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Microsoft Ignite
The Tour

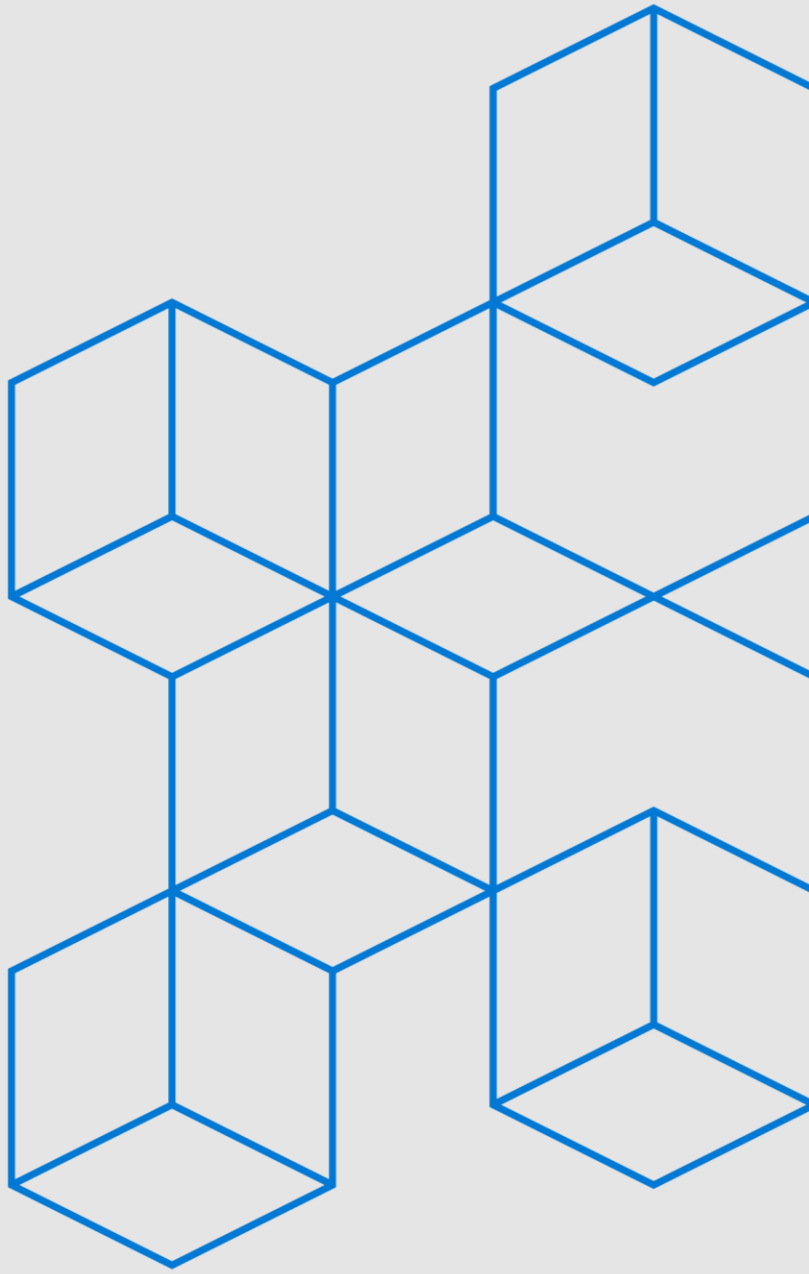
Learn. Explore. Connect.

London, England

Microsoft

An Introduction to SQL Server 2019 - Big Data Clusters

Paul Andrew
Data Platform MVP & Solution Architect



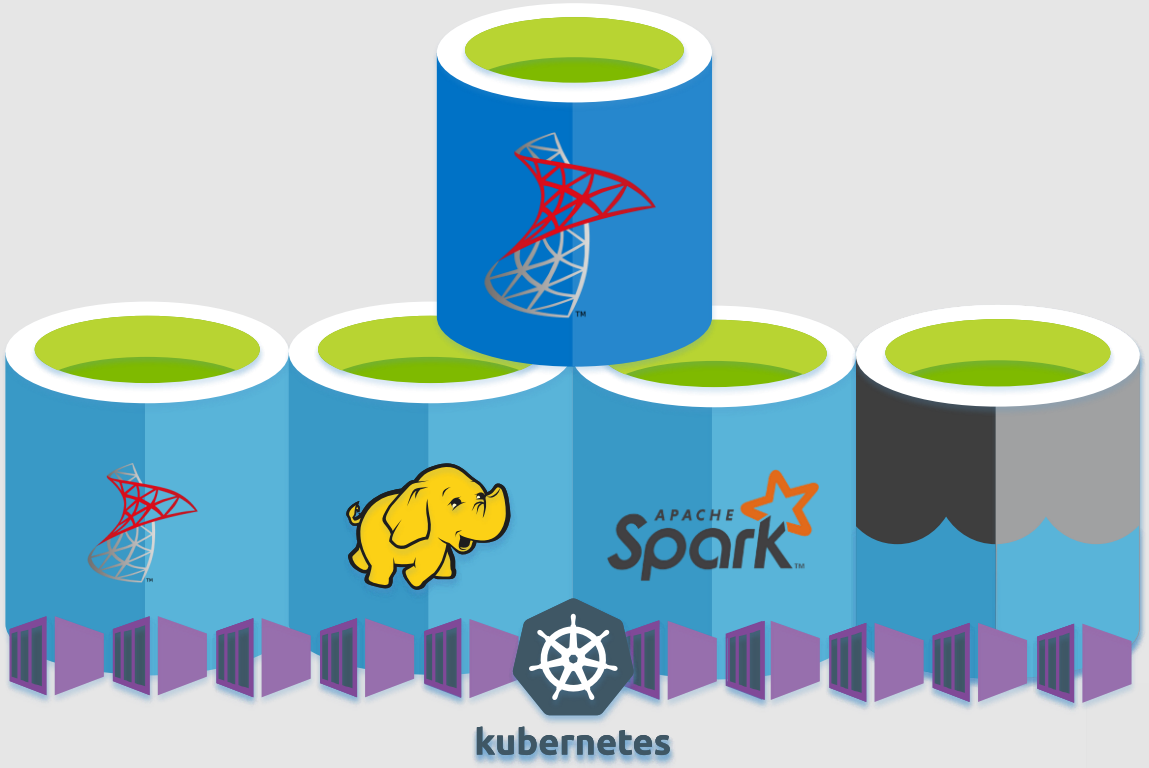
Microsoft® Most Valuable Professional

adatis

SQL Server 2019 Big Data Clusters

What

Why

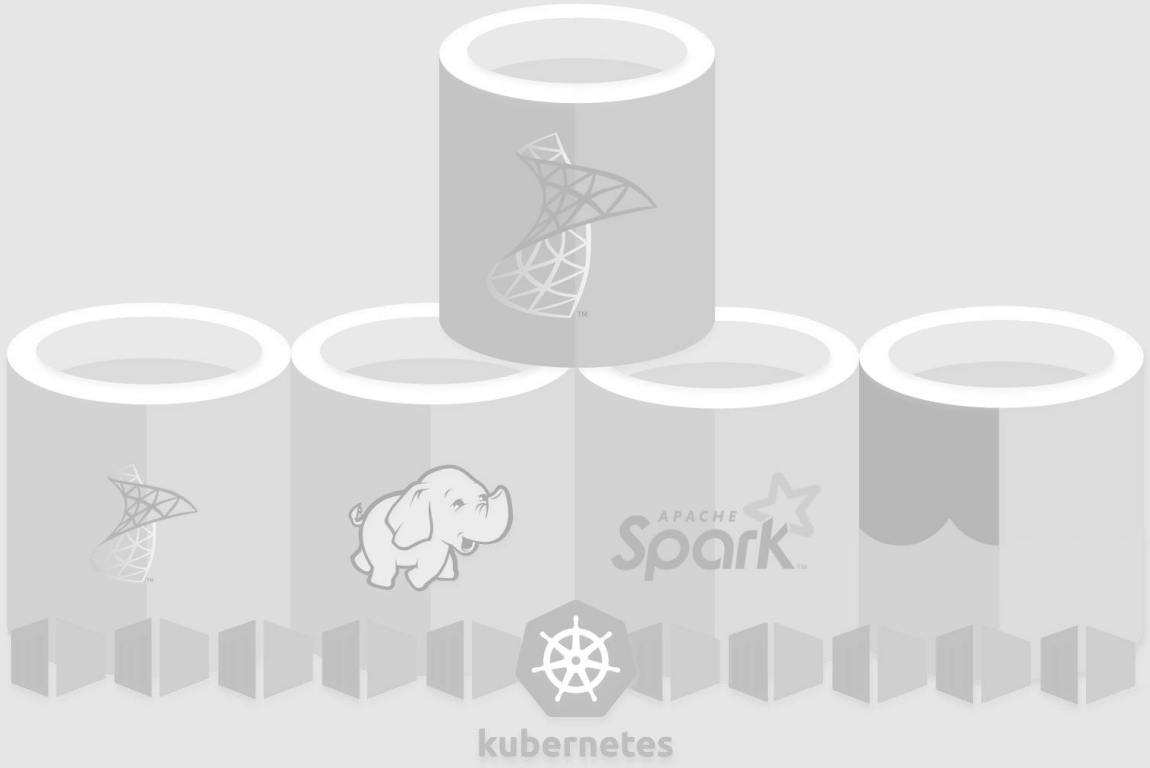


How

Microsoft

SQL Server 2019 Big Data Clusters

What

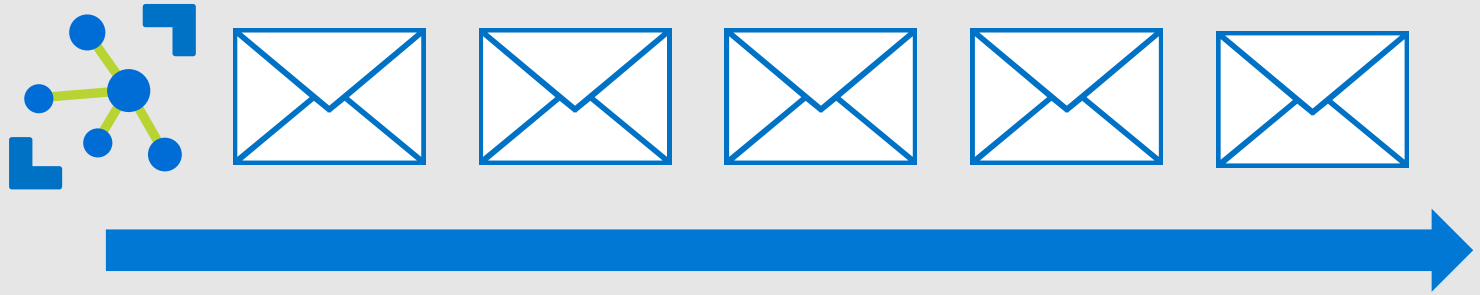


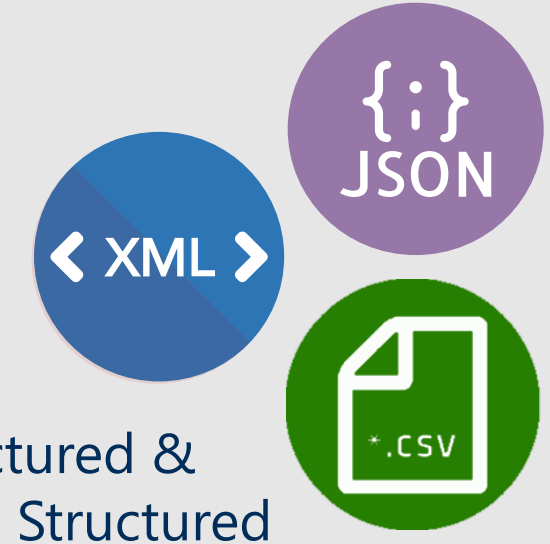
Why

How

Microsoft

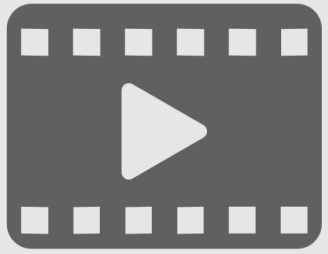
Problem 1: All Forms of Data Structure





Structured &
Semi Structured

Geospatial



Media & Blobs

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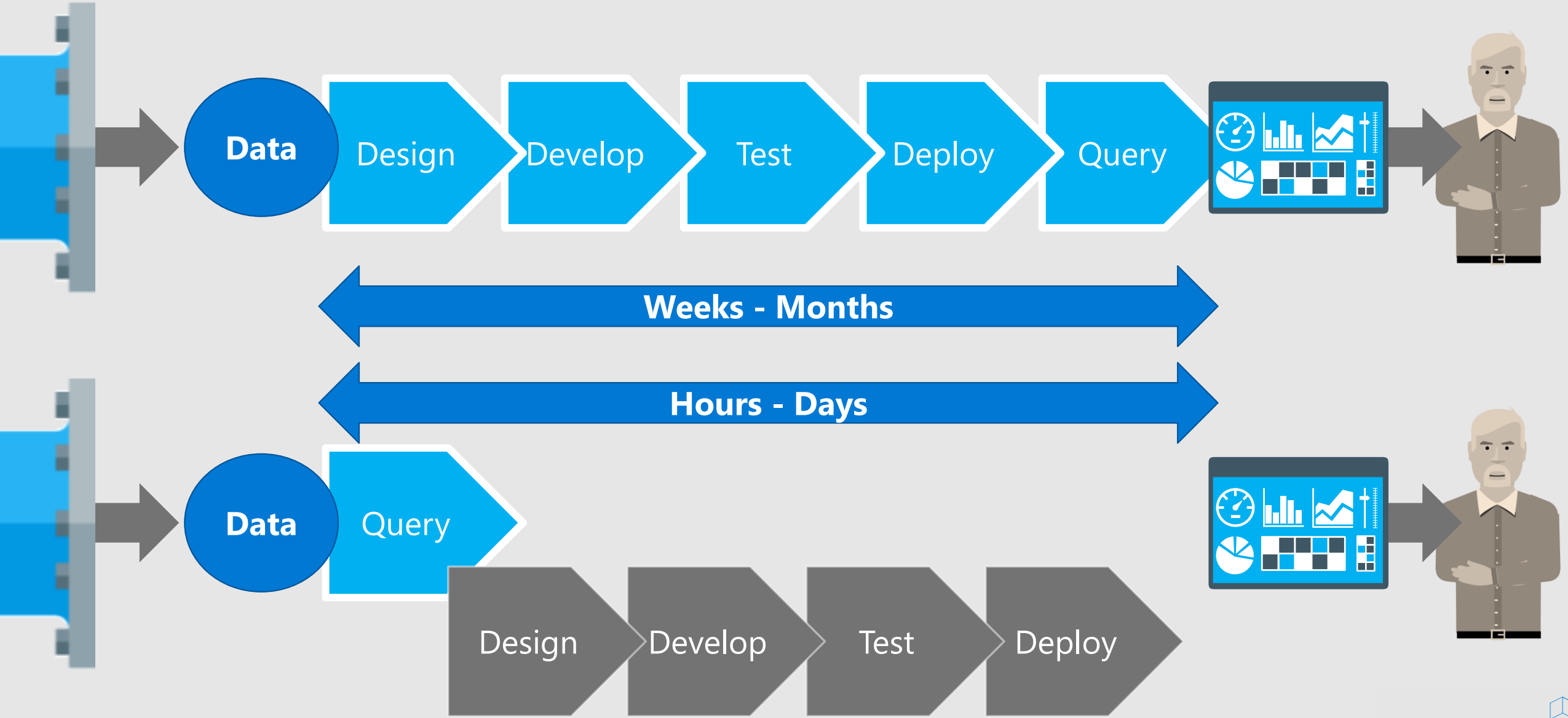
Problem 2: Quick Actionable Insights



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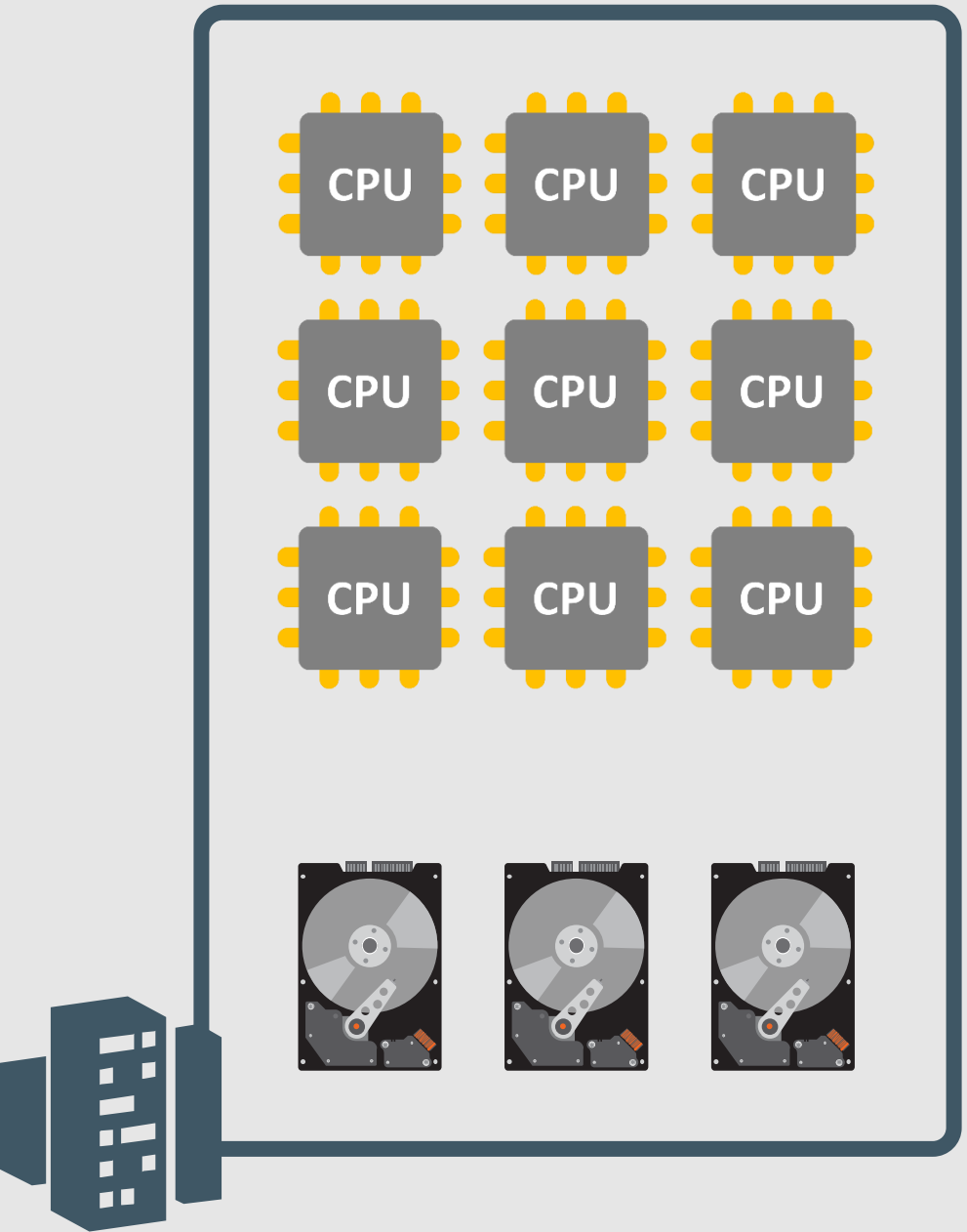
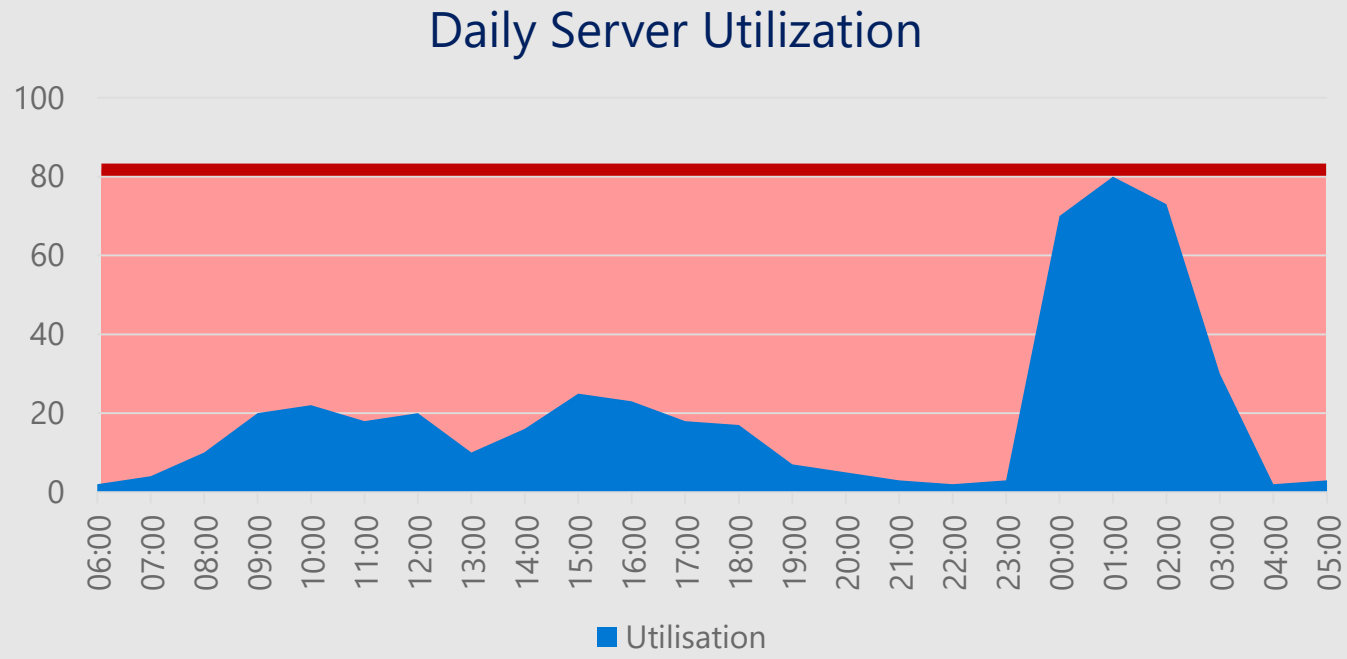
Problem 3: Infrastructure Costs & Scalability





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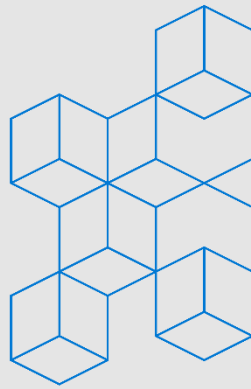
The Big Data V's

Volume

Velocity

Variety

Veracity



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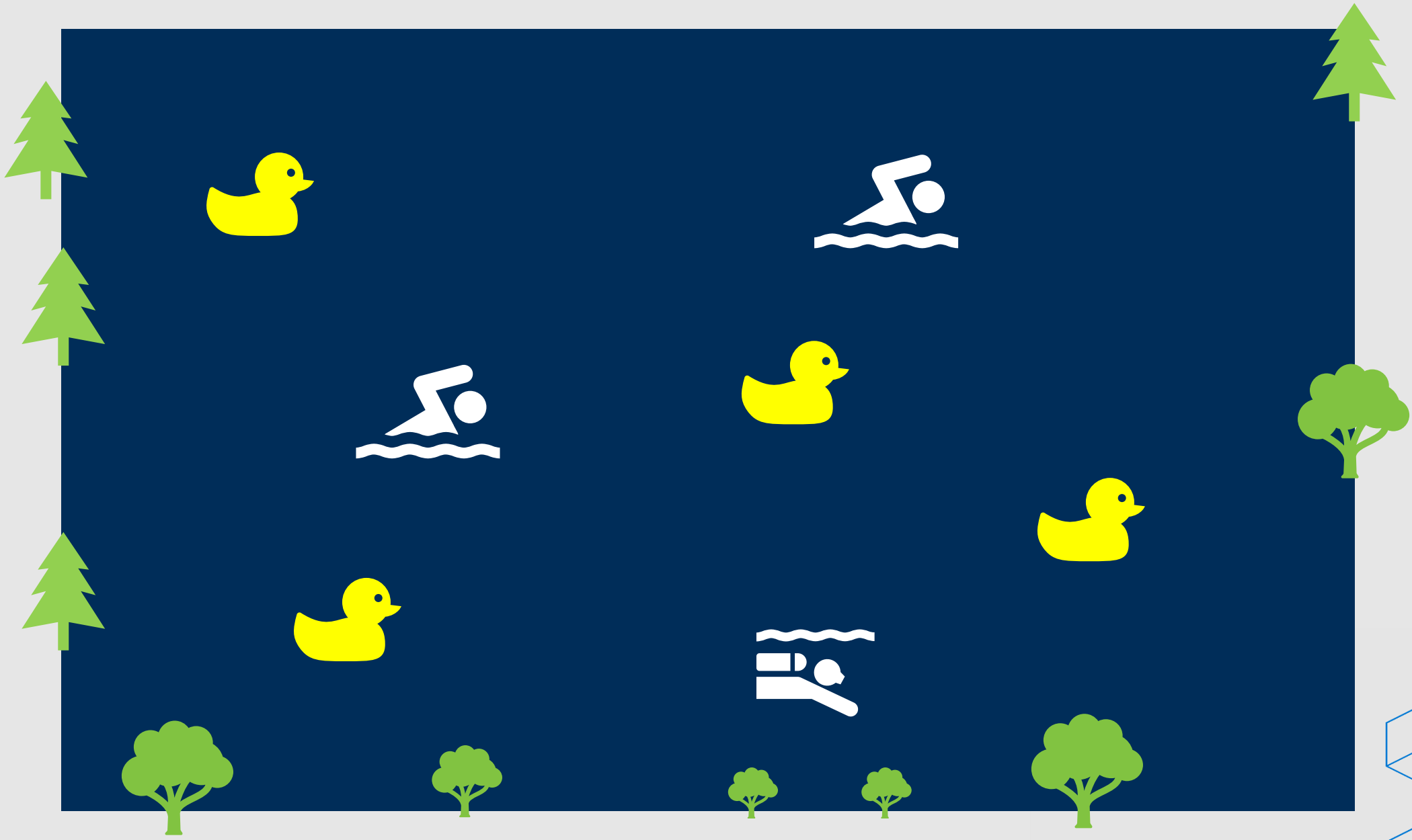
Data Lakes



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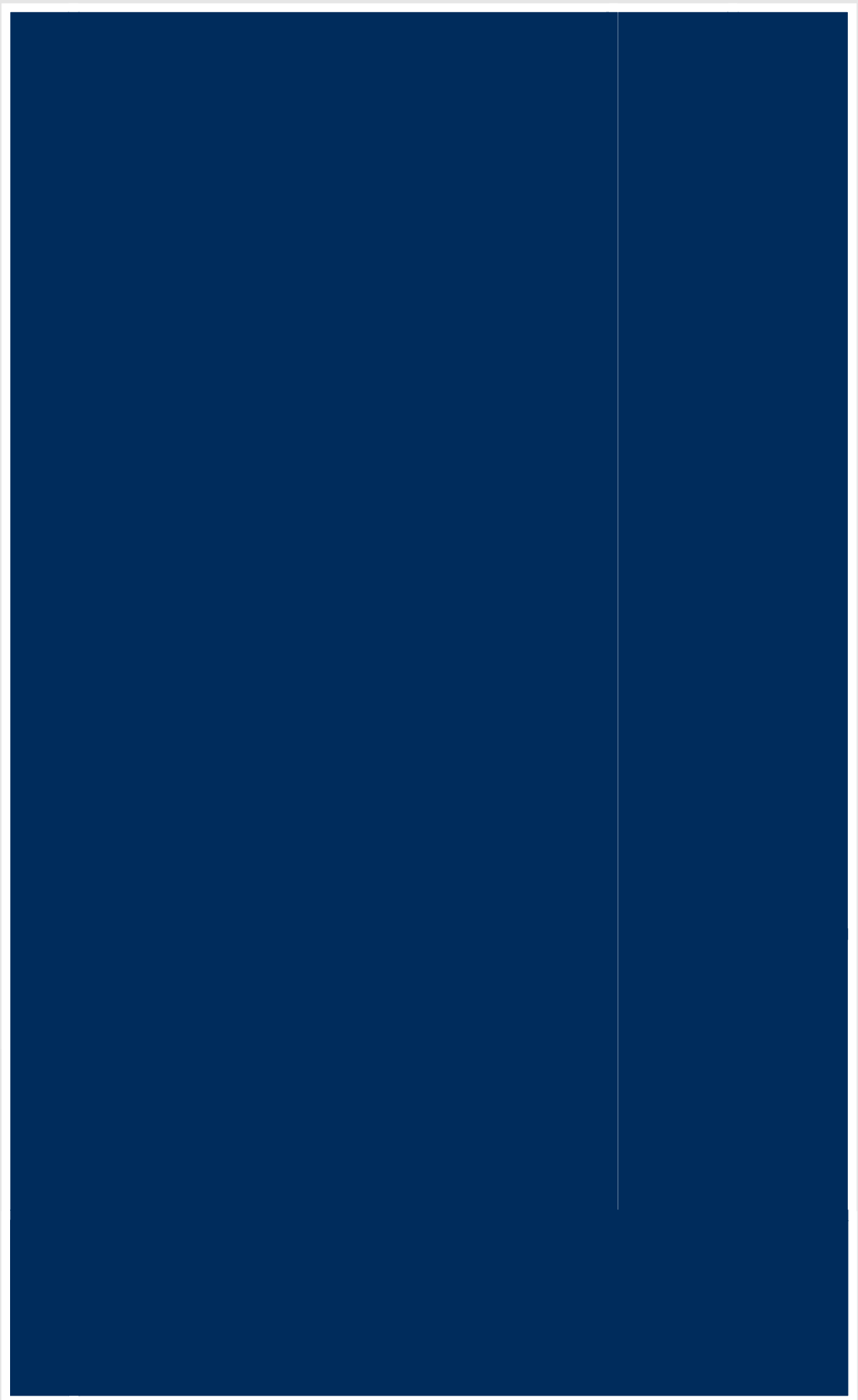
Data Lakes



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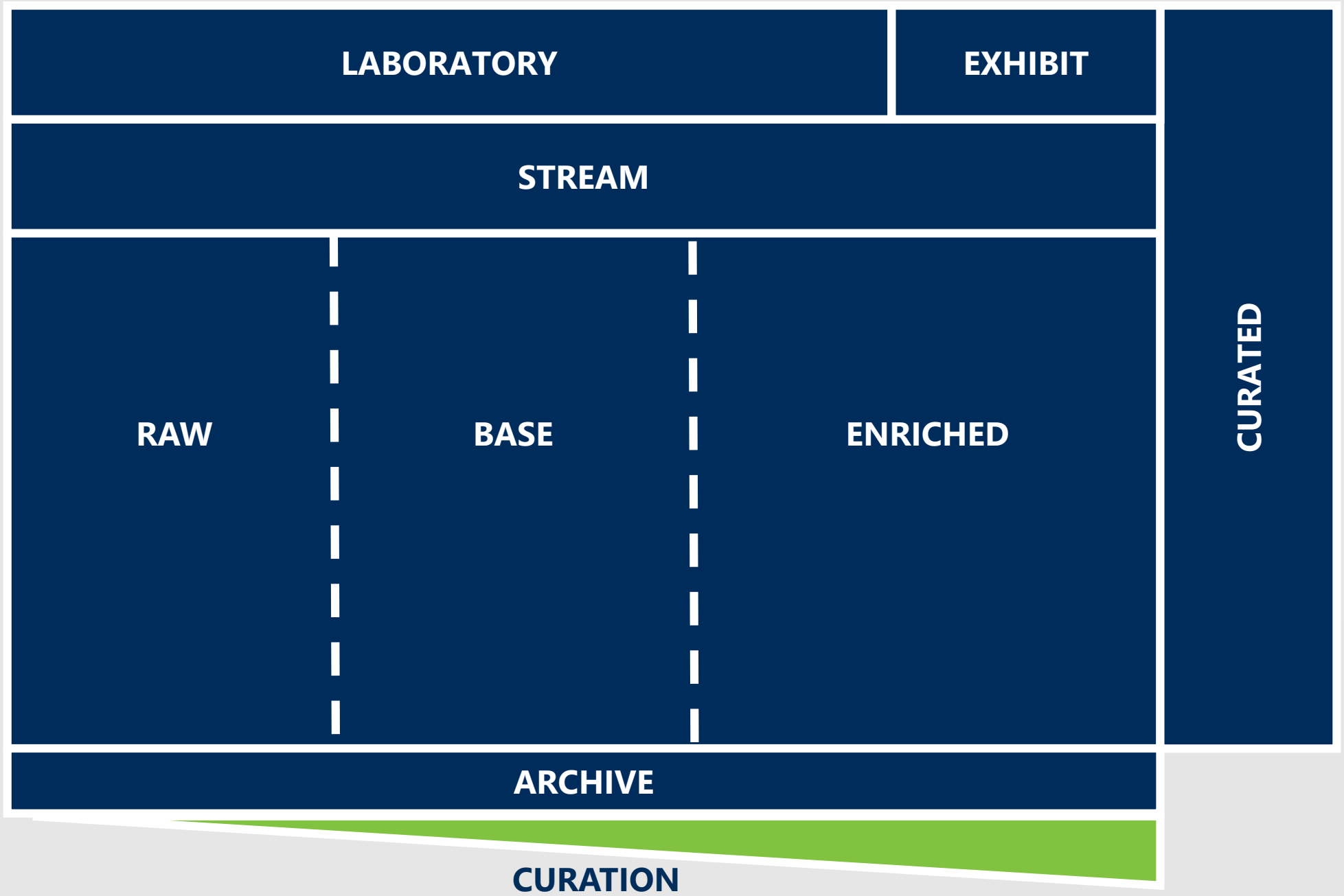
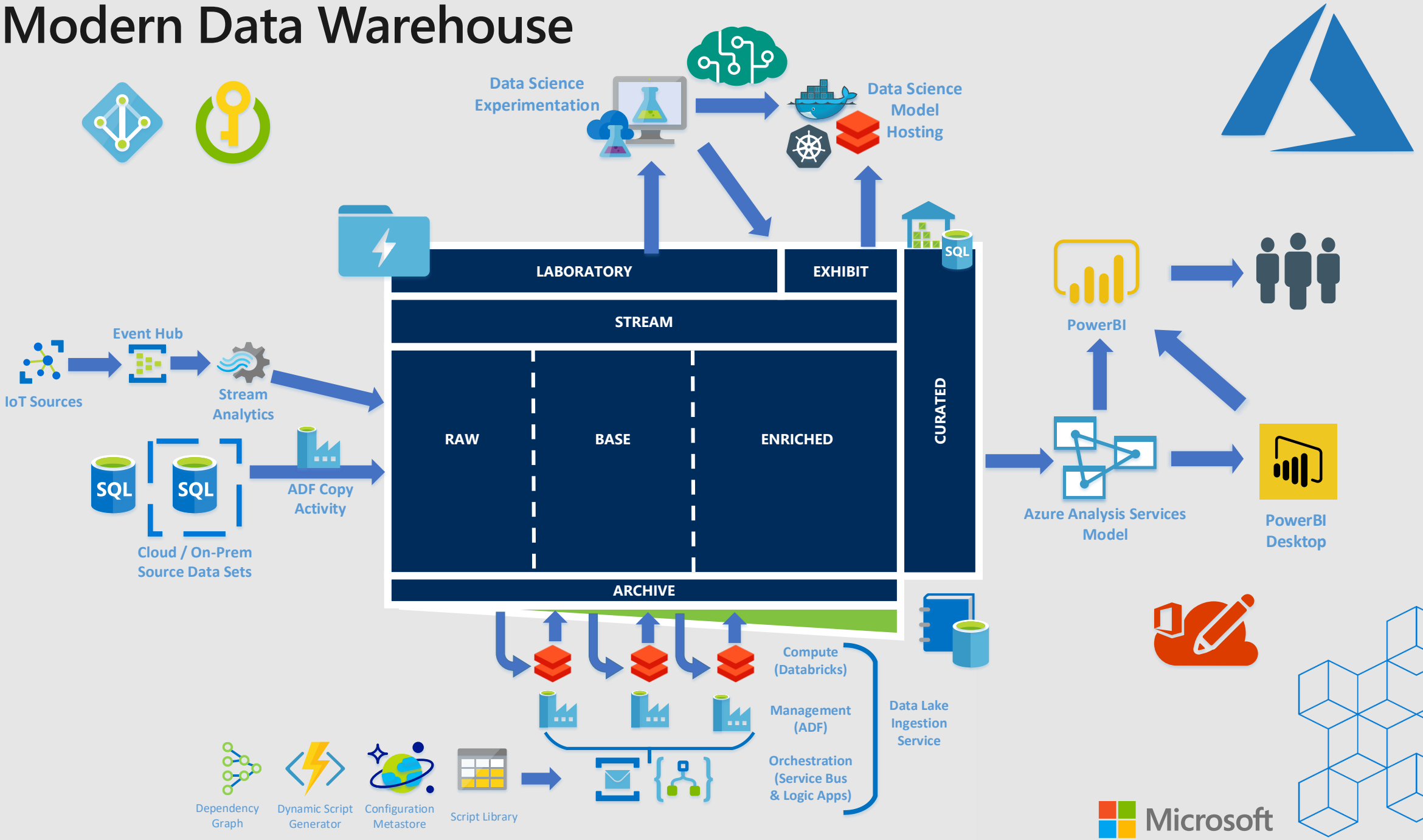
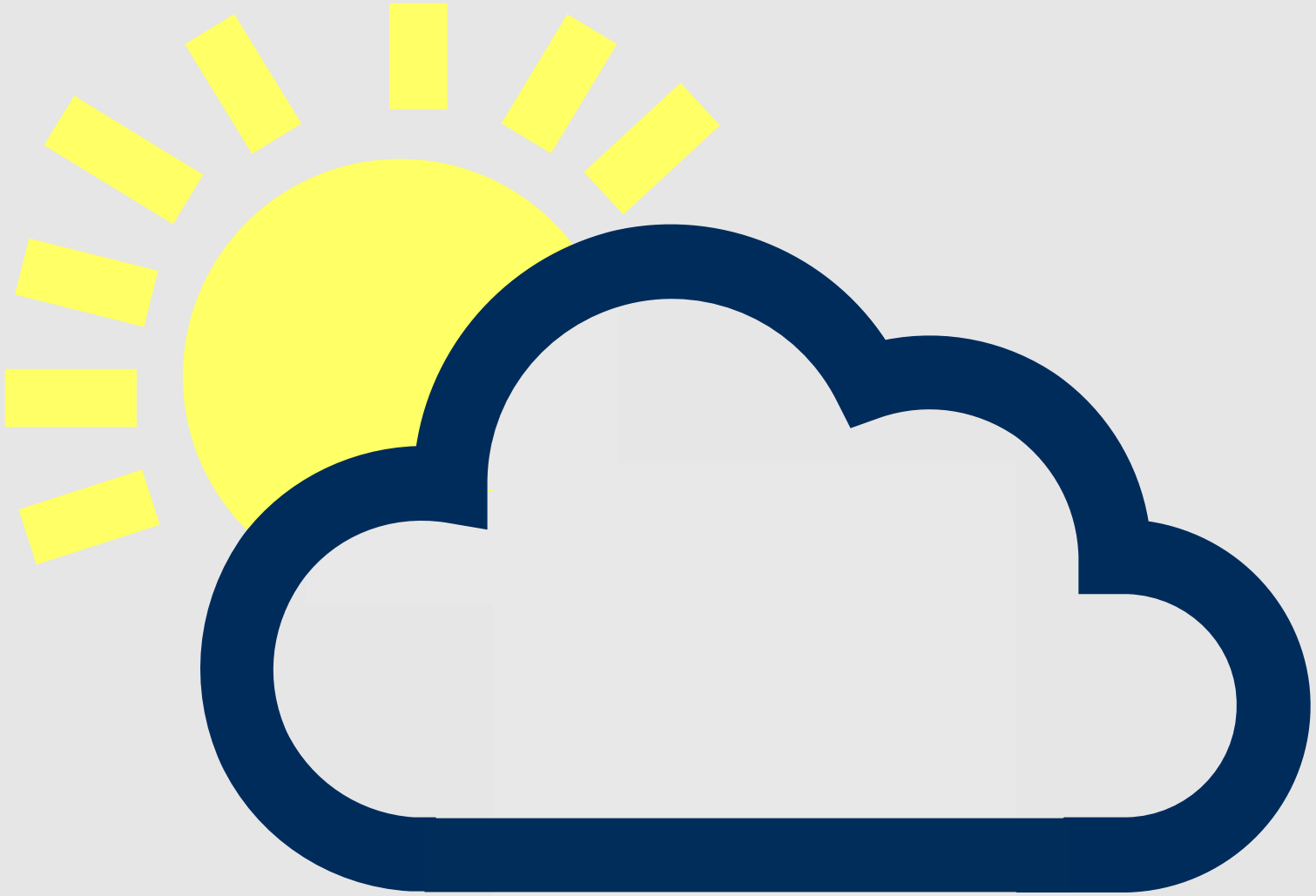
Data Lake – with Adatis Framework



The Modern Data Warehouse



Cloud



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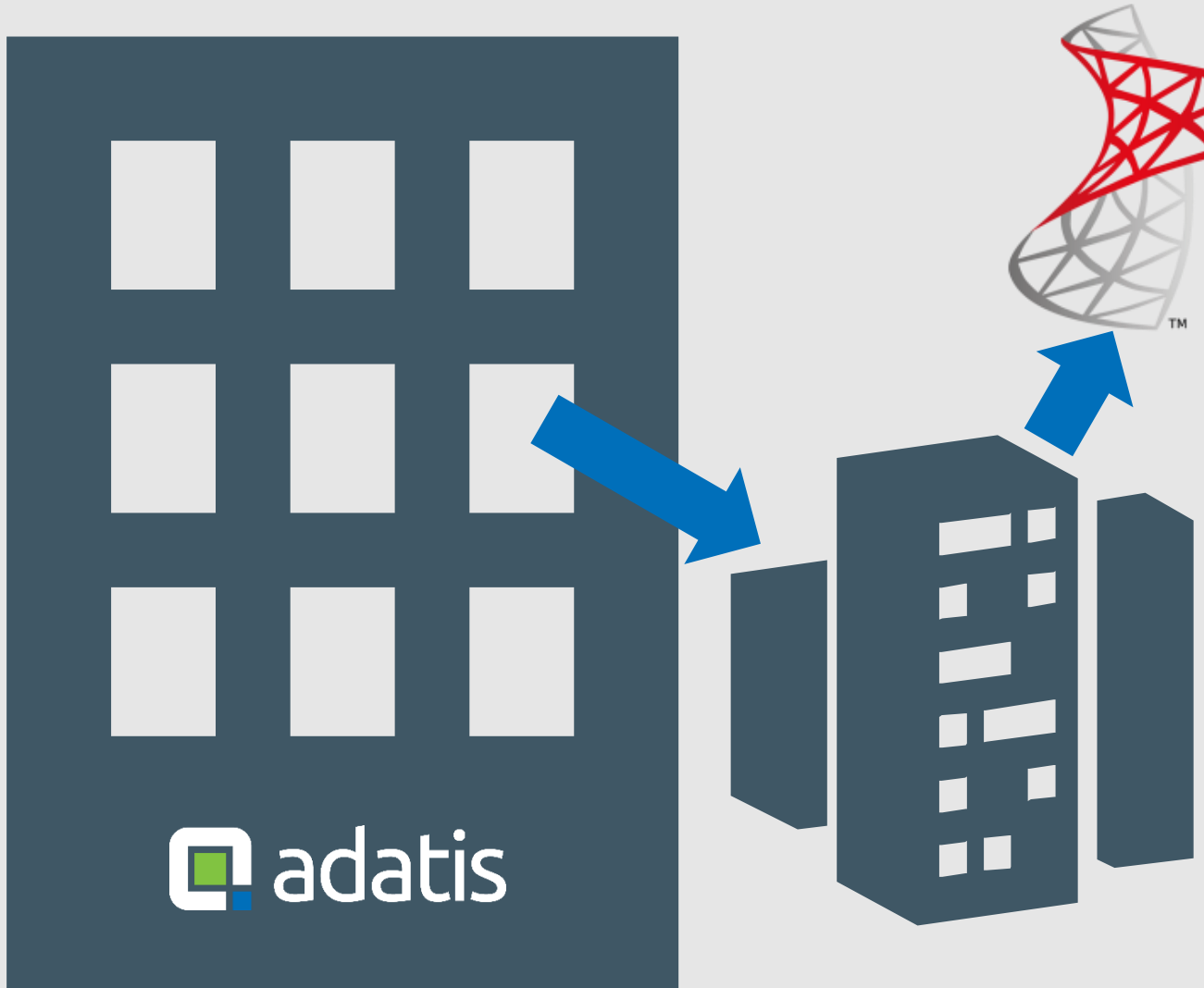
On Premises



Microsoft SQL Server

COMPUTE

PY

R

JSON

XML

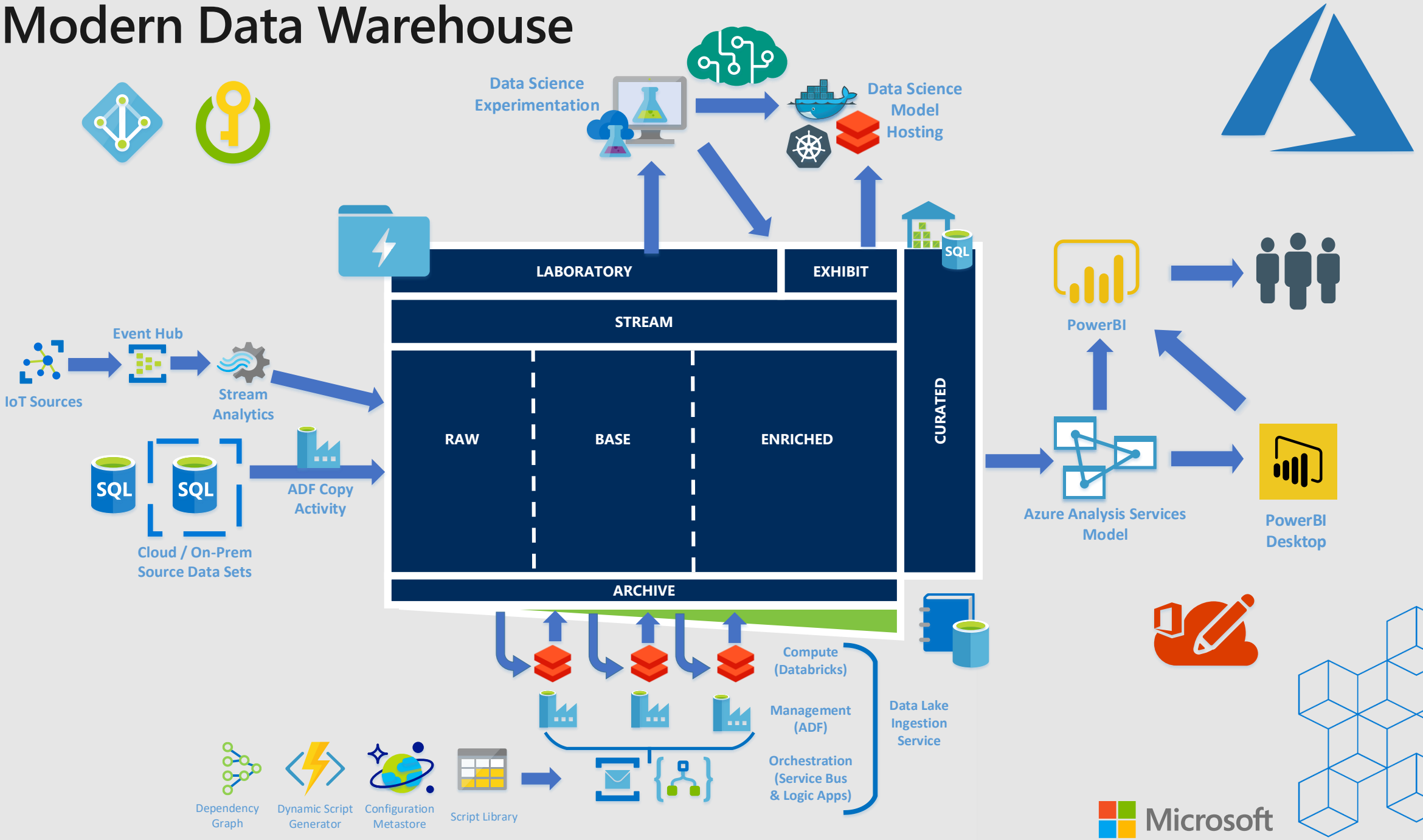
DATABASE STORAGE

DBMS SSIS SSAS

SSRS MDS

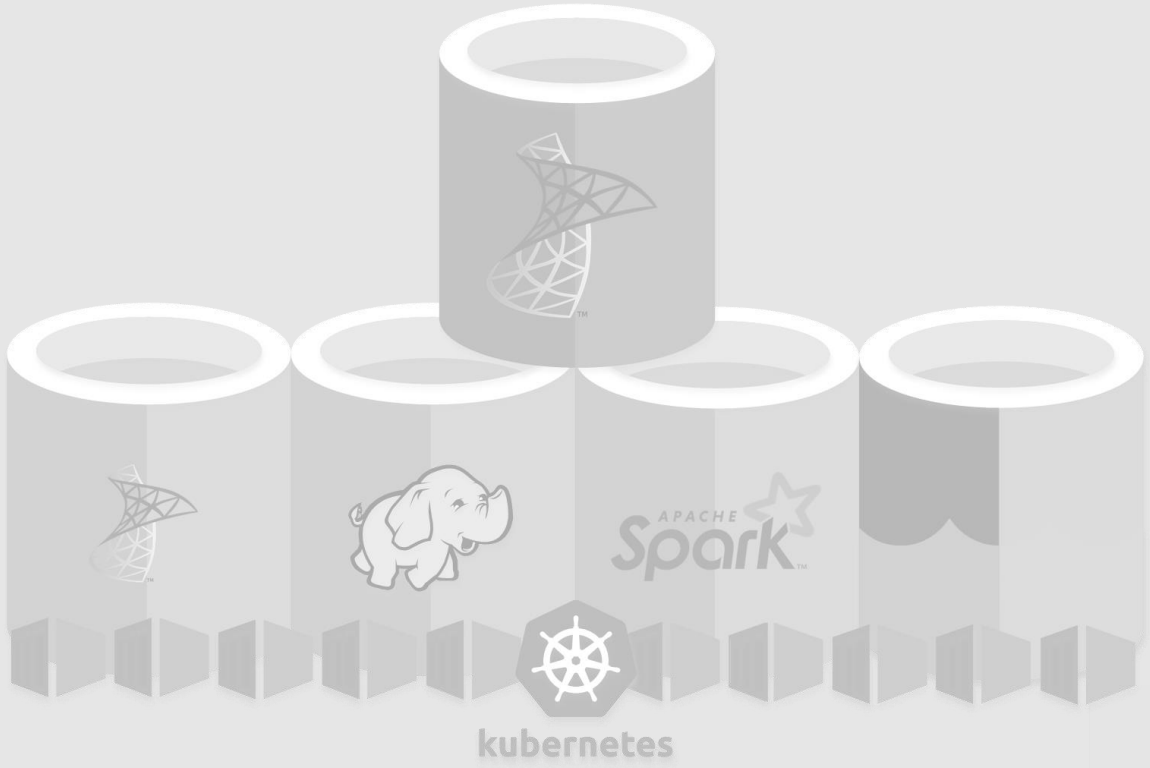
Microsoft

The Modern Data Warehouse



SQL Server 2019 Big Data Clusters

What



Why

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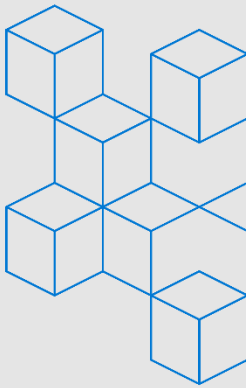
SQL Server - Product Evolution



Hyperscale Tier - 100 TB Databases
Docs Link

Azure SQL Database (SQLDB)

Compute

T-SQL

Compute Node

Data

Database Storage

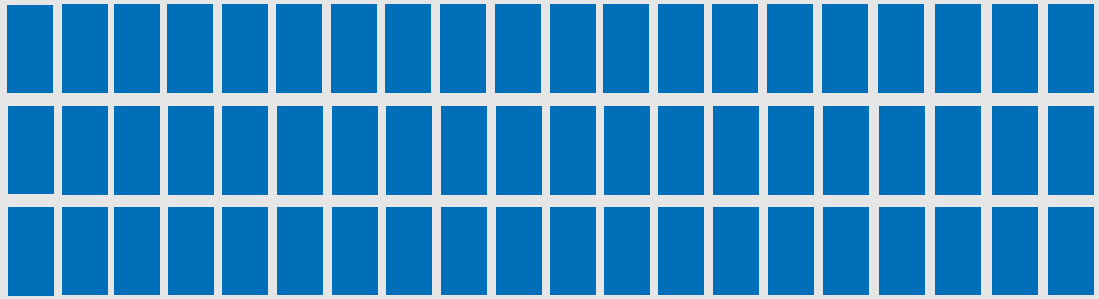
Scale Up Compute

Azure SQL Data Warehouse (SQLDW)

D-SQL

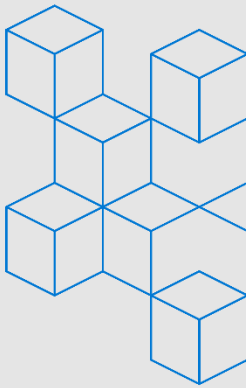
Control Node

Compute Node | Compute Node | Compute Node | Compute Node



Scale Out Compute & Distributed Storage

SQL Server - Product Evolution



Hyperscale Tier - 100 TB Databases
Docs Link

Azure SQL Database (SQLDB)

T-SQL

Compute

Compute Node | Read Only Node | Read Only Node

Data

Database Storage

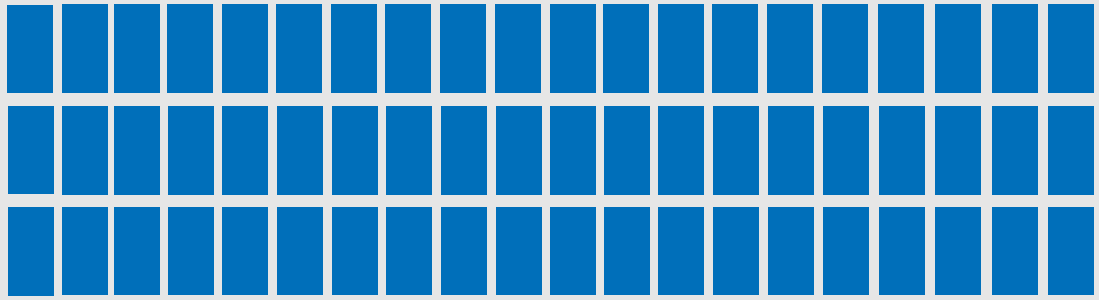
Scale Up Compute & Scale Out Read Only Nodes

Azure SQL Data Warehouse (SQLDW)

D-SQL

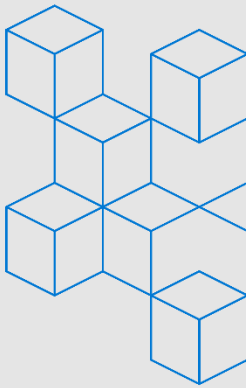
Control Node

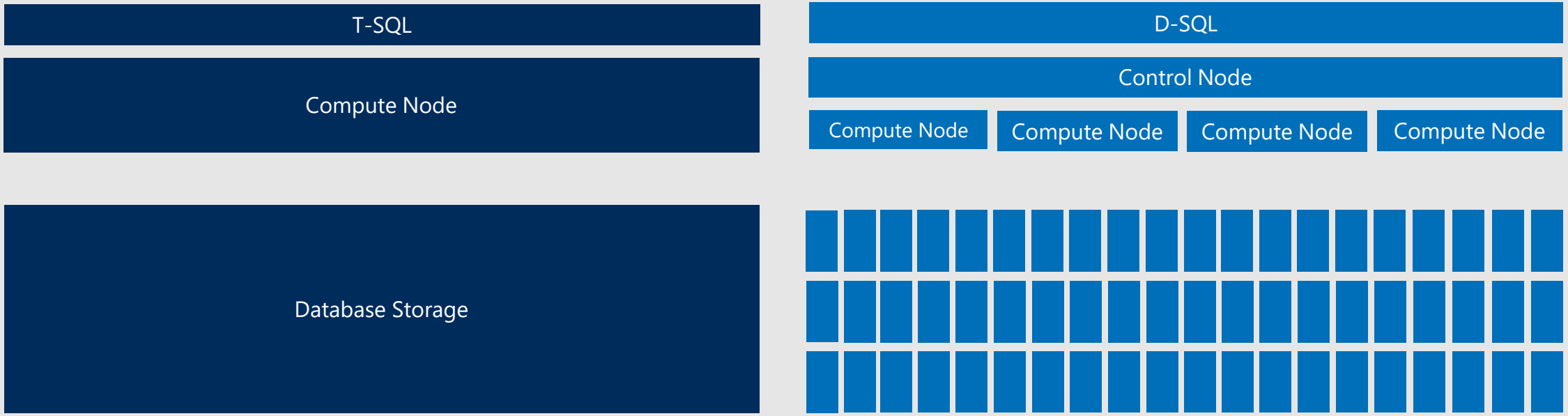
Compute Node | Compute Node | Compute Node | Compute Node



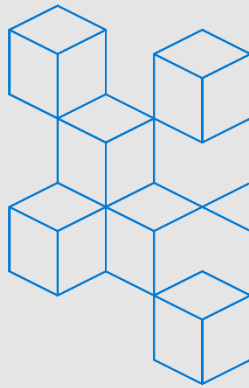
Scale Out Compute & Distributed Storage

SQL Server - Product Evolution



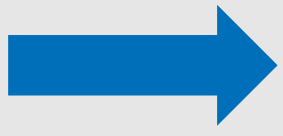


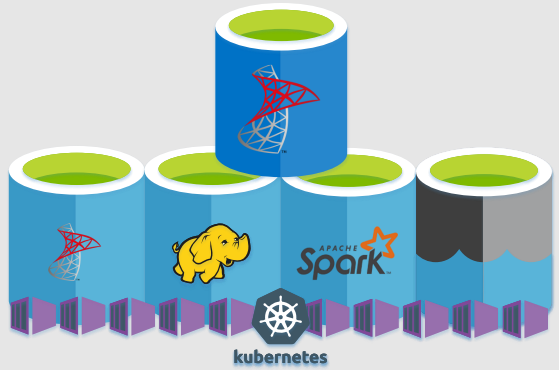
SQL Server - Product Evolution



SQL Server 2019 Big Data Cluster

Azure Data Studio





SSMS v18

T-SQL

Python/Scala

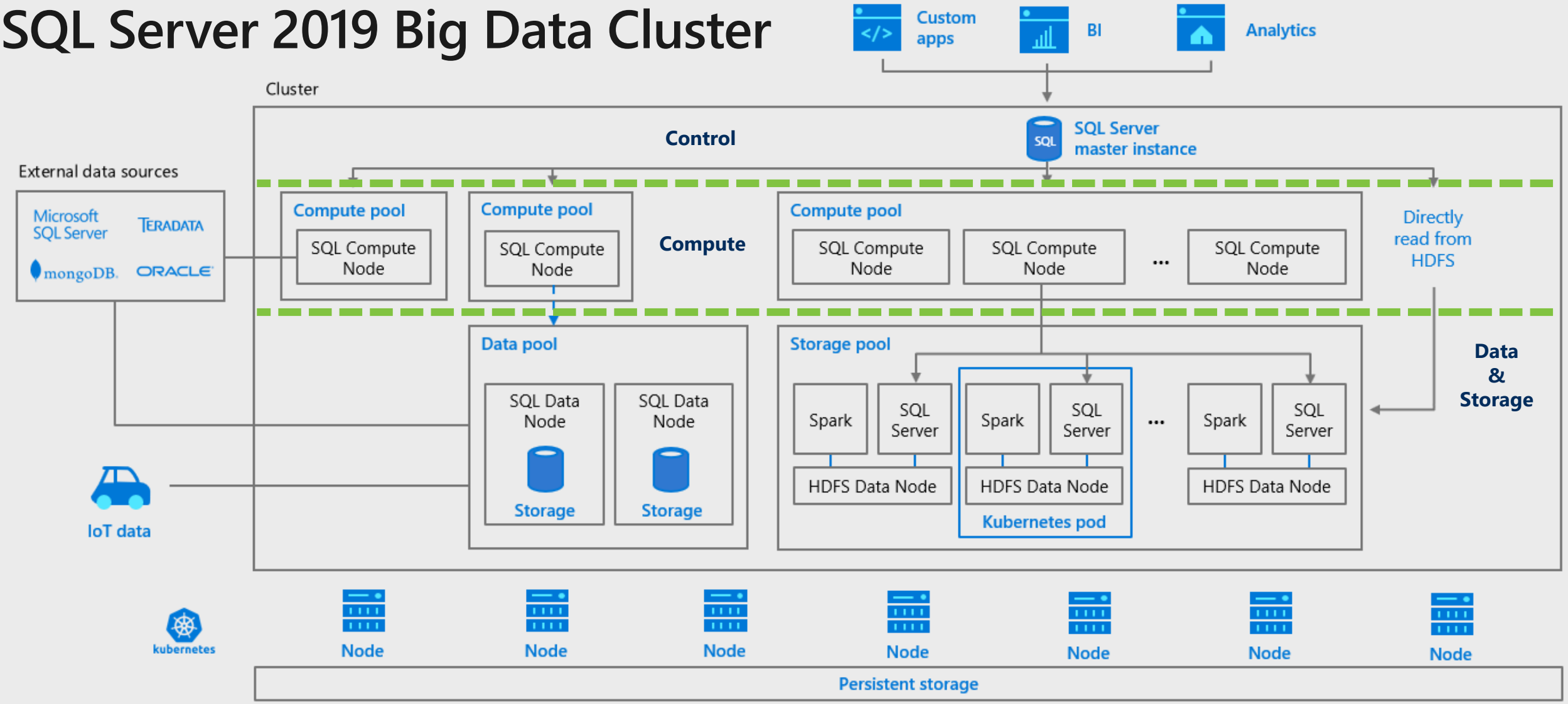
Control — Master Instance

Compute — Compute Node | Compute Node | Compute Node | Compute Node

Data & Storage — Data Pool (Storage Shards) | Storage Pool (SQL Engine, HDFS, Spark)

Linux Containers in Kubernetes

SQL Server 2019 Big Data Cluster

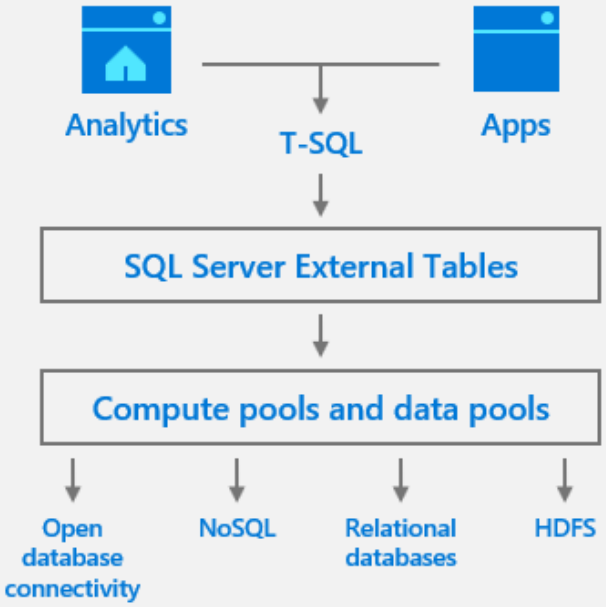


https://cloudblogs.microsoft.com/sqlserver/2018/09/25/introducing-microsoft-sql-server-2019-big-data-clusters/

Microsoft

SQL Server 2019 Big Data Cluster

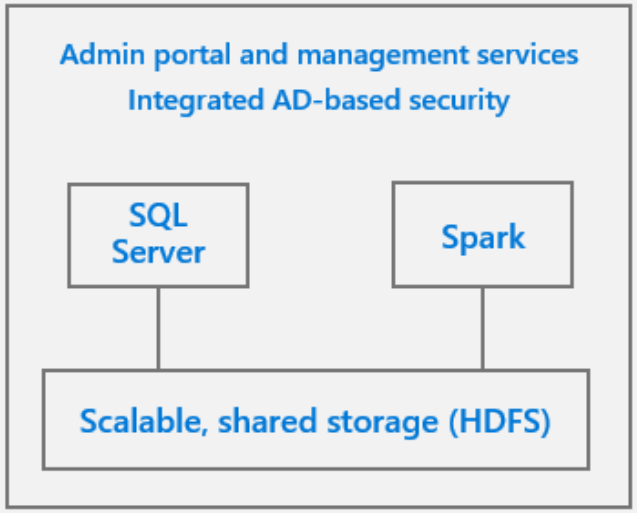
Data virtualization



Combine data from many sources without moving or replicating it

Scale out compute and caching to boost performance

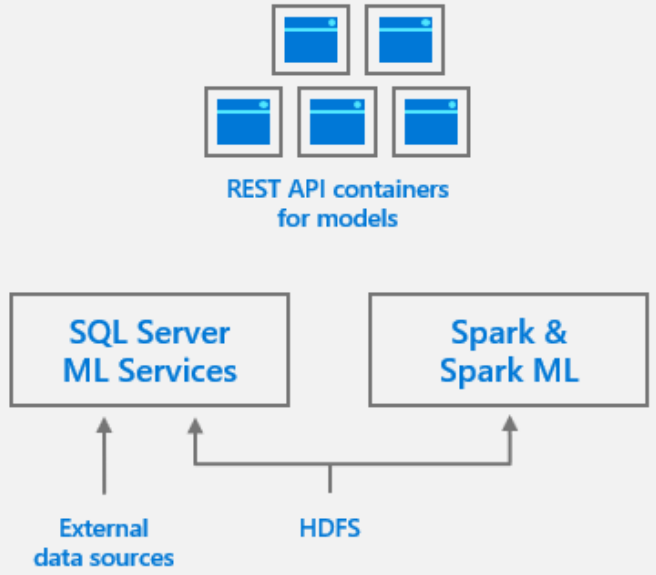
Managed SQL Server, Spark, and data lake



Store high volume data in a data lake and access it easily using either SQL or Spark

Management services, admin portal, and integrated security make it all easy to manage

Complete AI platform



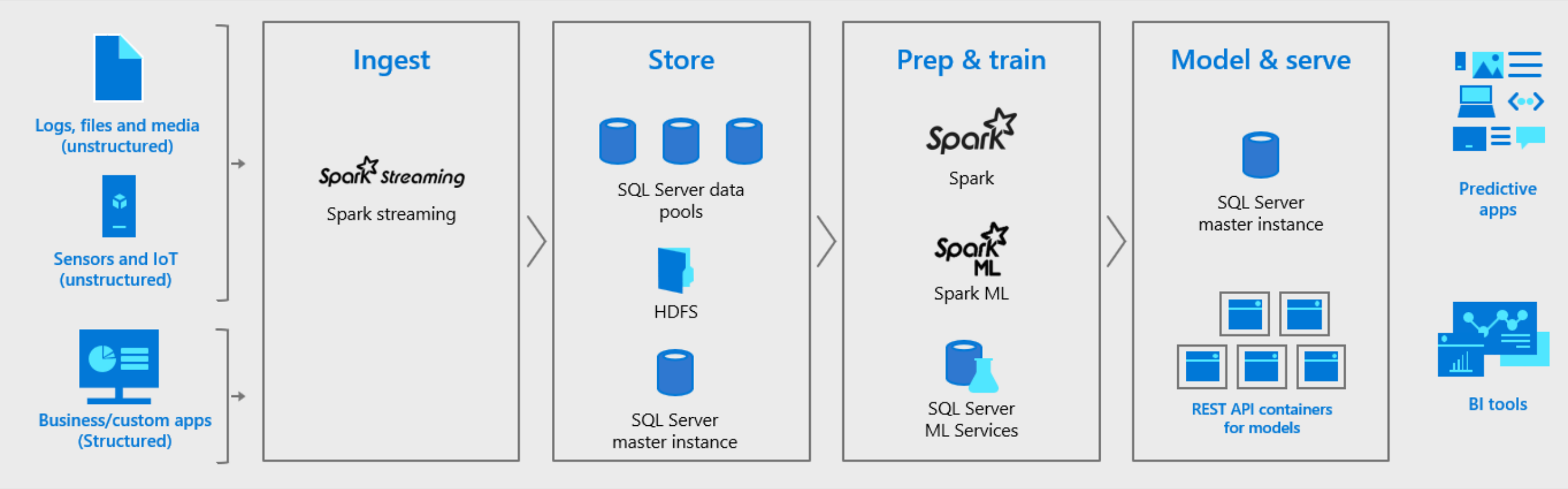
Easily feed integrated data from many sources to your model training

Ingest and prep data and then train, store, and operationalize your models all in one system

https://cloudblogs.microsoft.com/sqlserver/2018/09/25/introducing-microsoft-sql-server-2019-big-data-clusters/

Microsoft

SQL Server 2019 Big Data Cluster



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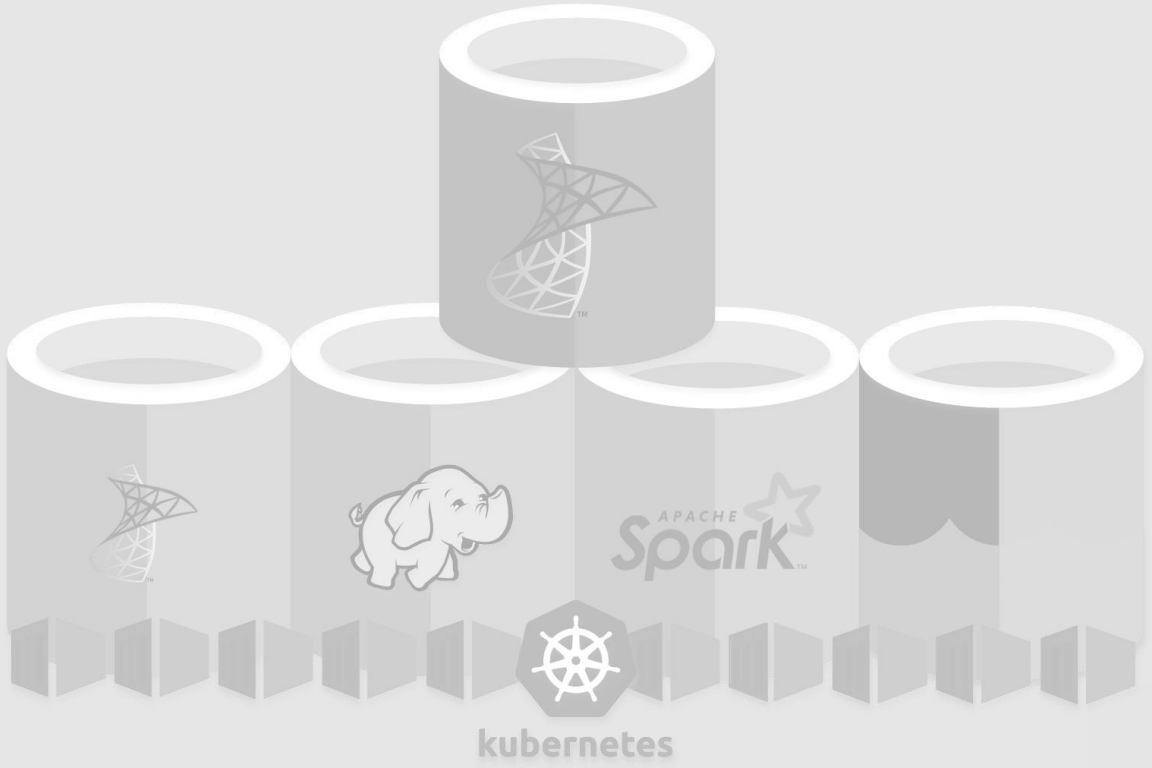
Microsoft

SQL Server 2019 Big Data Clusters

What

Why



How

Microsoft

SQL Server 2019 Big Data Clusters

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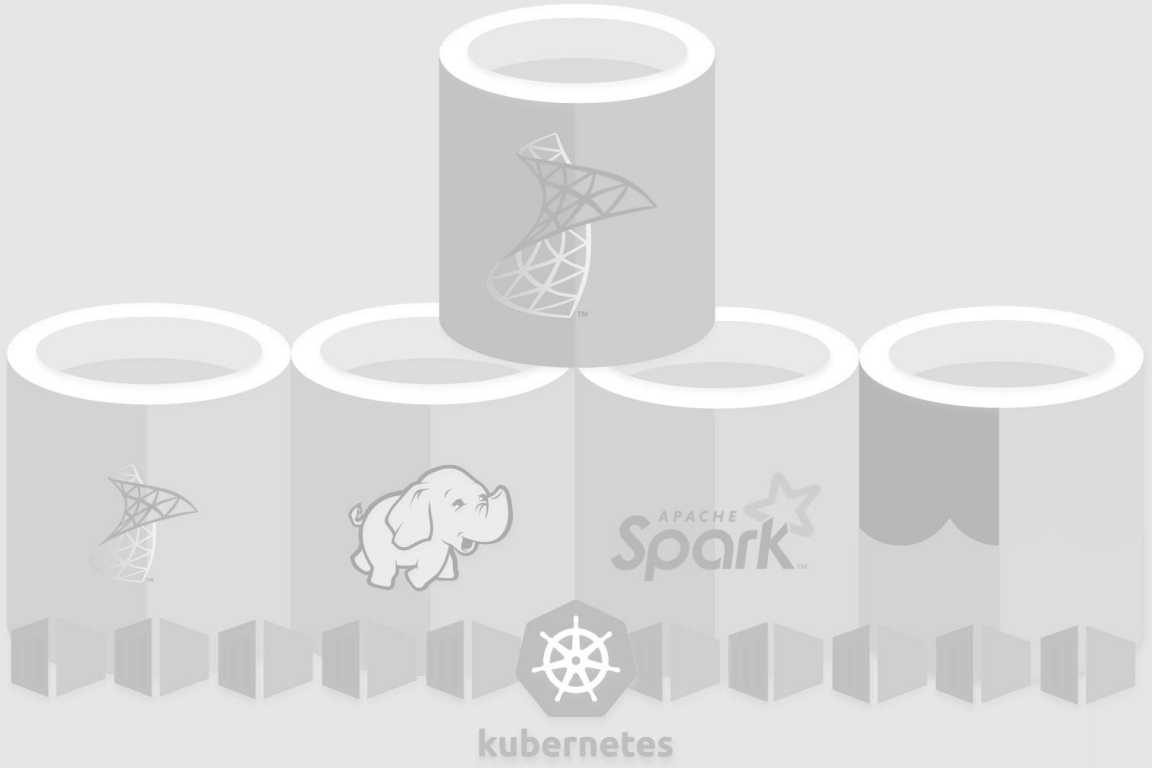
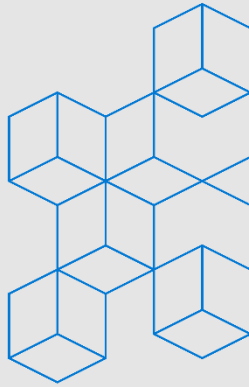


Why

How... do Big Data Clusters address our big data problems?

do we implement this new product architecture?



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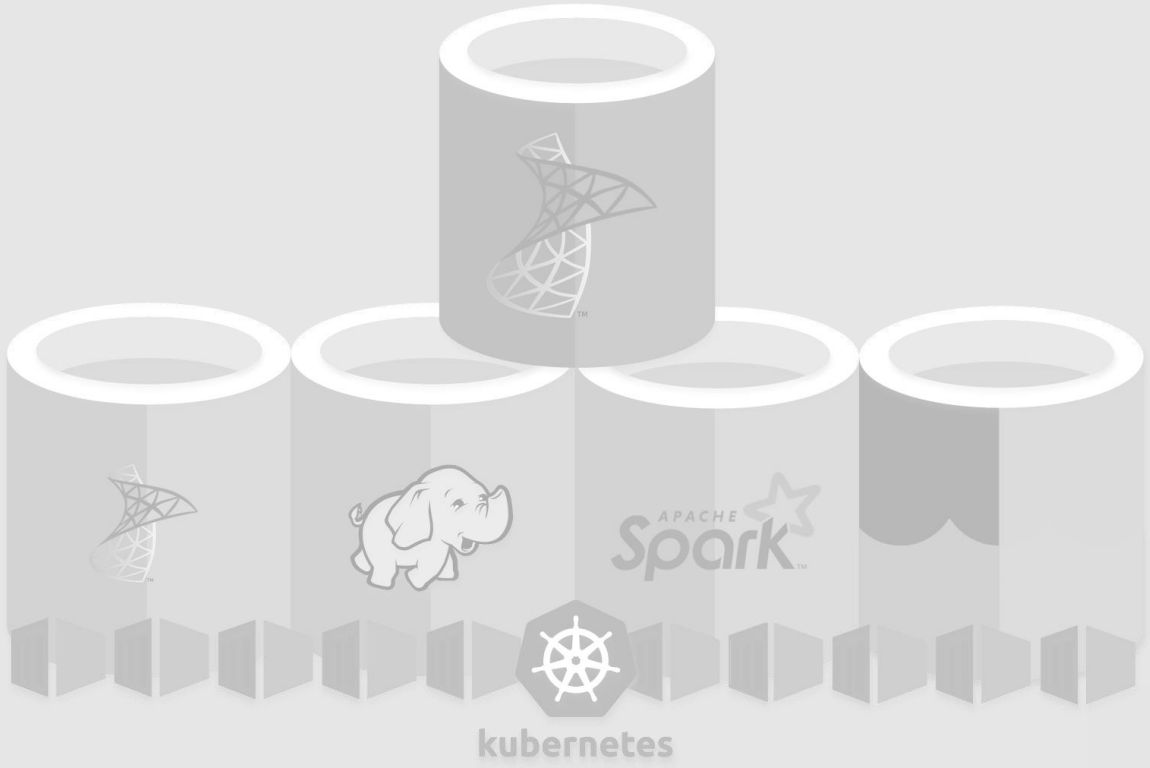

Why

How...

do Big Data Clusters address our big data problems?

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Microsoft

SQL Server 2019 Big Data Clusters

Volume

Distributed storage pools as standard.

Velocity

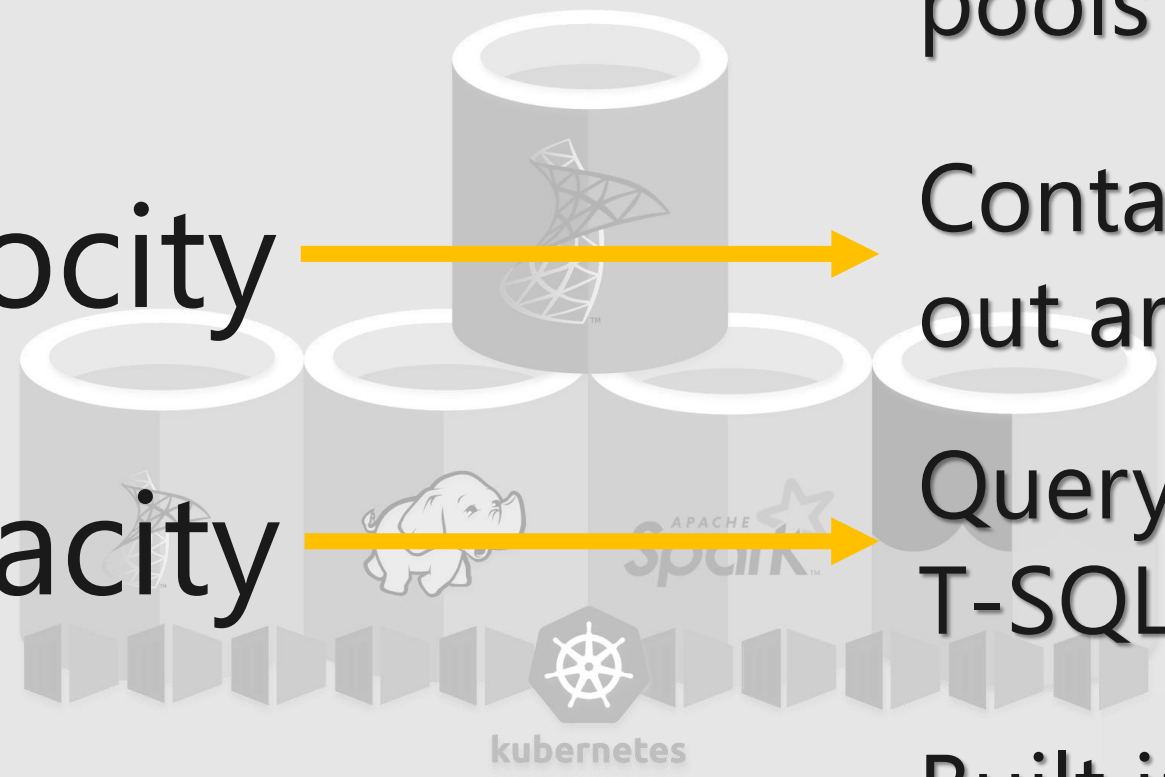
Containerised scale out architecture.

Veracity

Query everything in T-SQL via PolyBase.

Variety

Built in data lake capabilities via HDFS.



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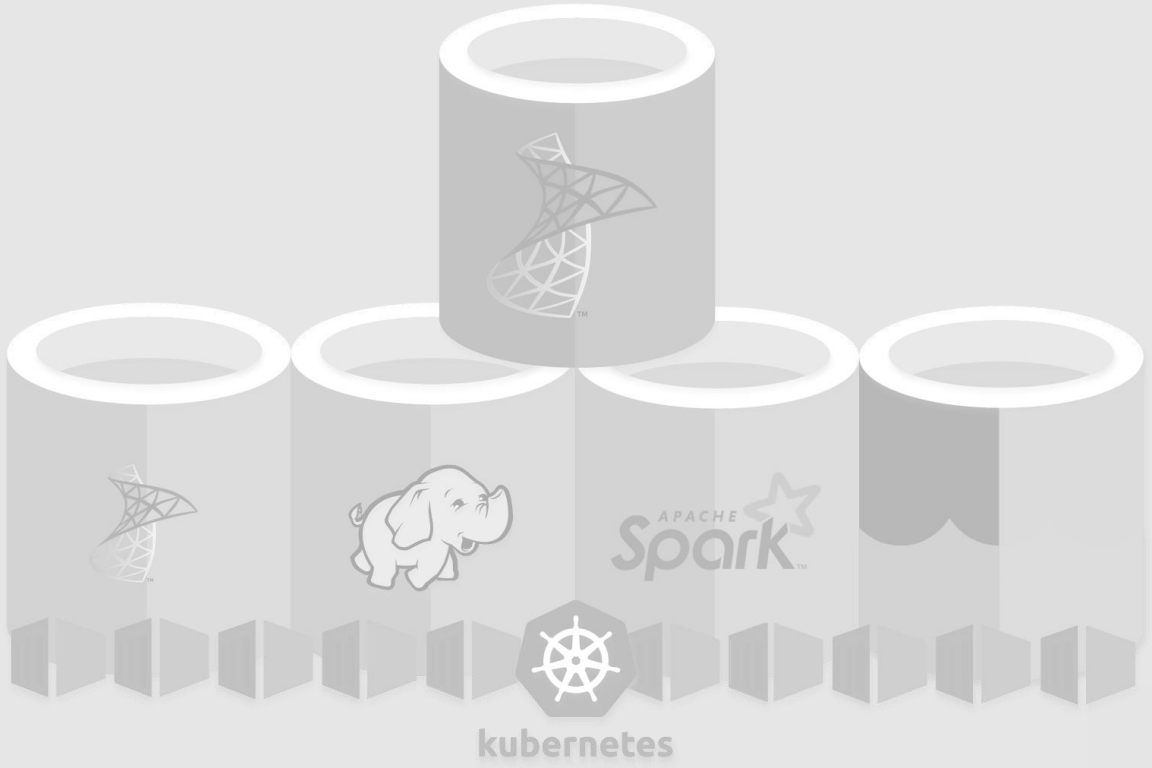

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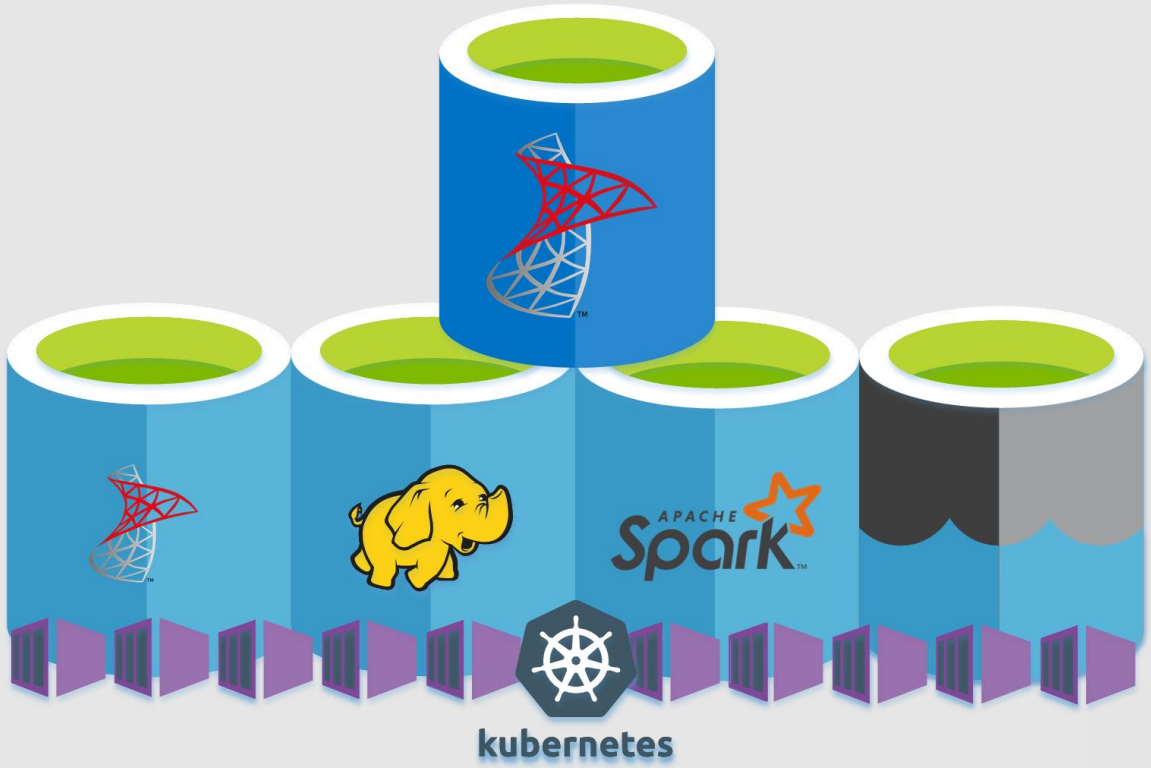

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SQL Server 2019 Big Data Clusters

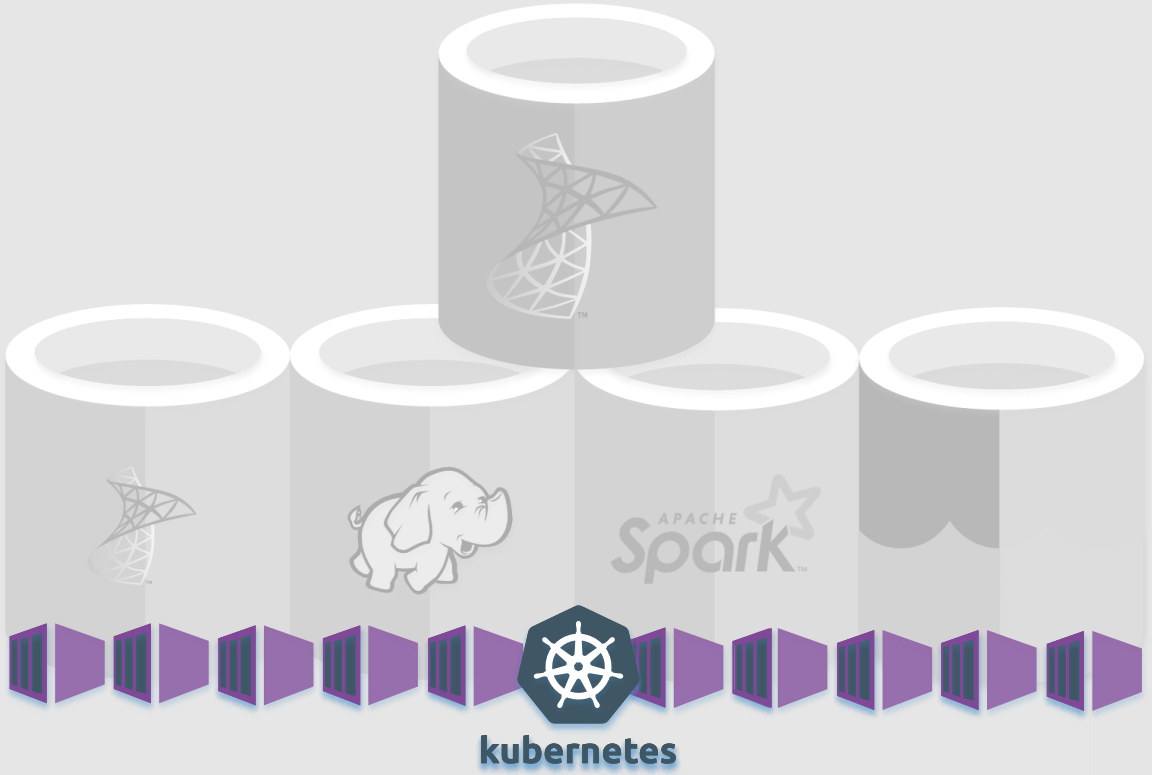
kubernetes

minikube

SQL Server 2019 Big Data Clusters

kubernetes

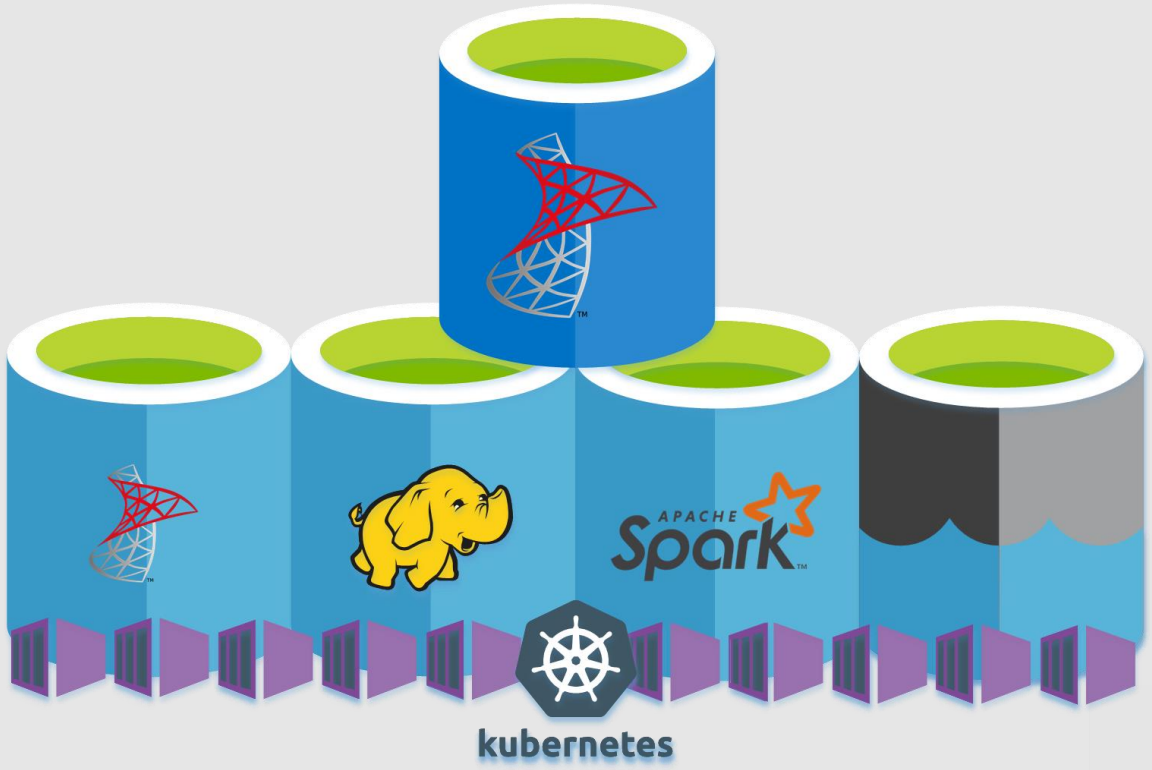
minikube



Azure

amazon web services™

Google Cloud Platform

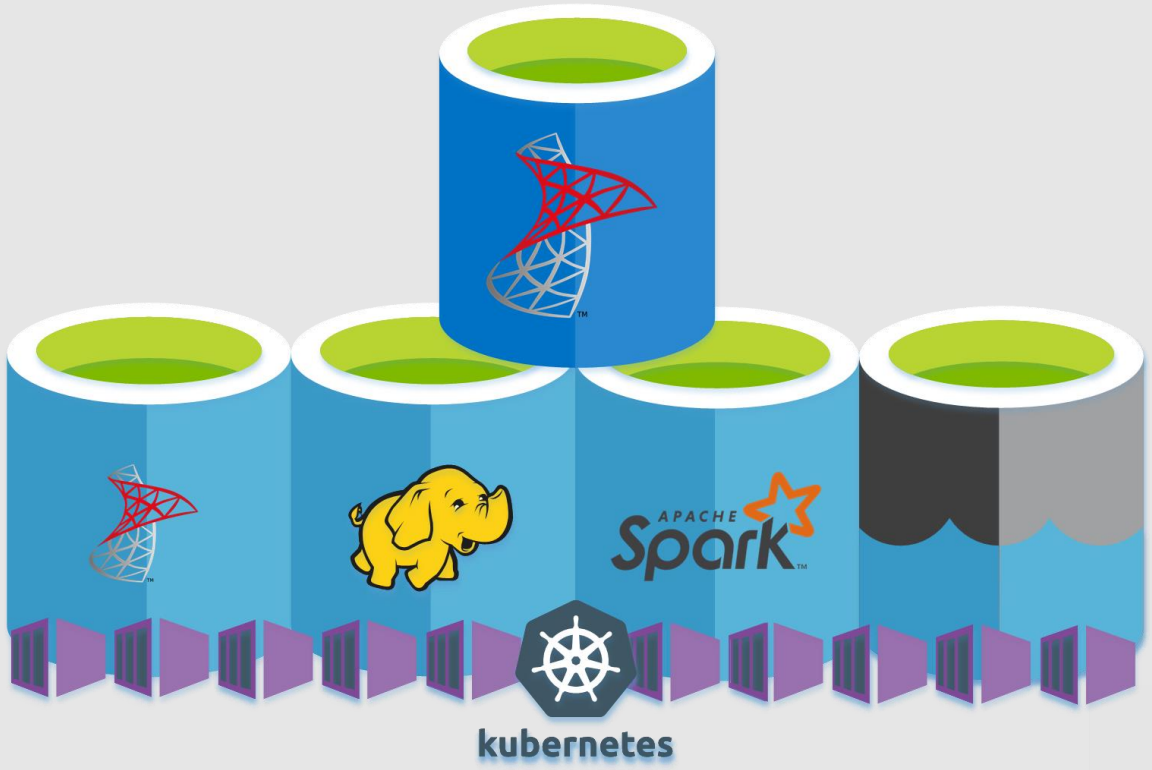


Microsoft

SQL Server 2019 Big Data Clusters

Cloud tech, using cloud concepts, soon to be available as an on premises product.

Not only cloud.



Microsoft

Thanks for Listening

Paul Andrew

@MrPaulAndrew

Microsoft® Most Valuable Professional

adatis

Email: paul@mrpaulandrew.com
Blog: mrpaulandrew.com
GitHub: github.com/mrpaulandrew

Microsoft

Reference Material

What's new in SQL Server 2019?
https://docs.microsoft.com/en-us/sql/sql-server/what-s-new-in-sql-server-ver15?view=sql-server-ver15

SQL Server 2019 White Paper
https://info.microsoft.com/ww-landing-SQLDB-Microsoft-SQL-Server-WhitePaper.html

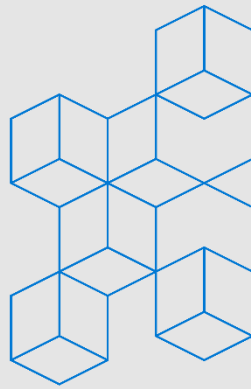
Introducing SQL Server 2019 Big Data Clusters – Travis Wright
https://cloudblogs.microsoft.com/sqlserver/2018/09/25/introducing-microsoft-sql-server-2019-big-data-clusters/

MS Ignite Session – The future of querying big data with PolyBase and SQL Server
https://myignite.techcommunity.microsoft.com/sessions/66201

MS Ignite Session – Deep dive on SQL Server and big data
https://myignite.techcommunity.microsoft.com/sessions/65967

How to deploy SQL Server big data cluster on Kubernetes
https://docs.microsoft.com/en-us/sql/big-data-cluster/deployment-guidance?view=sql-server-ver15

Deploy SQL Server big data cluster on Azure Kubernetes Service
https://docs.microsoft.com/en-us/sql/big-data-cluster/quickstart-big-data-cluster-deploy



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