



Microsoft Azure Training Day: Data and Analytics

Cloud Scale Analytics with the Modern Data Warehouse

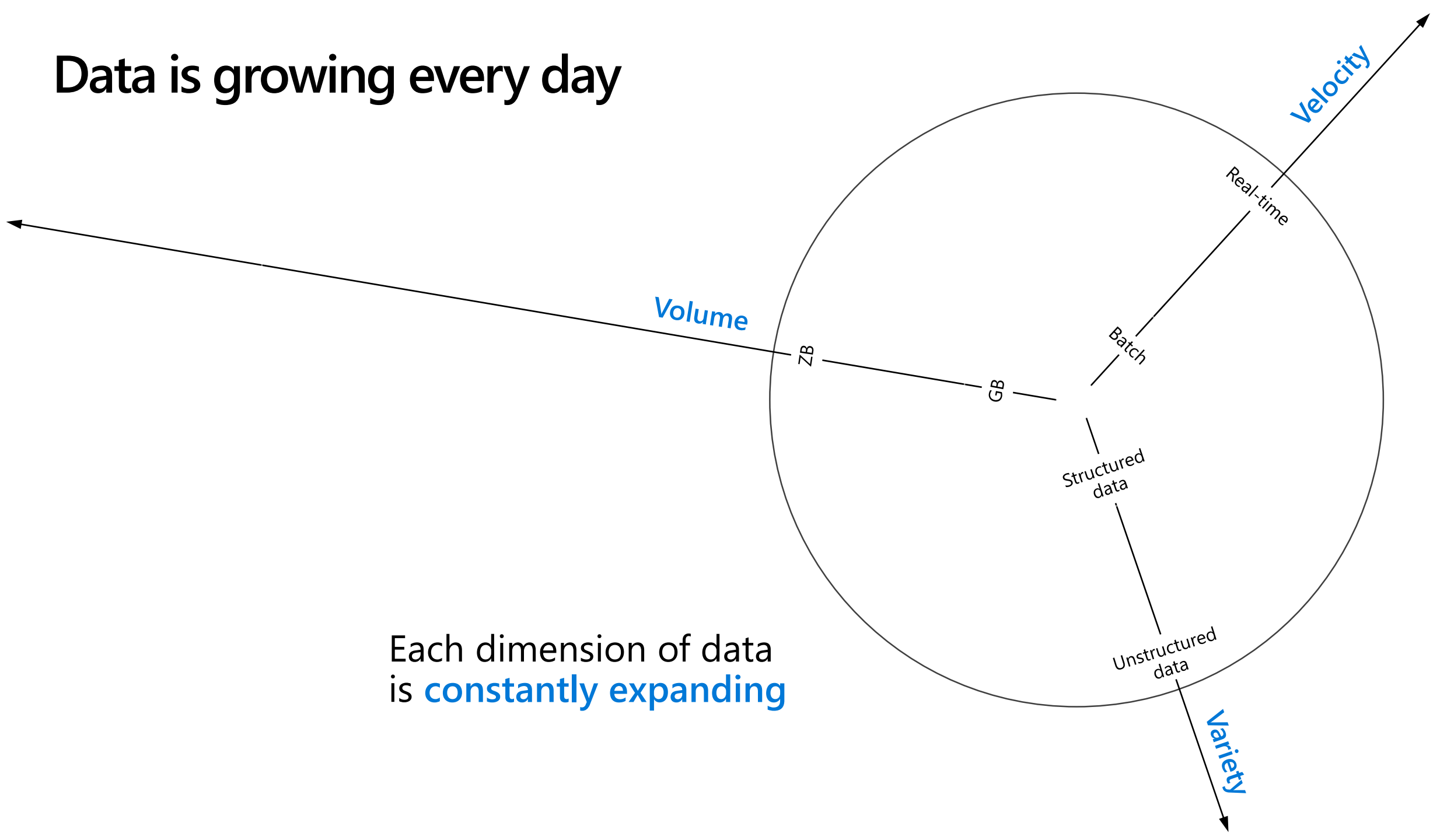
Francesco Viganò

Cloud Solution Architect – Data & AI

frvigano@microsoft.com

<https://www.linkedin.com/in/francesco-viganò/>

Data is growing every day



Get the benefits of a modern cloud data warehouse with Azure

Unlimited scale and integration

Adaptable to flexible needs
and budgets

Advanced and real-time
analytics for deeper insights



Companies that take control of their data outperform

\$40k

more revenue per employee

50%+

higher average net
income on revenue

\$100M

in additional operating
income each year

Organizations that fully harness their data outperform



Data consolidation using
Azure SQL Data Warehouse



This architecture performs significantly better than the legacy on-premises solutions it replaced.

Chetan Kundavaram, Global Director, AB InBev



Migration to the cloud for
efficient business operations



By migrating off legacy data infrastructure and running reports on a more cost-efficient Azure platform, we've reduced costs.

Roberto Pasquier, Senior Manager, Newell Brands



Using Azure SQL Data Warehouse
for predictive analytics



Because the Personalization Cloud is in Azure, we're confident we can handle any volume of data coming from our clients.

Brian Muenks, IT Manager, Maritz Motivation Solutions

Cloud-scale Analytics



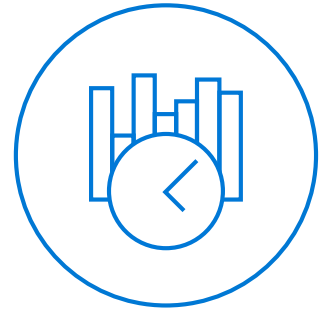
Modern data warehousing

“ We want to analyze data coming from multiple sources and in varied formats...



Advanced analytics

“ We want to leverage the analytics platform for advanced fraud detection...



Real-time analytics

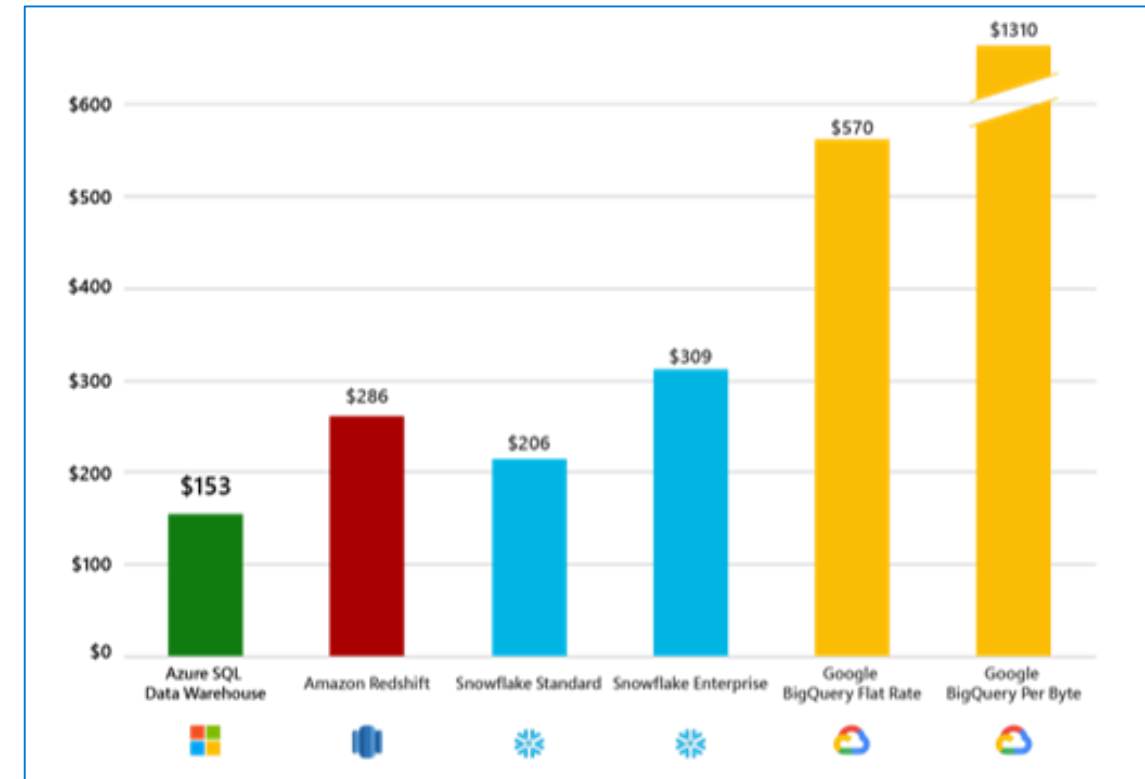
“ We're trying to get insights from our devices in real-time...

Best-in-class price per performance

Price-performance is calculated by GigaOm as the TPC-DS metric of cost of ownership divided by composite query.

Price-Performance @ 30TB

Lower is Better

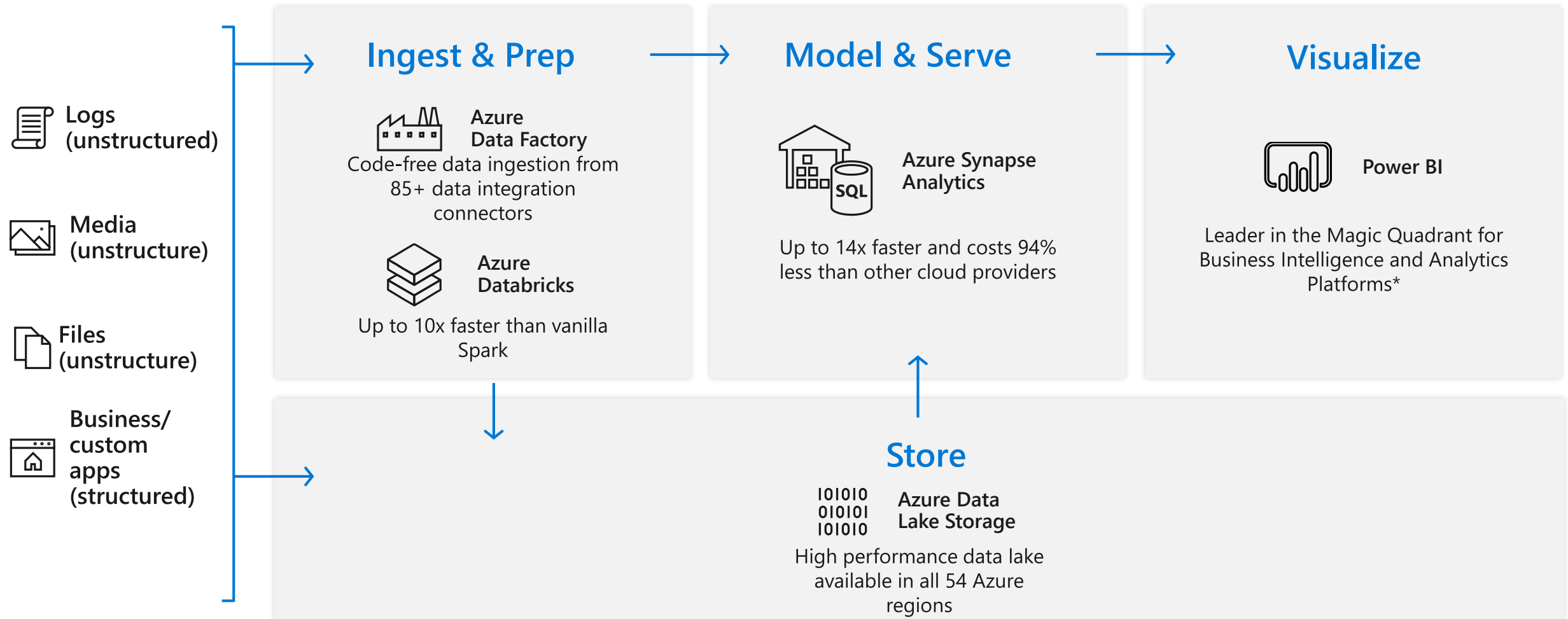


Results based on GigaOm's TPC-DS results, published in February 2019

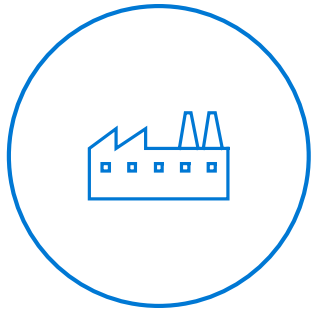
Azure Modern Data Warehouse Processes

Best end-to-end ecosystem to turn your data into actionable insights

Unparalleled performance



Modern Data Warehouse

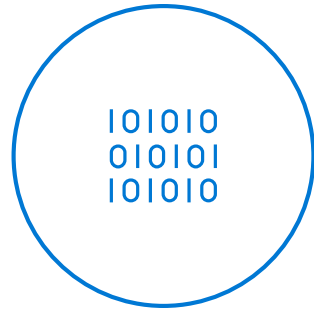


Azure Data Factory

Connect to hybrid, other cloud, and SaaS applications out-of-the-box

No code/little code Cloud ETL

85+ Connectors at no extra charge

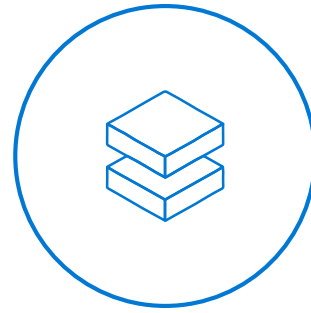


Azure Data Lake Storage

Analytics optimized cloud storage

Combined hierarchical file and object stores

Enterprise-grade security with Azure Active Directory



Azure Databricks

Native integration with all MDW services

Collaborative workspaces for data scientists, data engineers, and business analysts

Enterprise-grade security with Azure Active Directory



Azure SQL Data Warehouse

Separation of compute and storage

Intelligent workload management and enhanced concurrency

Industry leading price-performance and security features

Deep integration with DataOps model (CI/CD and dev tools)

The Azure Big Data Landscape



Azure Data Factory



Azure Import/Export service



Azure CLI



Azure SDK



Azure IoT Hub



Azure event hubs



Kafka on Azure HDInsight



Azure SQL DB



Azure Cosmos DB



Azure Synapse



Azure Analysis Services



Power BI



Azure Blob Storage



Azure Data Lake Store



Azure HDInsight



Azure Databricks



Azure ML



ML Server



Azure Databricks



Azure Search



Azure Data Catalog



Azure Stream Analytics



Azure HDInsight



Azure Databricks



Bot service



Cognitive services



Azure ExpressRoute



Azure Active Directory



Azure network security groups



Azure key management service



Operations Management Suite



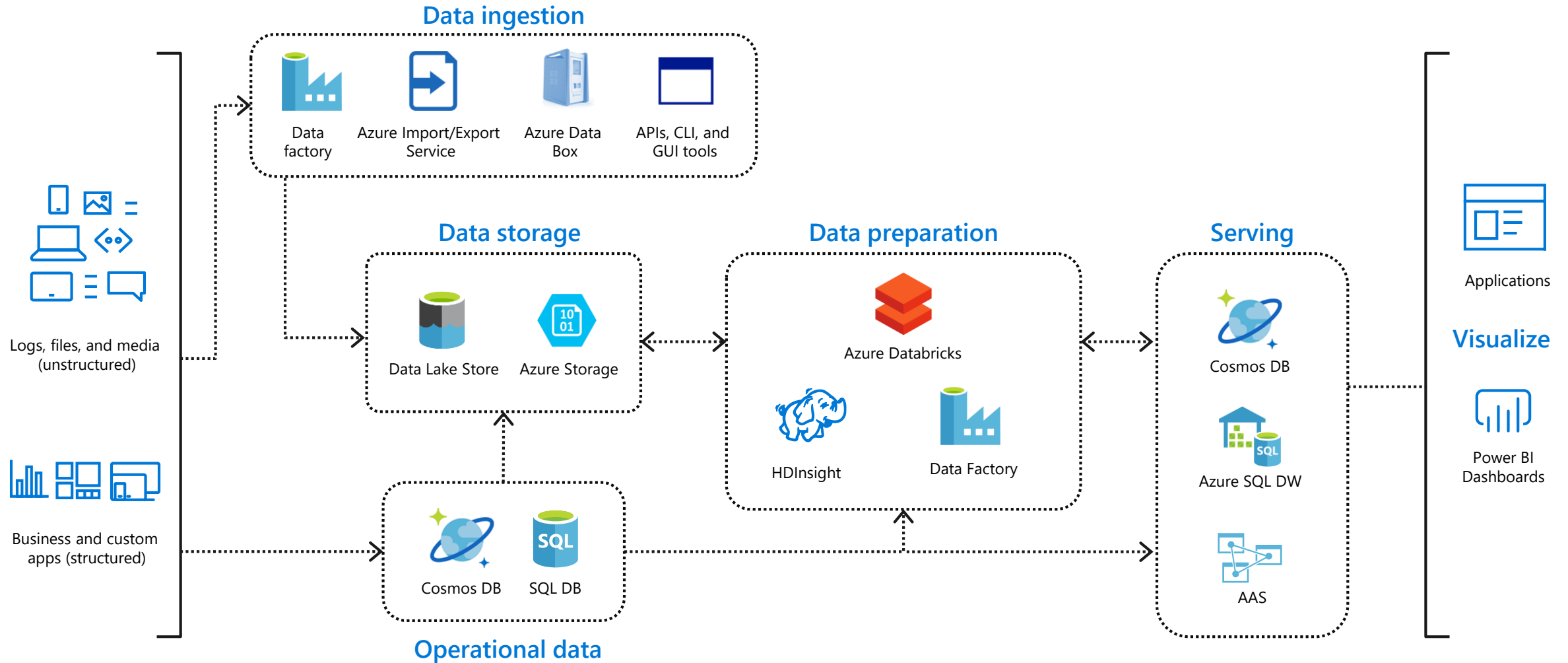
Azure Functions



Visual Studio

Data warehousing pattern in Azure

Loading and preparing data for analysis with a data warehouse



Modern Data Warehouse and Power BI

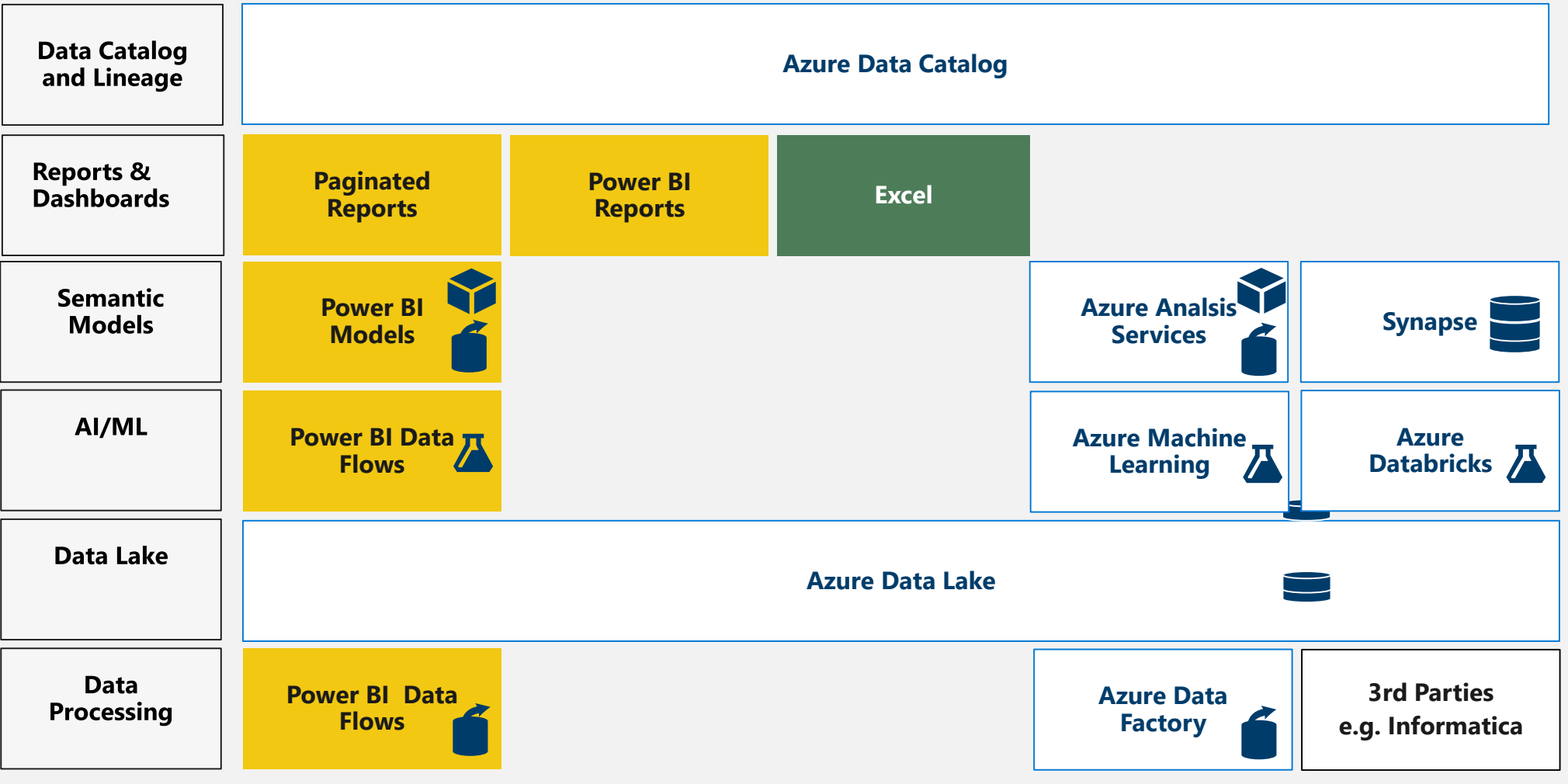
Common Tools and Concepts

 Automated Machine Learning

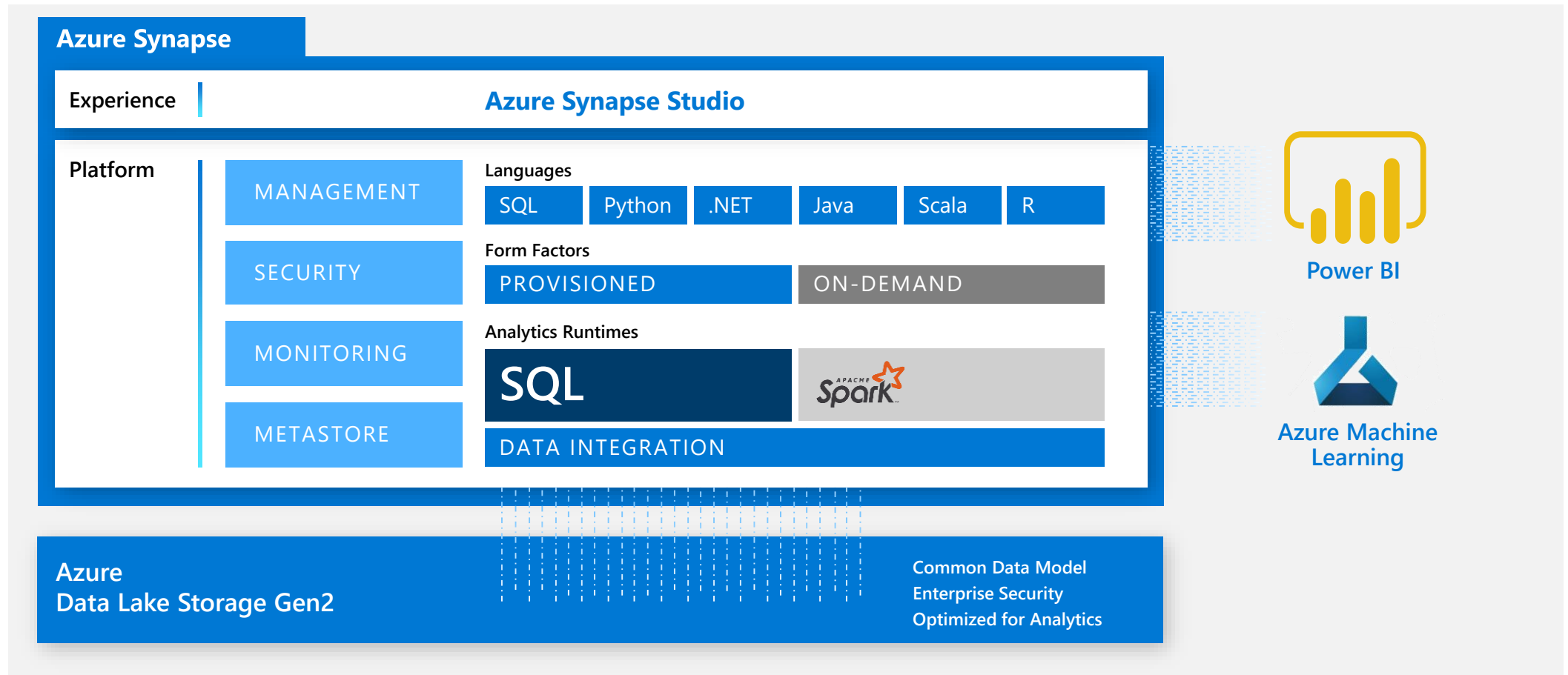
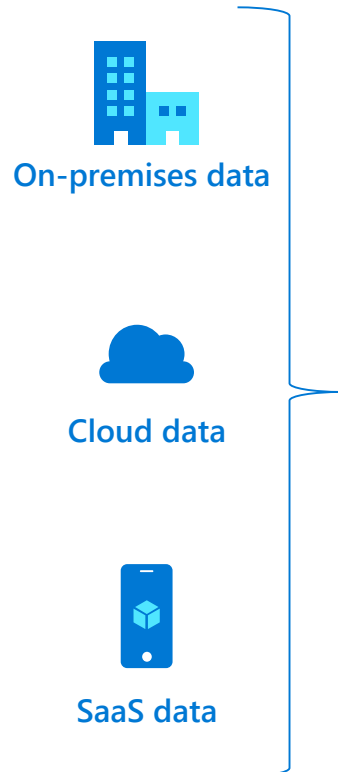
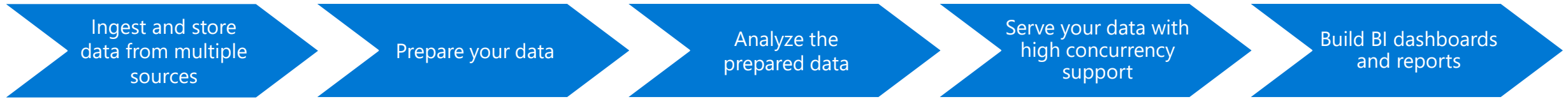
 Tabular Models

 Power Query

 Common Data Model



Analytics using Azure Synapse



Things to note

A photograph of two women in a professional setting, likely a meeting room. They are standing in front of a large whiteboard. The woman on the left, with long dark hair and wearing a patterned top, is pointing with her right hand towards the whiteboard. The woman on the right, also with dark hair and wearing a dark top, is holding a yellow notepad and looking at the whiteboard. The whiteboard has various papers and diagrams pinned to it. The background shows a window with a view of a city skyline.

- There are no right or wrong solutions,
> only optimal solutions
- Lead with certain solutions and customize
> based on customer scenarios
- Customer voice and product and service
> maturity govern lead solutions
- Consider price and performance, ease of
> use, and ecosystem acceptance as factors
- Everything is fluid - a lead solution today
> might be non-optimal tomorrow, based
on the factors above and new releases

Modern Data Warehouse considerations

Big Data and advanced analytics



Security

Enables the modern data warehouse to control access in order to protect sensitive data and maintain desired compliance



Automation

Enables all components of the modern data warehouse solution to be controlled, deployed, and monitored programmatically



Monitoring

Provides insights into the status and health of the data warehouse solution