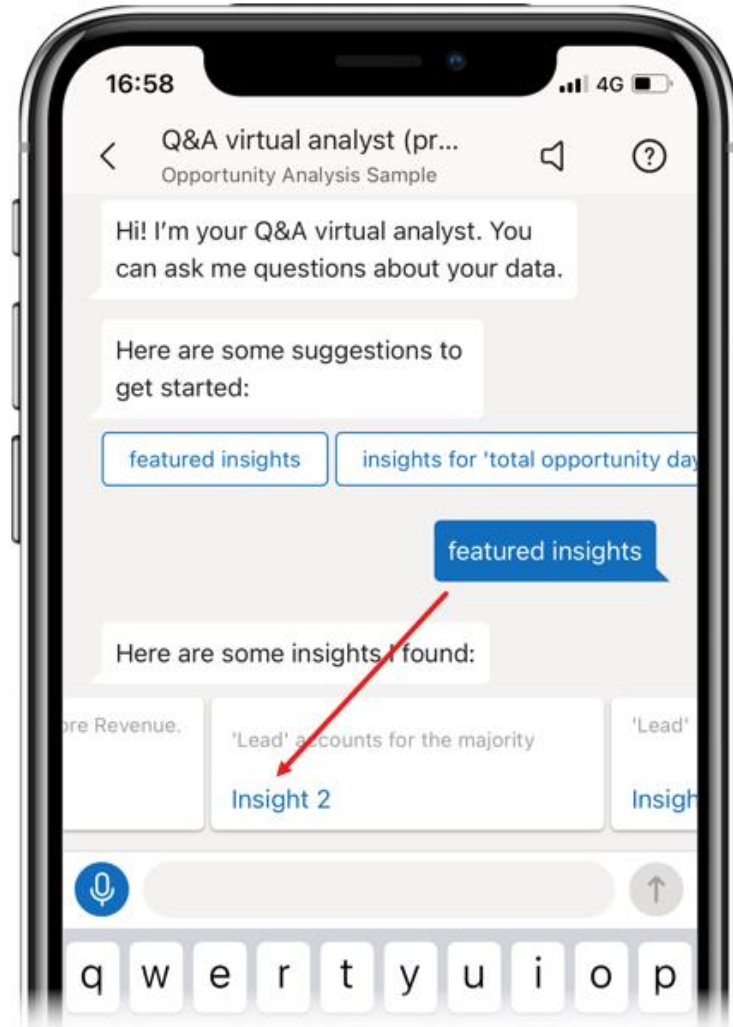
Data Mashups (1)



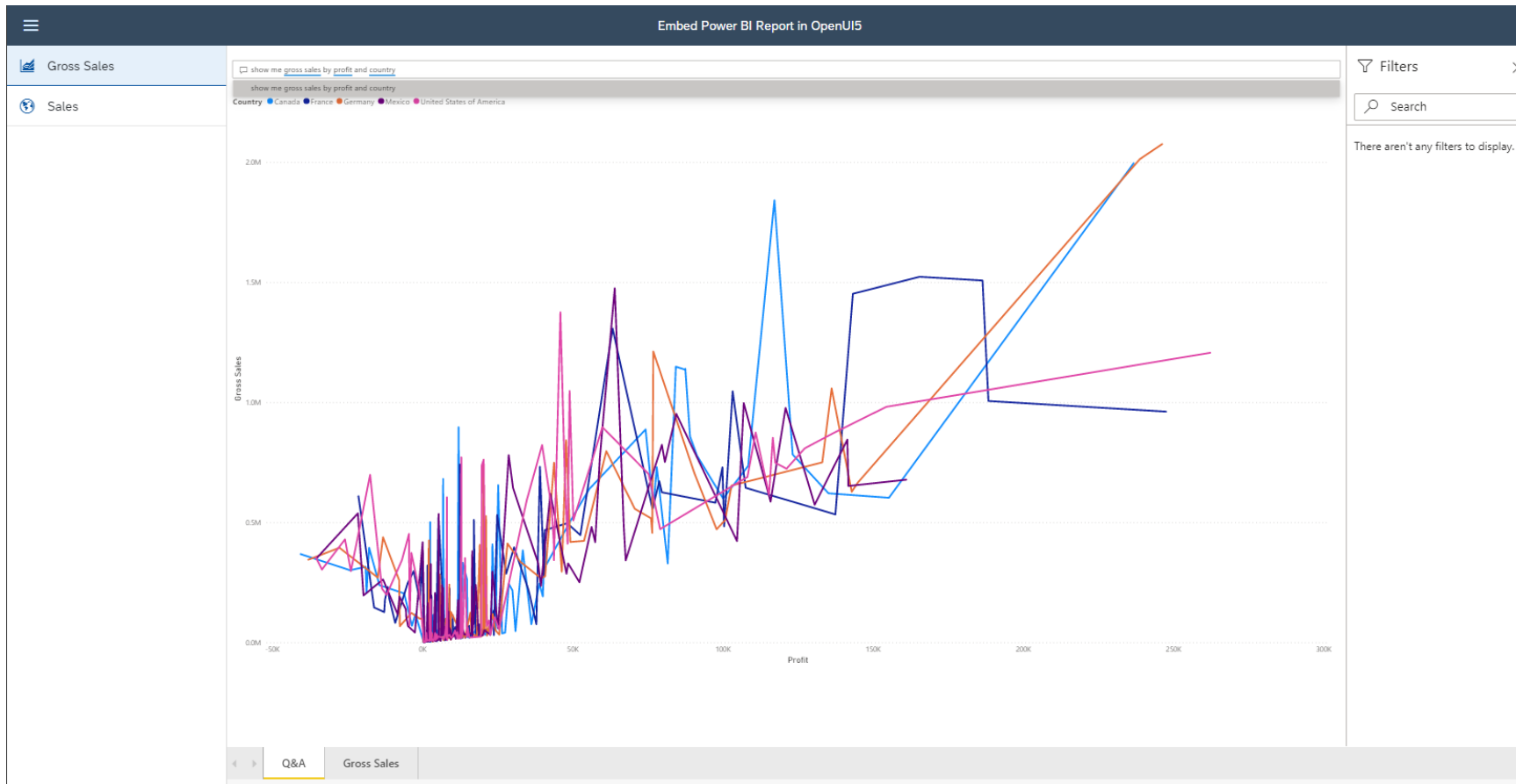
Data Mashups (2)



Mobile BI Solutions



Embedded Analytics with Fiori



Graphic Courtesy of Florian Pfeffer ([SAP SCN](#))

Collaborative BI in MS Teams



Microsoft Teams interface showing a Power BI report titled "Financial-data".

Search: Search

Activity Chat Teams Calendar Power BI Help

Home

File Export Save Show data table

Quick summary

- \$3,234,133.81 Sum of Profit
- \$12,467,971.5 Sum of COGS
- \$15,781,411 Sum of Gross Sales
- 155,350.50 Sum of Units Sold

Sum of Profit by Product

Product	Sum of Profit
Paseo	\$0.89M
Carretera	\$0.70M
VTT	\$0.69M
Montana	\$0.40M
Amarilla	\$0.35M
Velo	\$0.20M

Sum of COGS by Product

Product	Sum of COGS
Paseo	\$3.2M
VTT	\$2.9M
Montana	\$2.0M
Carretera	\$2.0M
Amarilla	\$1.3M
Velo	\$1.1M

Sum of Gross Sales by Product

Product	Sum of Gross Sales
Paseo	\$4.1M
VTT	\$3.6M
Carretera	\$2.7M
Montana	\$2.4M
Amarilla	\$1.6M
Velo	\$1.3M

Sum of Units Sold by Product

Product	Sum of Units Sold
Paseo	42K
Montana	27K
Carretera	26K
VTT	22K
Velo	20K
Amarilla	19K

At \$894,042.06, Paseo had the highest Sum of Profit and was 343.86% higher than Velo, which had the lowest Sum of Profit at \$201,514.19.

Paseo accounted for 27.64% of Sum of Profit.

Across all 6 Product, Sum of Profit ranged from \$201,514.19 to \$894,042.06.

Your data

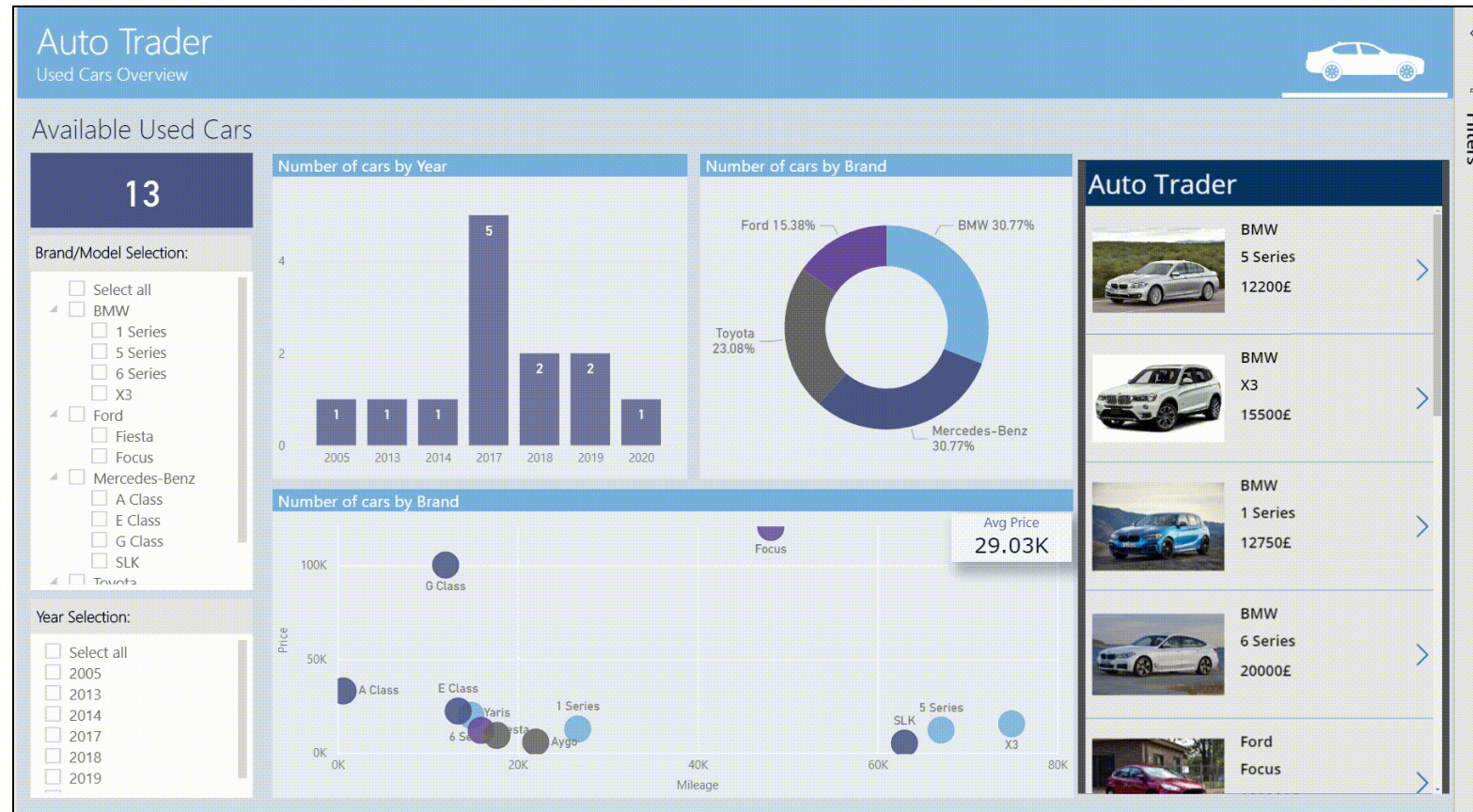
Search

Filters

- Financial-data
 - Count of rows
 - Sales
 - COGS
 - Discount Band
 - Discounts
 - Gross Sales
 - Manufacturin...
 - Month Name
 - Product
 - Profit
 - Sale Price
 - Country
 - Date
 - Month Number

This feature is in preview. [Share feedback](#)

Unlocking Actionable Insights

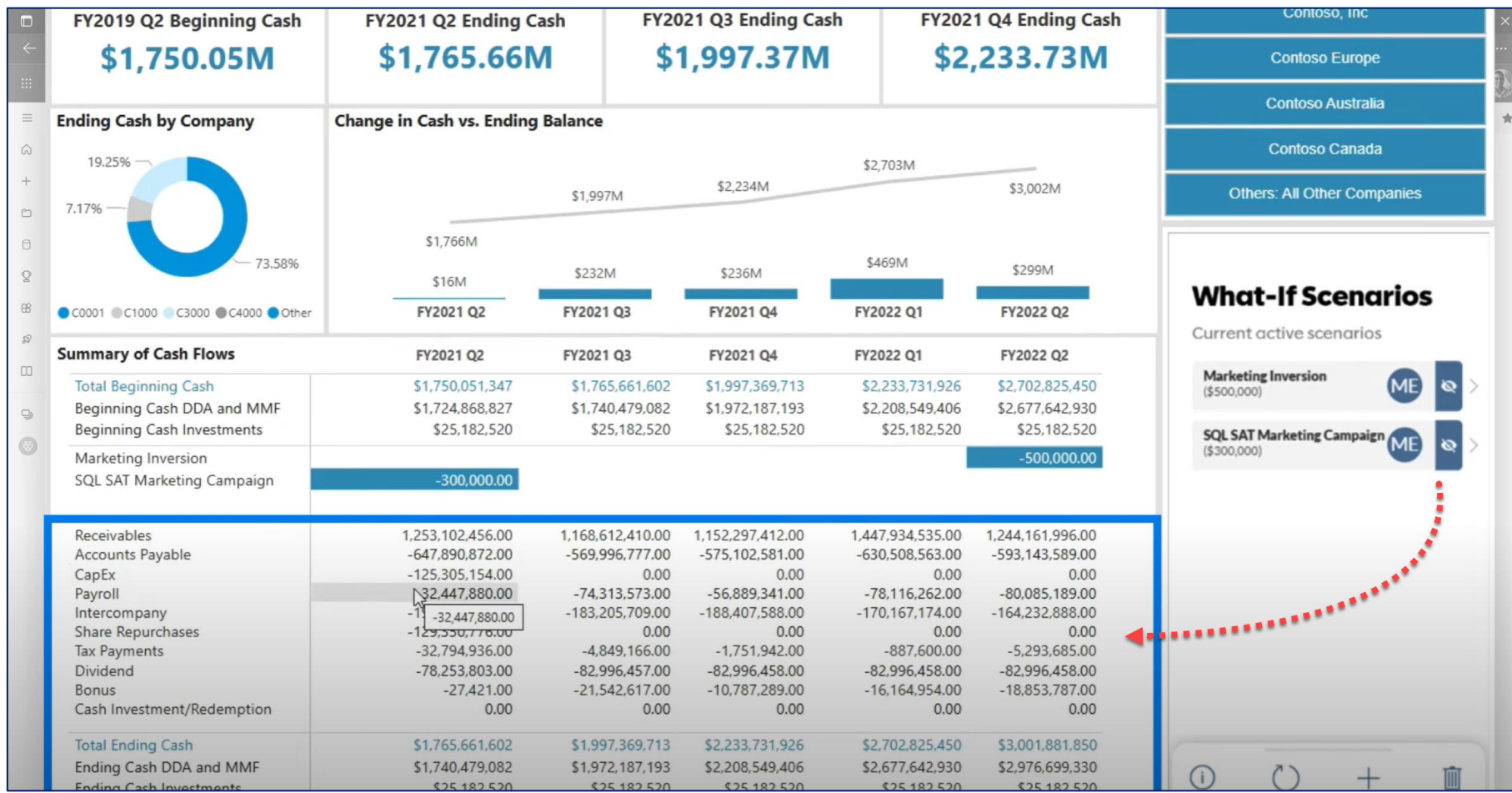


Graphic Provided by Mara Pereira ([Data Pears](#))



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Real-Time Simulations





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Wrap-Up

Key Points to Take Home

1. It's never been easier to get your hands on SAP data
2. Self-service analytics is a realistic and achievable goal
3. Cloud data warehouse technology removes many of the barriers that have stood in the way to achieve self-service analytics

Q&A

Questions ==> { Answers }



Thank you!

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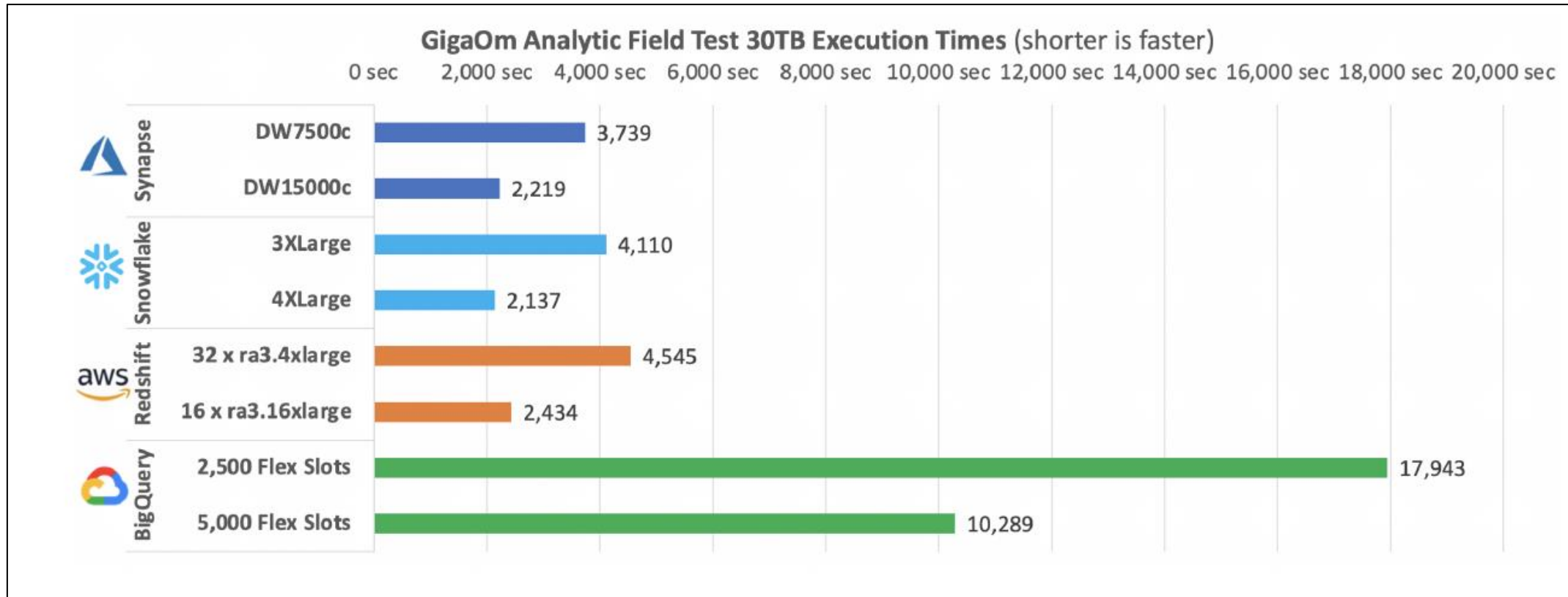
Appendix

Cloud Data Warehouse Benchmark Study

Cloud DW Field Comparison (1)

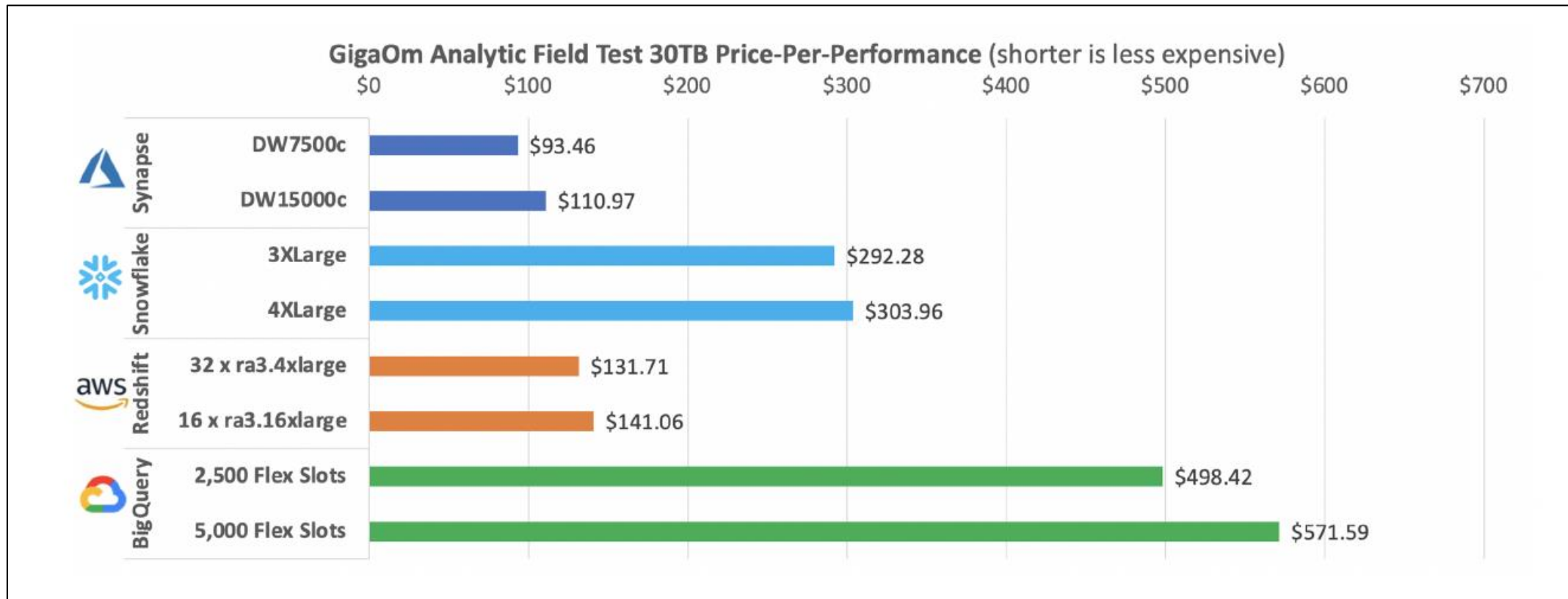


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Independent Benchmark Study Performed by GigaOm

Cloud DW Field Comparison (2)



Independent Benchmark Study Performed by GigaOm