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Self-Service Analytics with SAP

Unlocking Access to SAP Data for Analysts & Data Scientists

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Bowdark At a Glance

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

Microsoft

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

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- 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

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Corporate BI	Self-Service Visualization	Self-Service 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	• Datasets managed & curated by IT • Reports & dashboards mostly developed by business analysts • Enables data scientists to (safely) mine for insights • Unlocks unprecedented agility	• 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 Slow	Just Right	Too Messy & Error Prone

Modern BI Requirements

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- 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)

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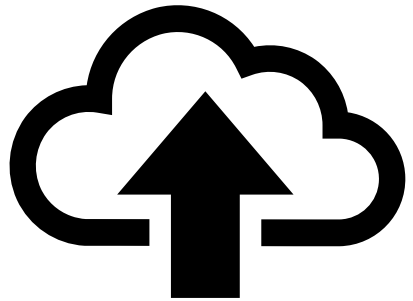
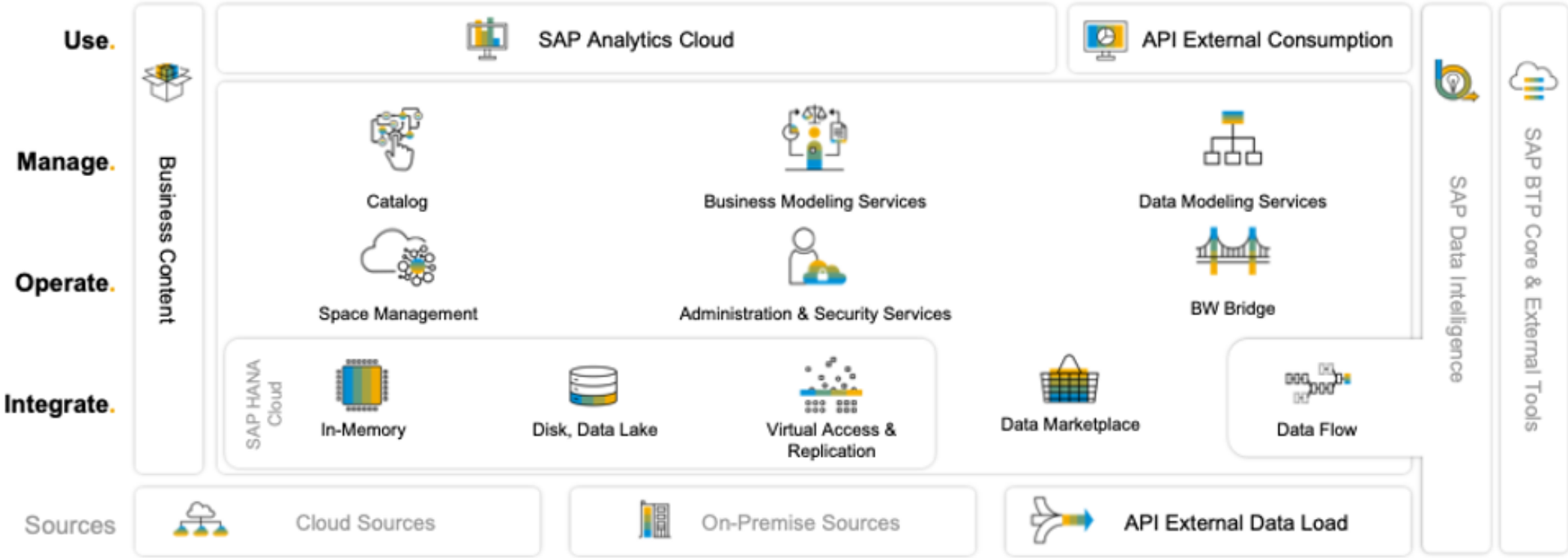
1. The cloud is where all the latest innovation is happening
2. Increased and flexible scaling options
3. Unlock access to a broad set of tools and cloud data services
4. Manage complexity and reduce administrative burden
5. Reduce TCO



Examining the BI Marketplace

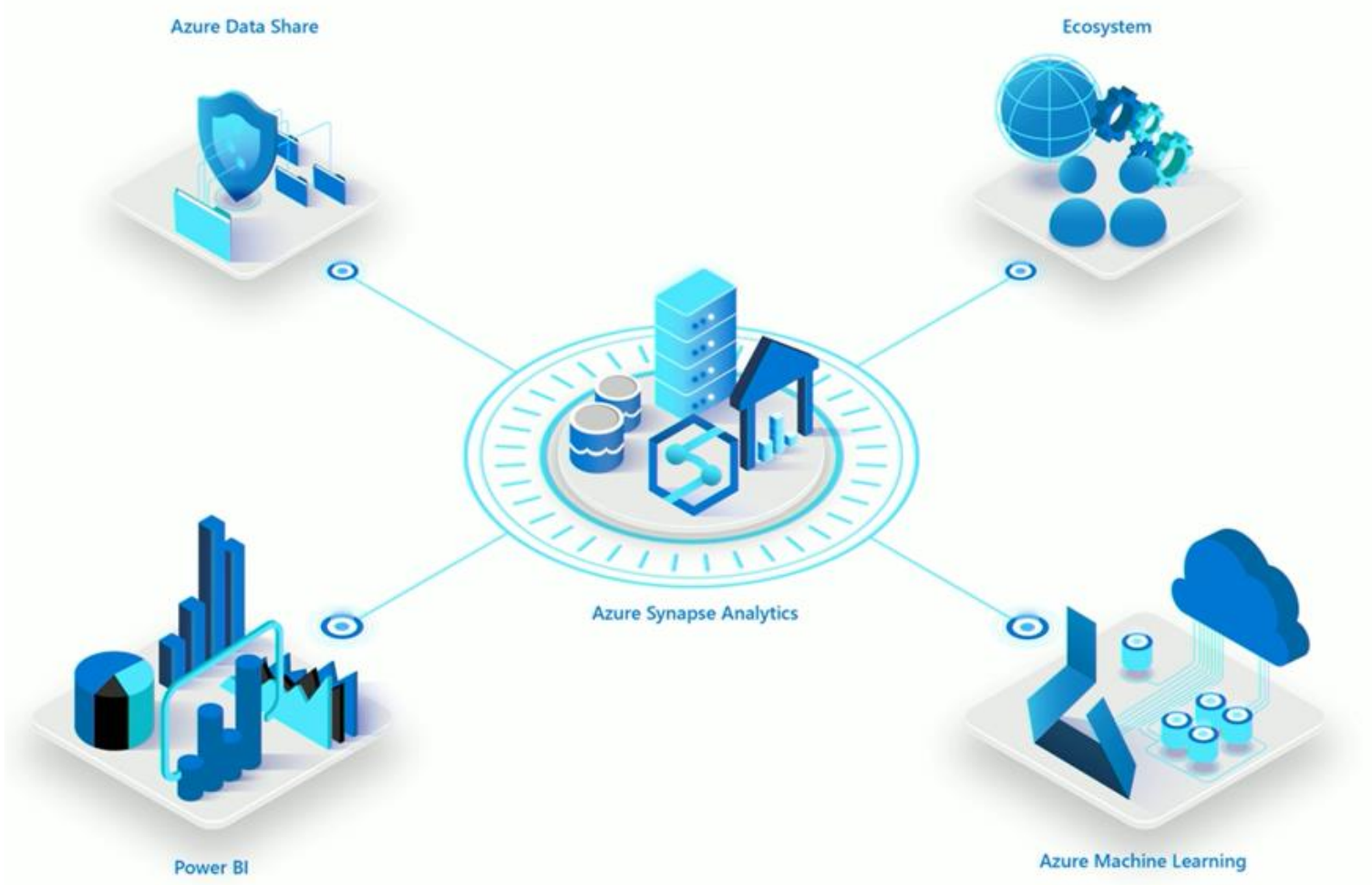
Source: Gartner (March 2022)

Introducing SAP Datasphere



SAP's Key Competitors

Cloud Data Platform Concept



Microsoft Intelligent Data Platform

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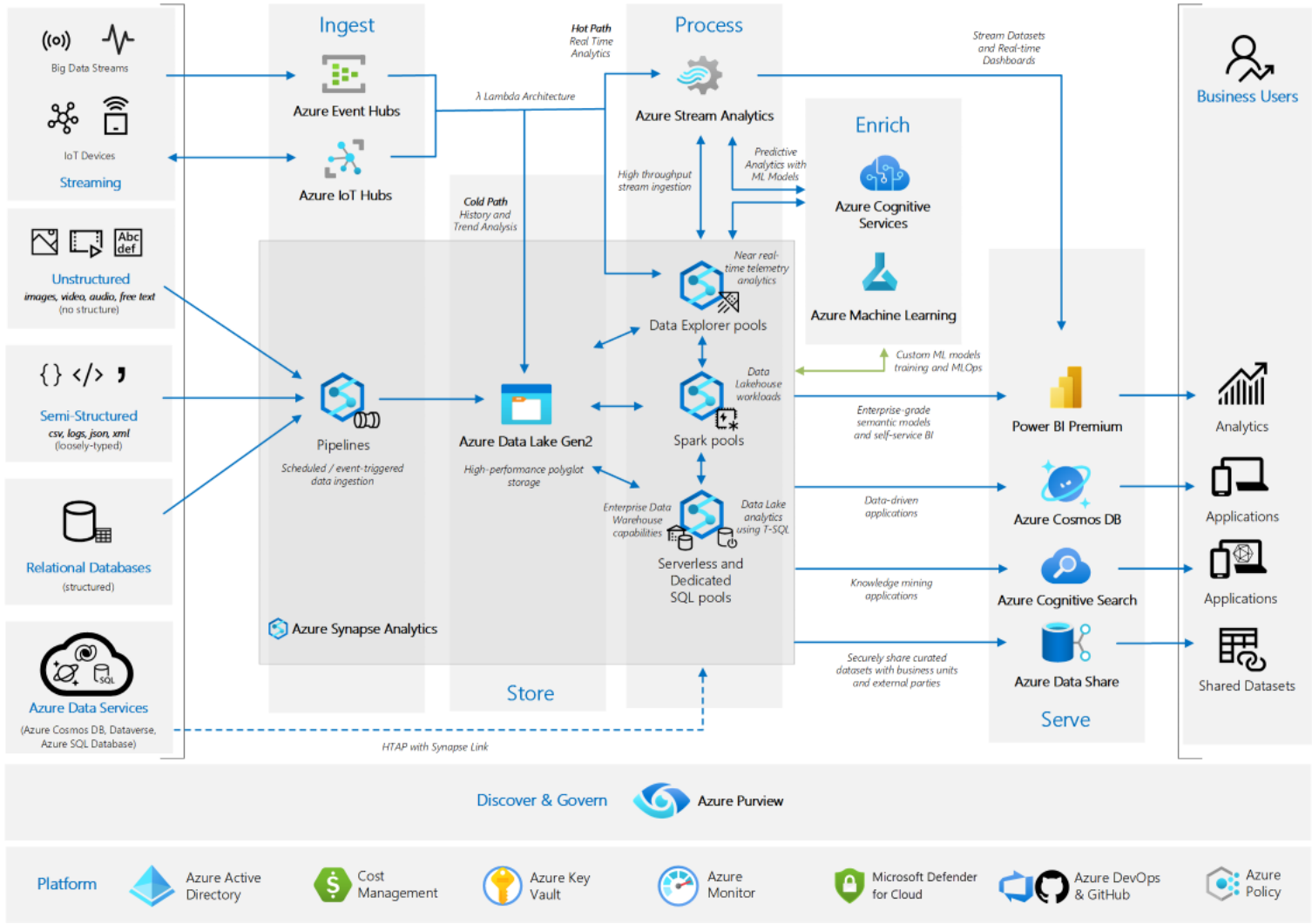

Building on Virtual Data Models

Leveraging SAP HANA + Core Data Services

Simplifying SAP Data Models

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- 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

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- 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

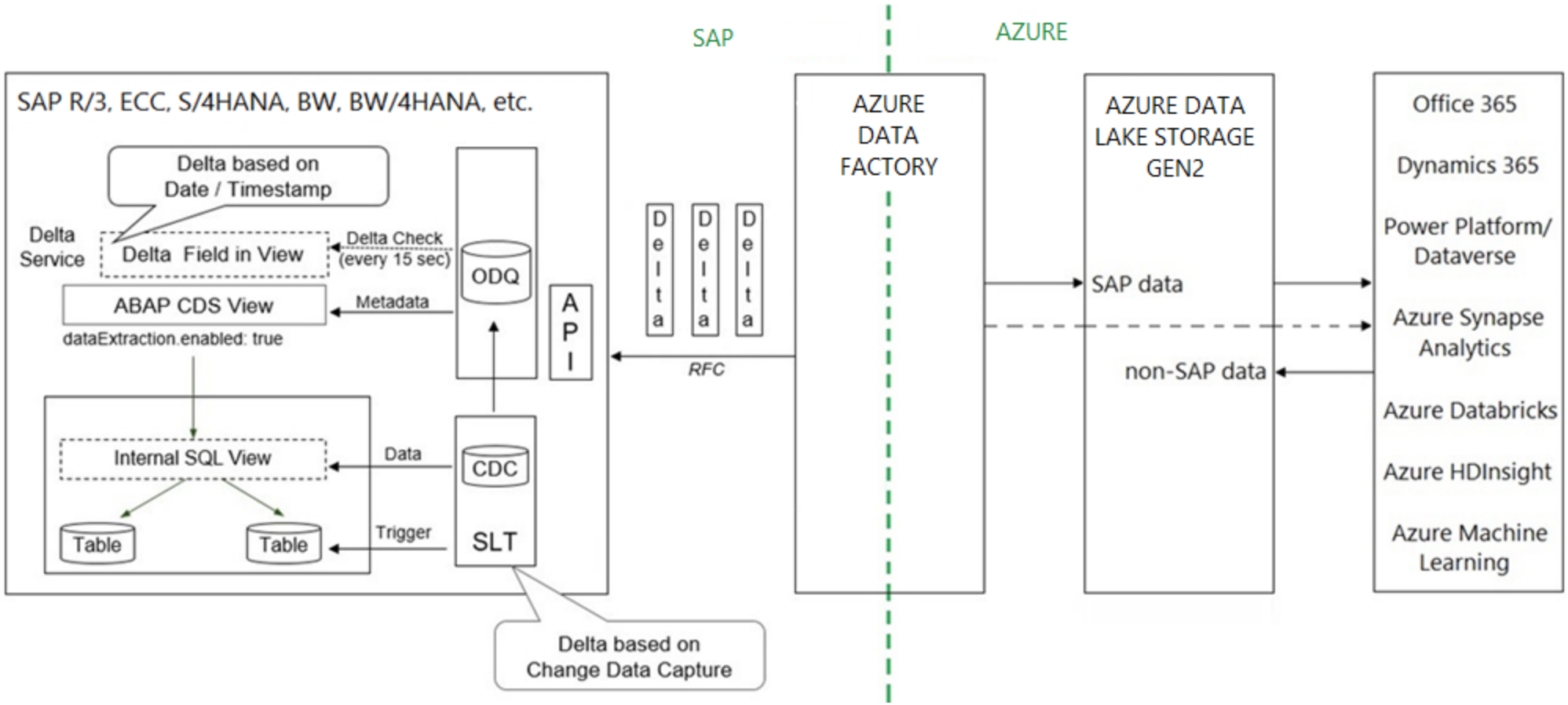
VDM Example

```
@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

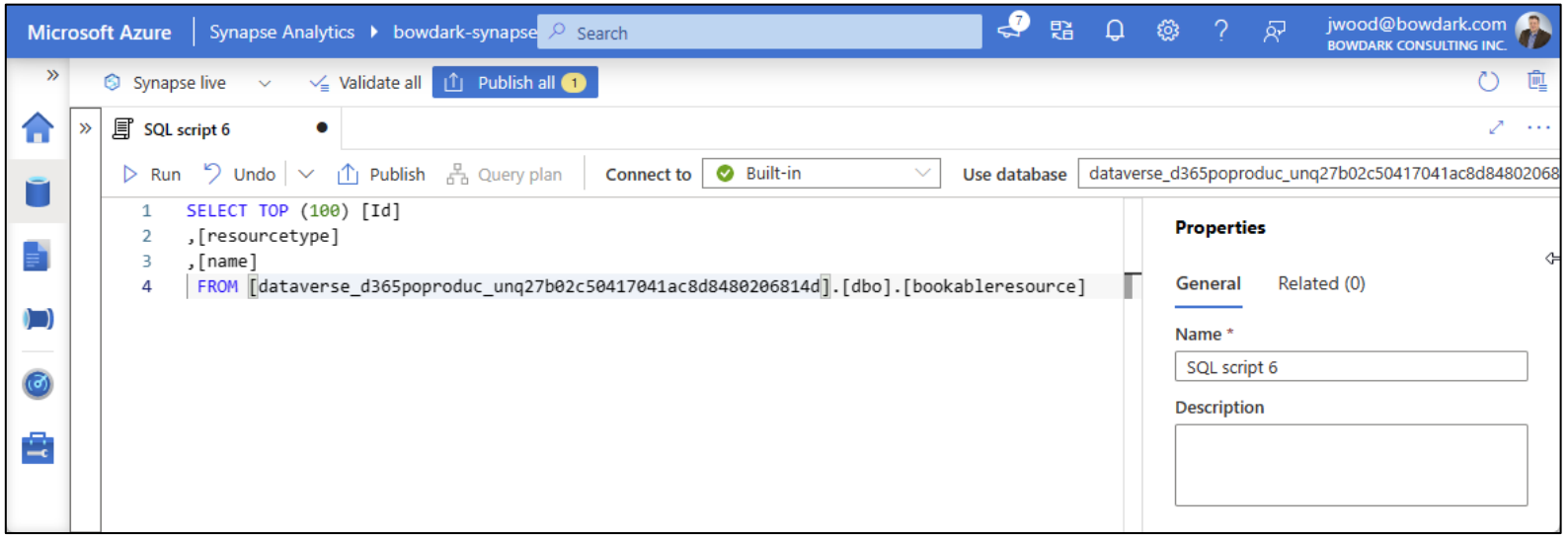
OrderNumber	OrderType	OrderTypeDesc	Customer	…
1234567890	TA	Standard Order	3456789012	…
2345678901	SO	Rush Order	4567890123	…

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



Securing Data Access

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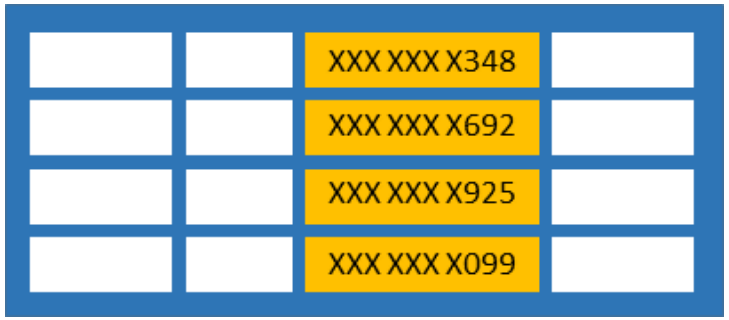
- The final step in the data curation process is to implement role-based access control (RBAC)
- With RBAC, you can rest assured that data consumers can only access the data that they're authorized to see – no exceptions!

Row-Level Security



Dynamic Data Masking

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Self-Service Visualization Concepts

Telling Stories with Your Data

Telling Stories with Your Data

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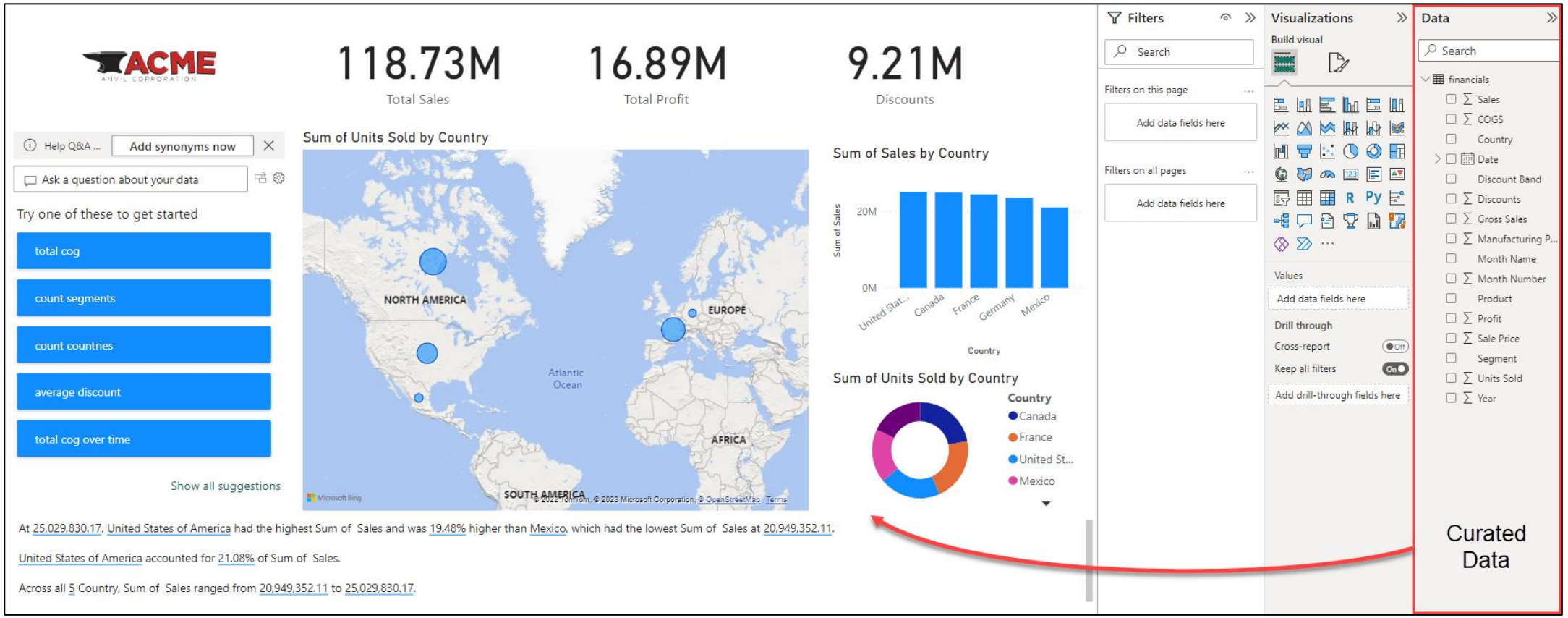
- Fact: No one knows data better than the people that use it every day
- In the past, the barrier to self-service analytics was simplified data access
- With modern graphical BI tools such as SAP Analytics Cloud, Power BI, or Tableau, it's now possible for analysts to access their data without having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

Building Reports with Power BI



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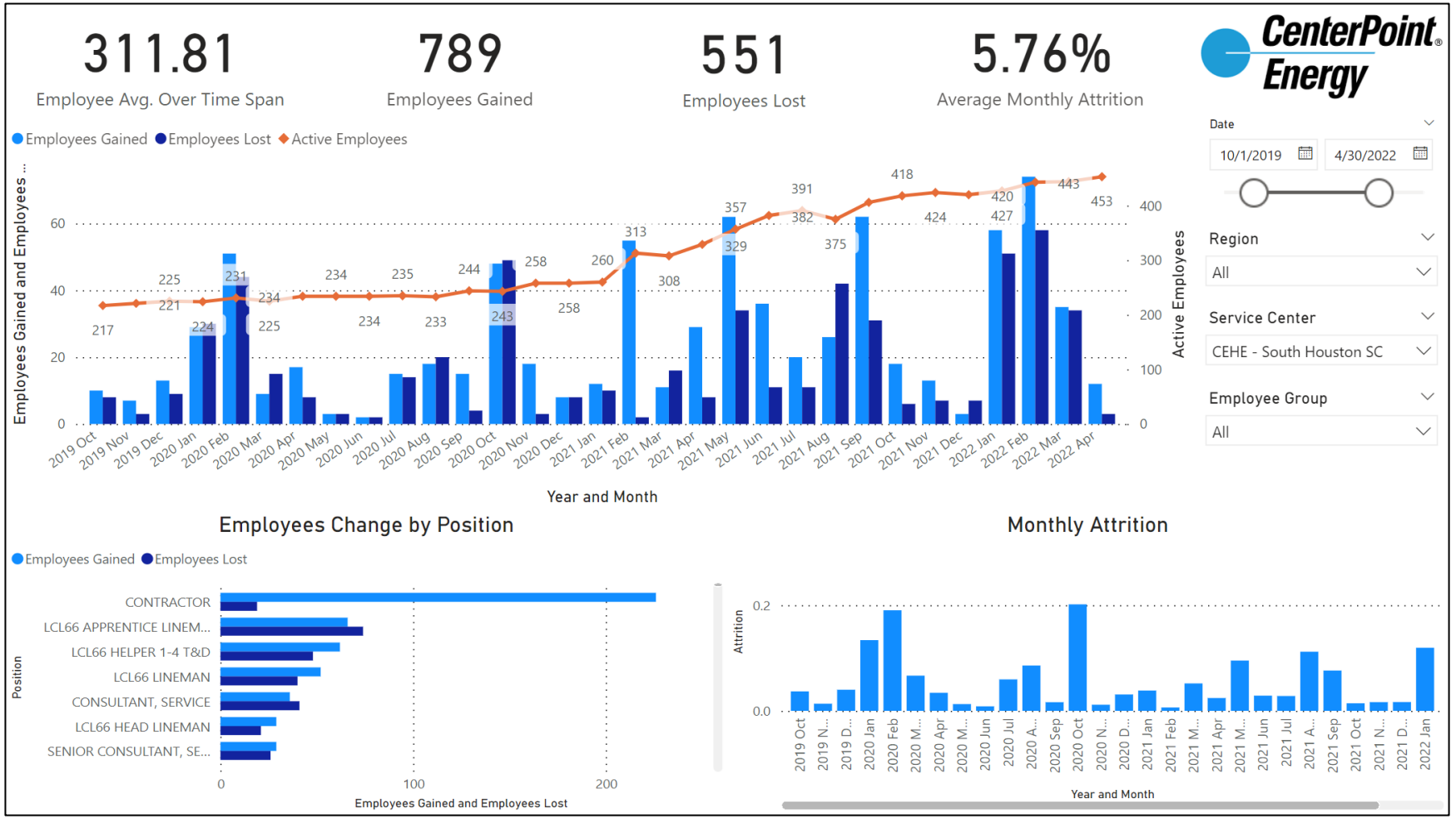
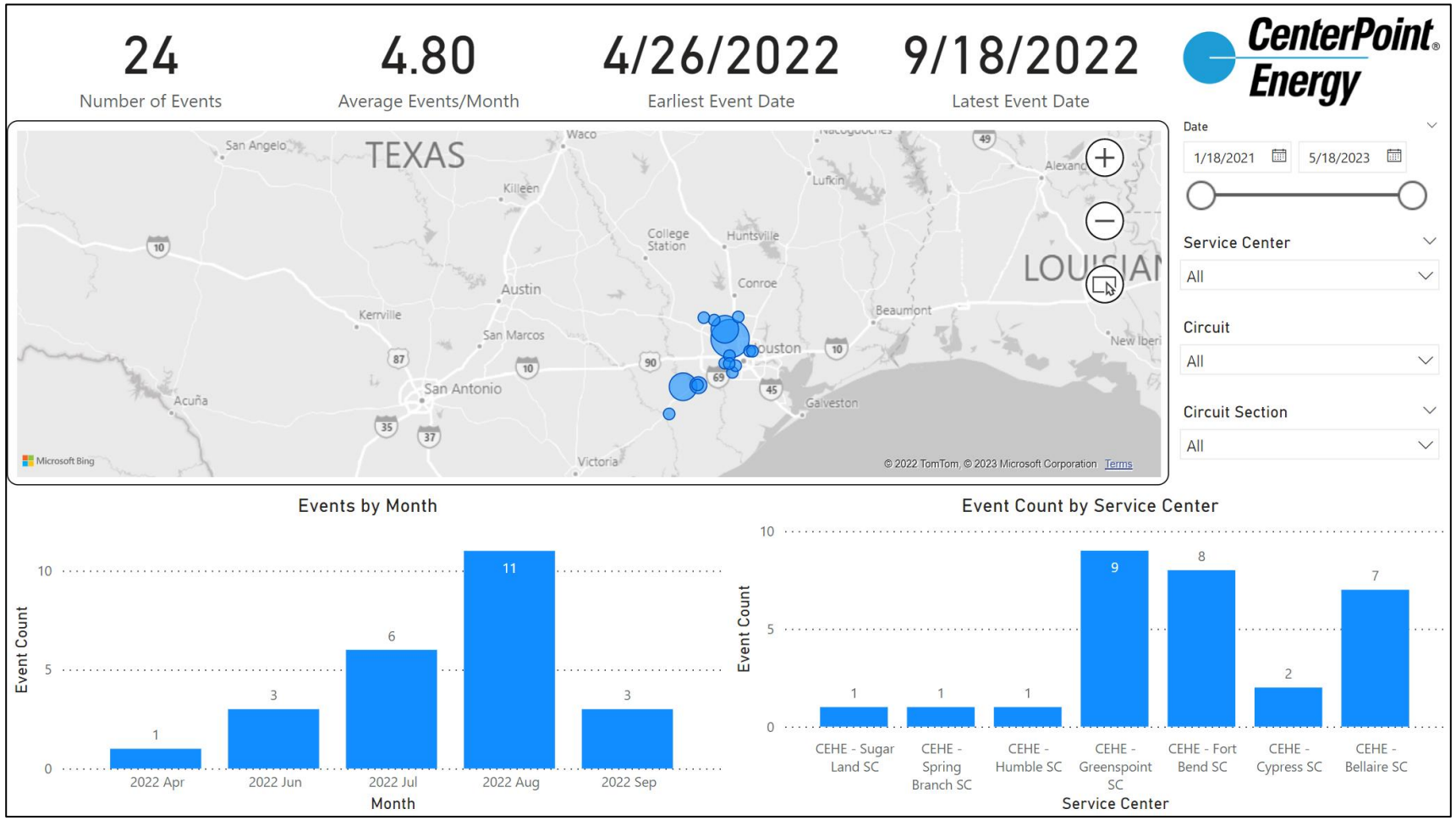
Practical Use Cases

Embedding Analytics & Decision Support Everywhere

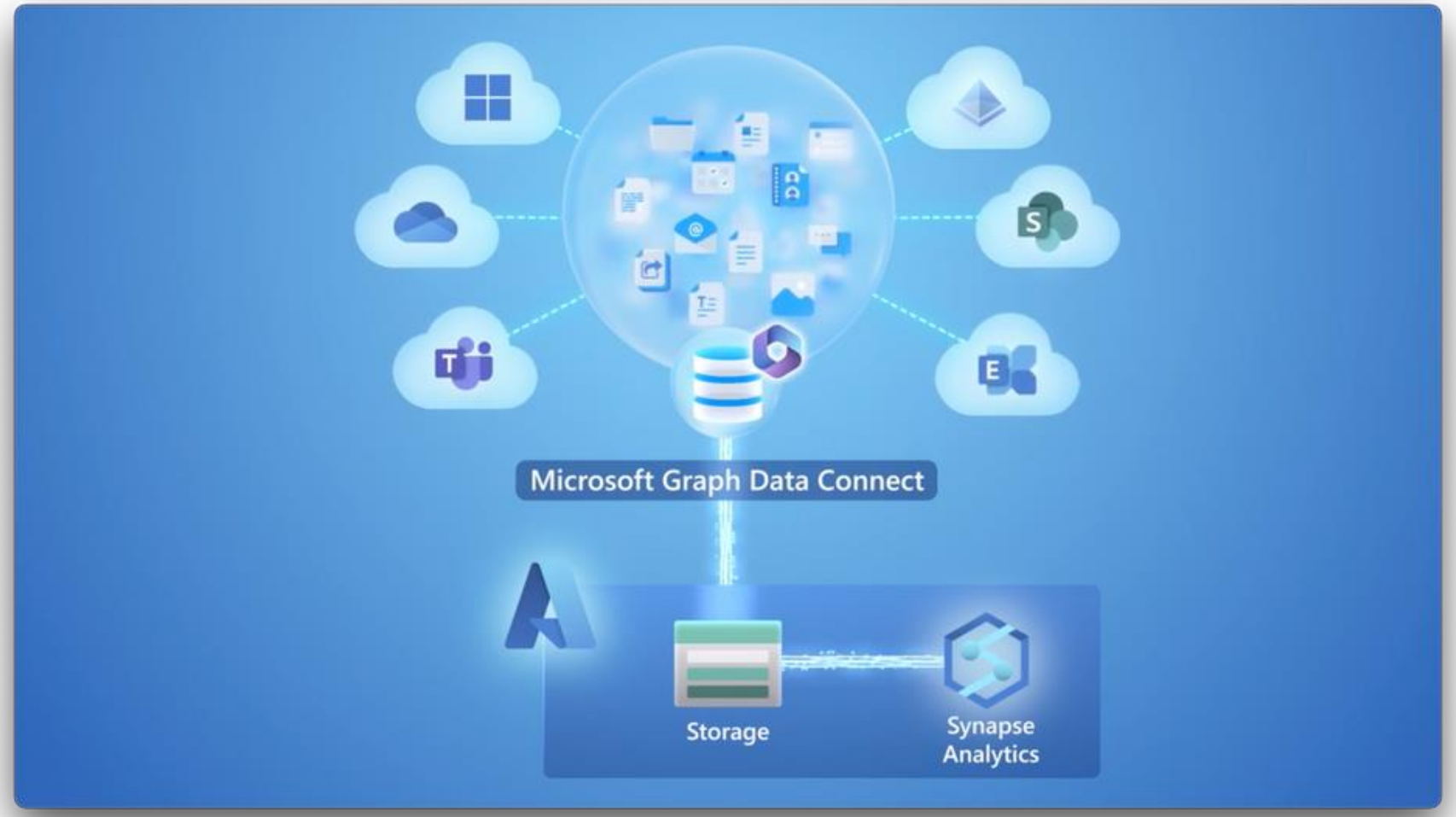
Interactive Dashboards



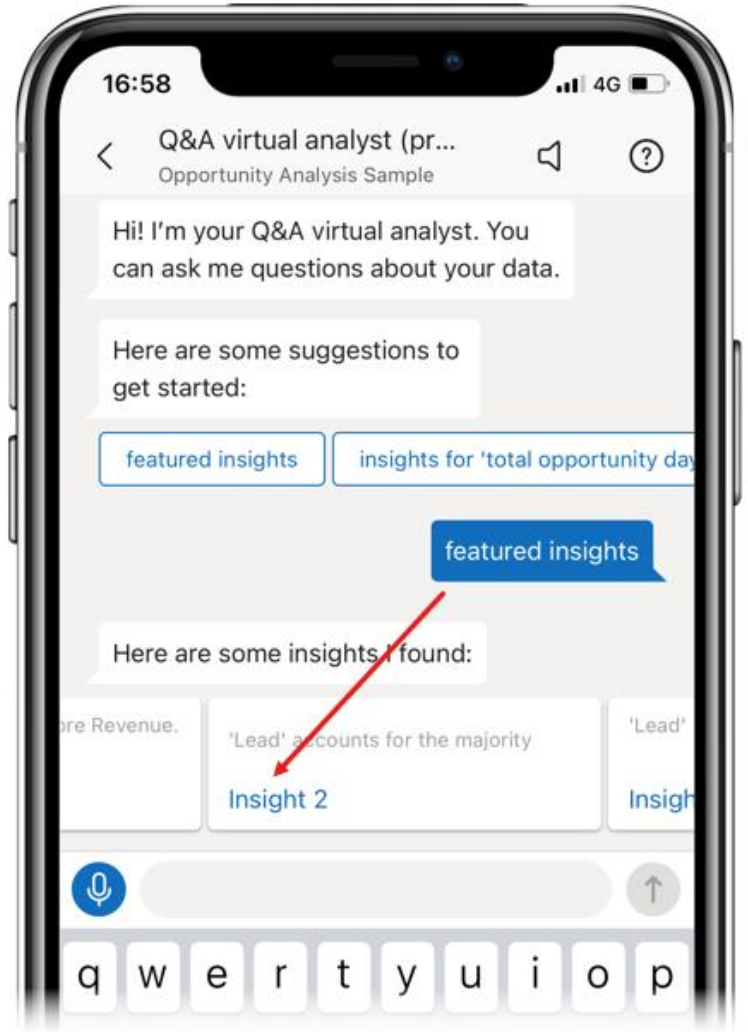
Data Mashups (1)

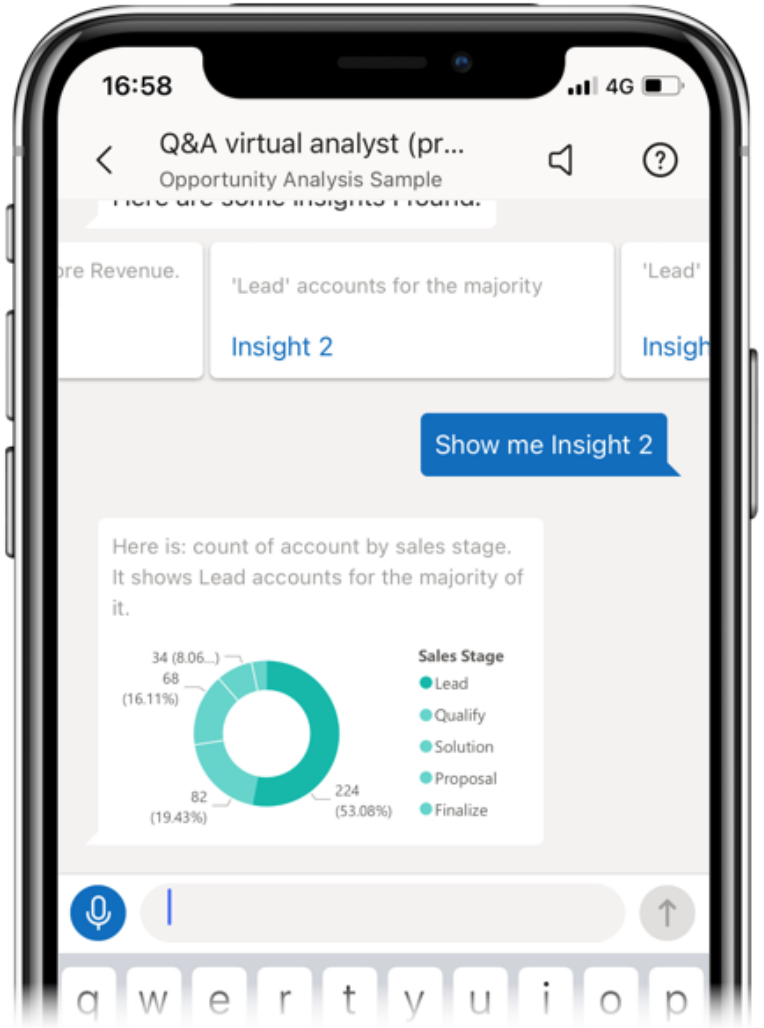


Data Mashups (2)

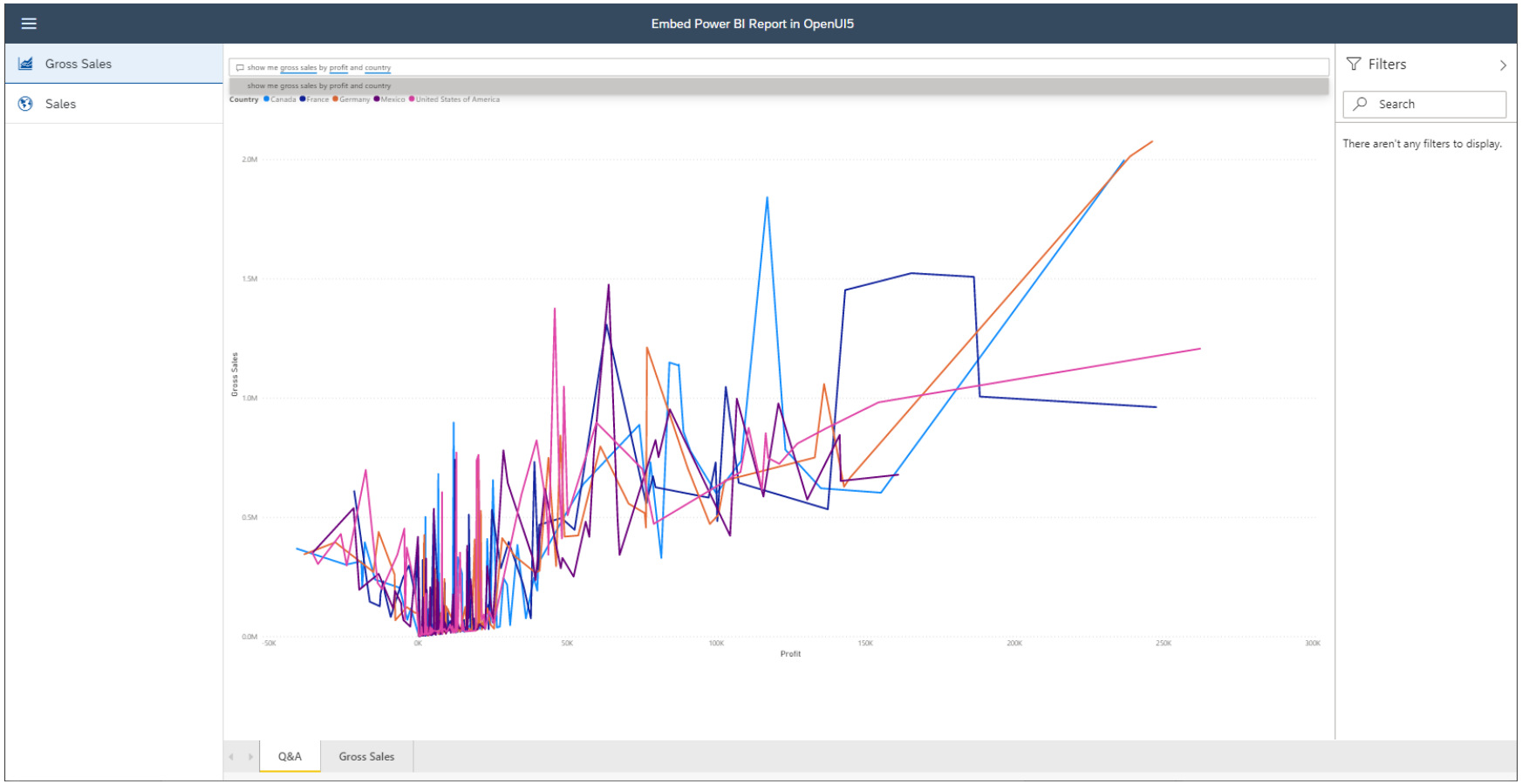


Mobile BI Solutions





Embedded Analytics with Fiori



Graphic Courtesy of Florian Pfeffer (SAP SCN)

Collaborative BI in MS Teams

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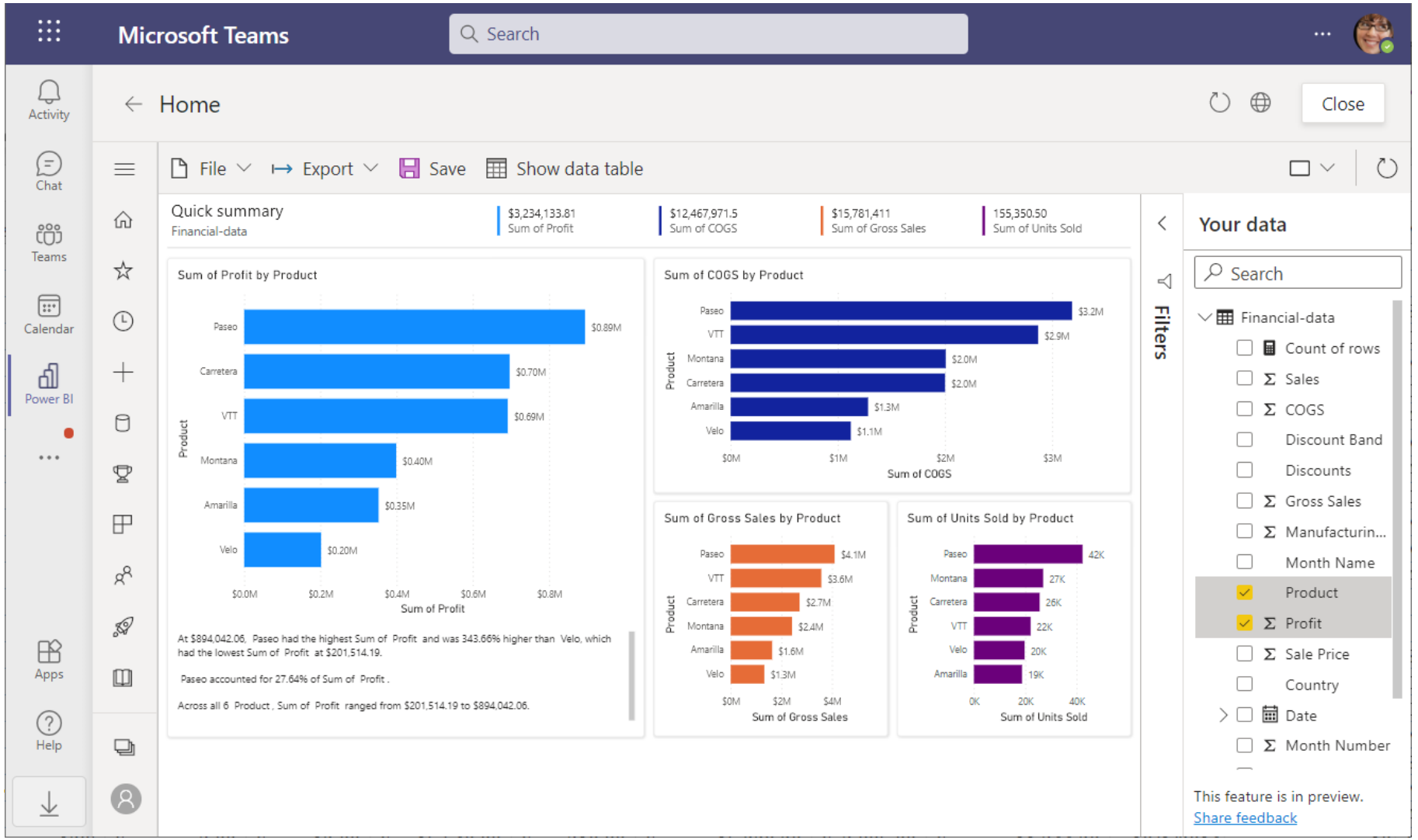
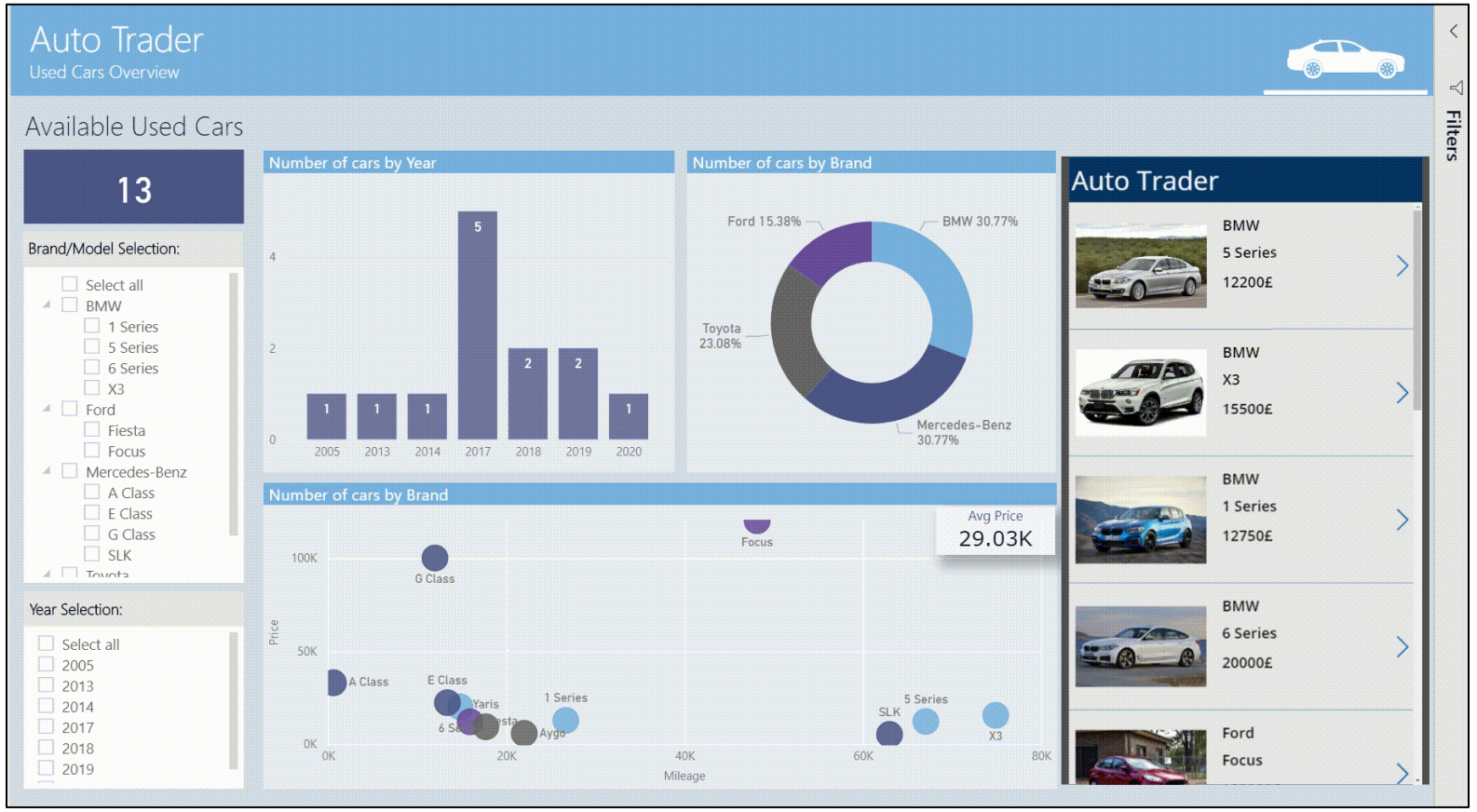
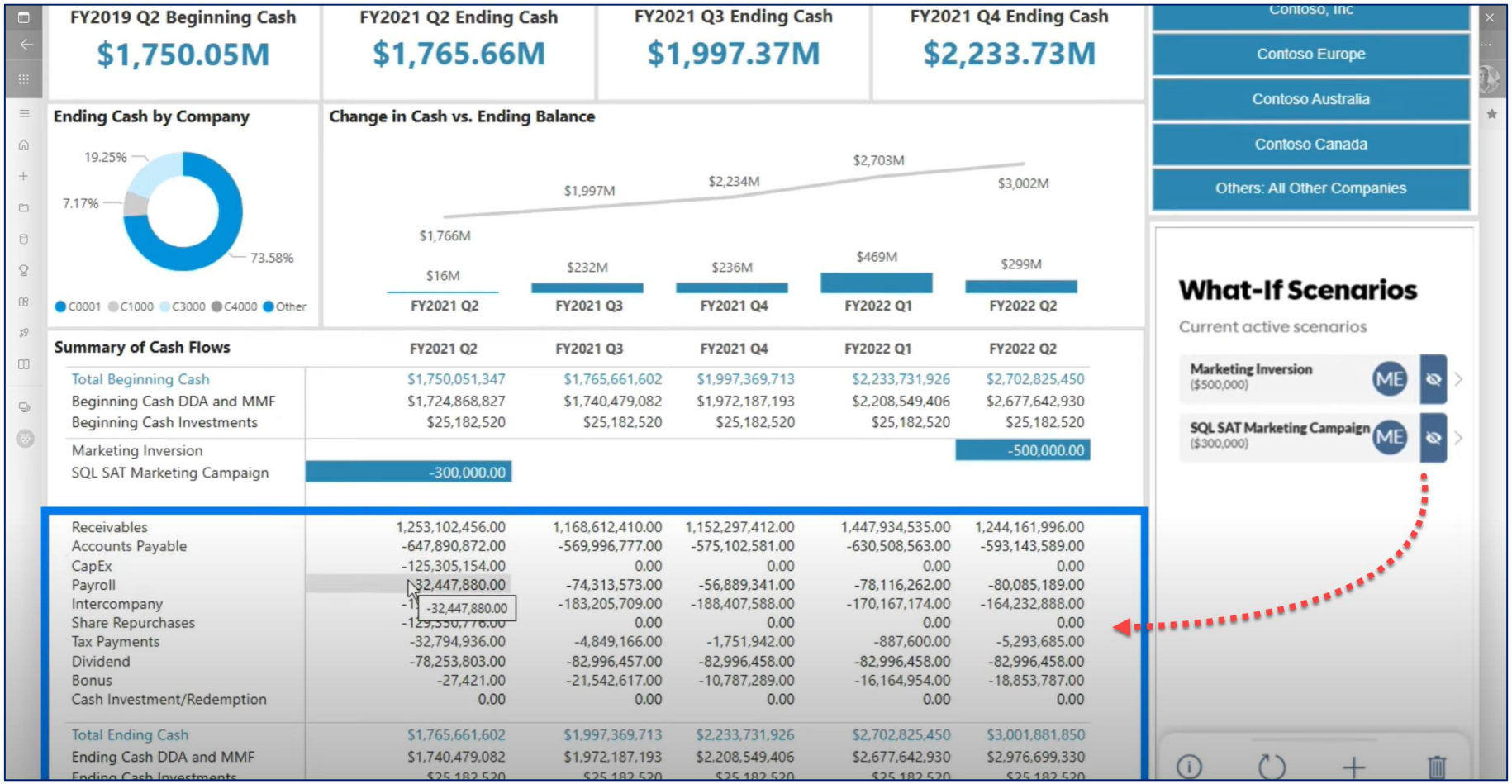


Unlocking Actionable Insights



Graphic Provided by Mara Pereira (Data Pears)

Real-Time Simulations



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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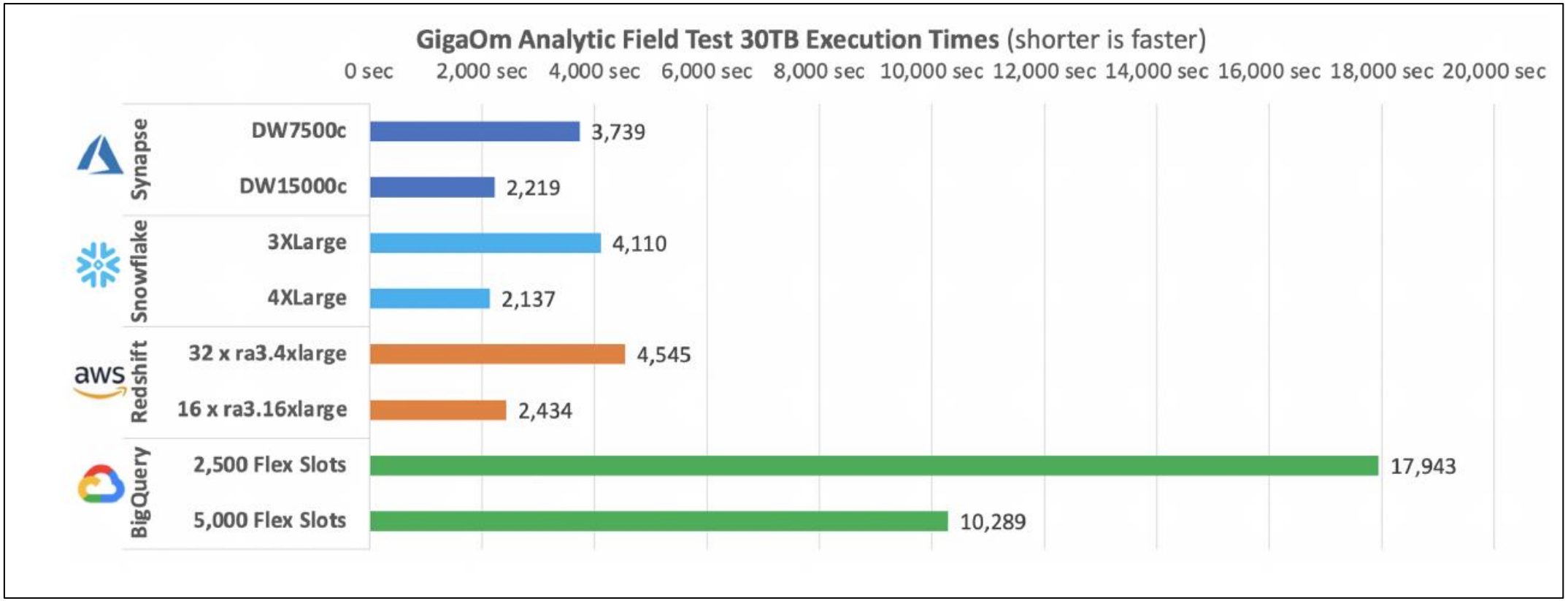
Appendix

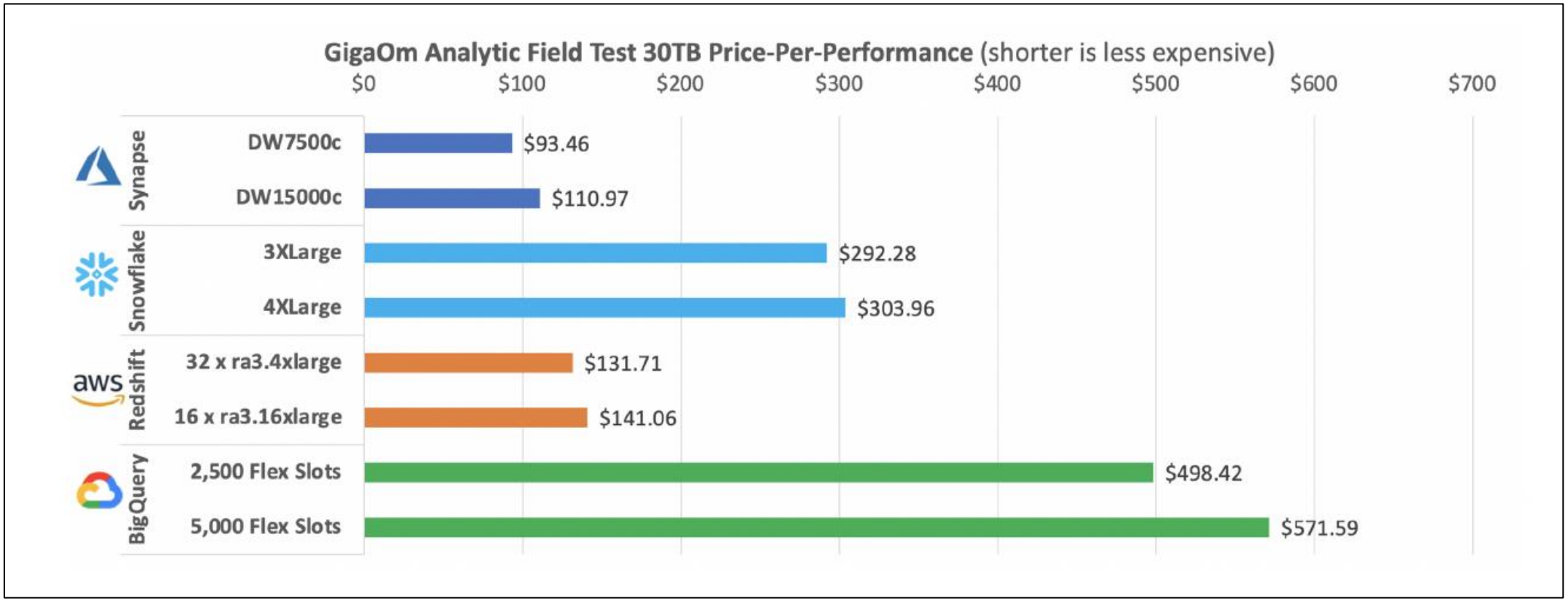
Cloud Data Warehouse Benchmark Study

Cloud DW Field Comparison (1)



Independent Benchmark Study Performed by GigaOm

Cloud DW Field Comparison (2)



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