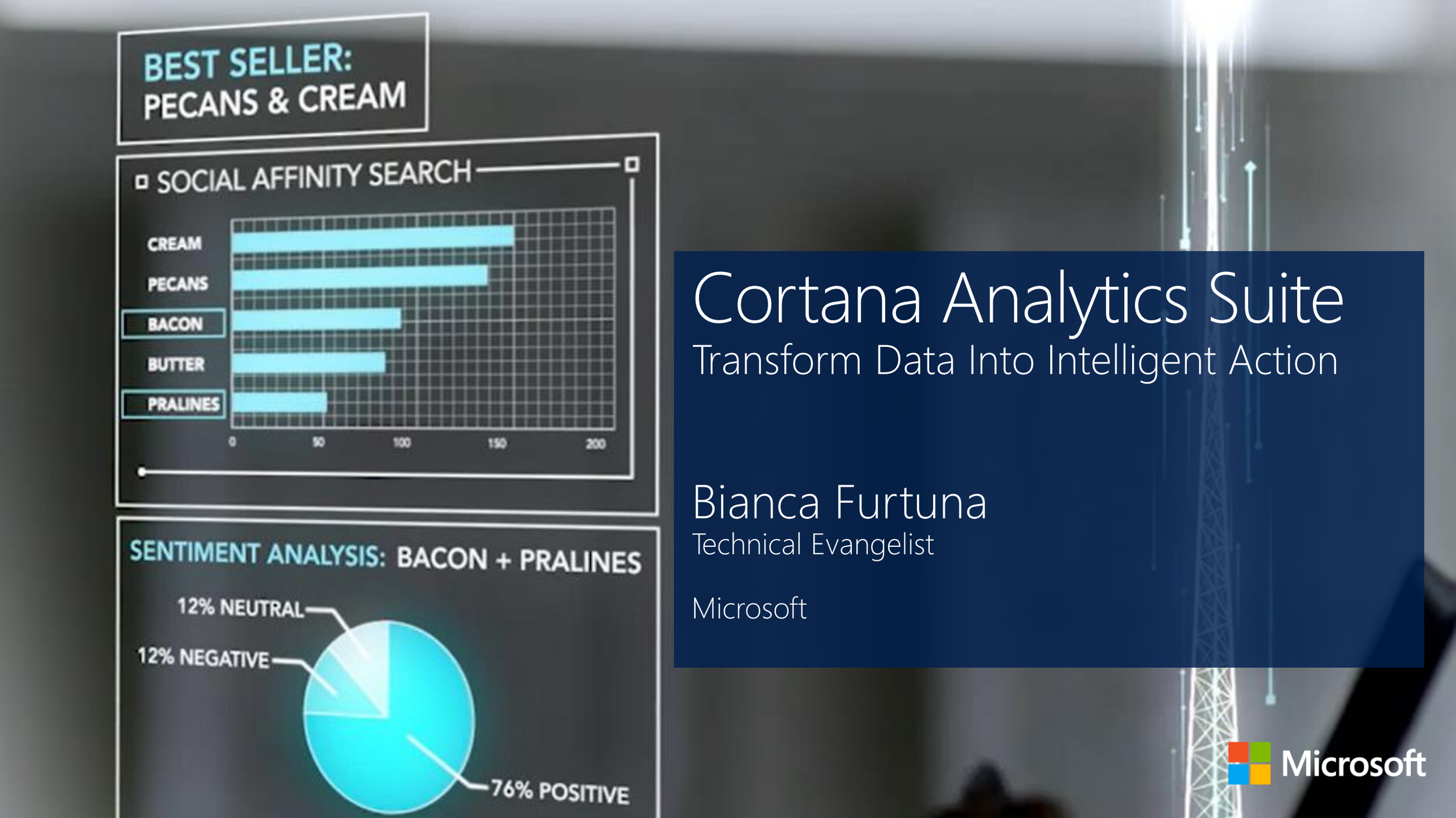


Cortana Analytics Suite

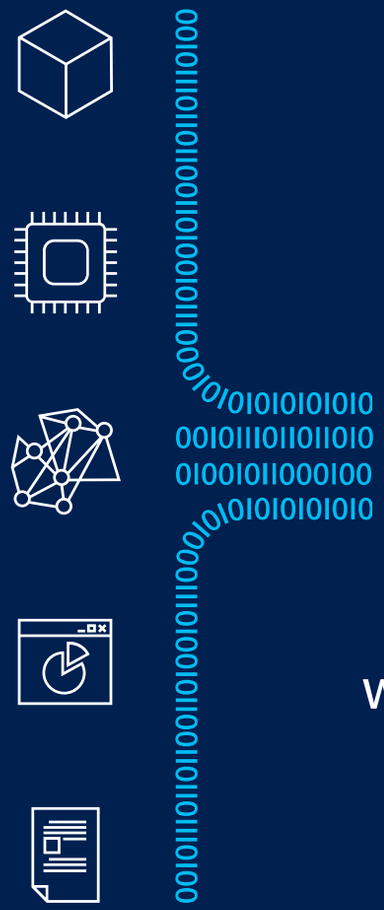
Transform Data Into Intelligent Action

Bianca Furtuna
Technical Evangelist

Microsoft

Microsoft

Accelerating the speed of business



Intelligent action

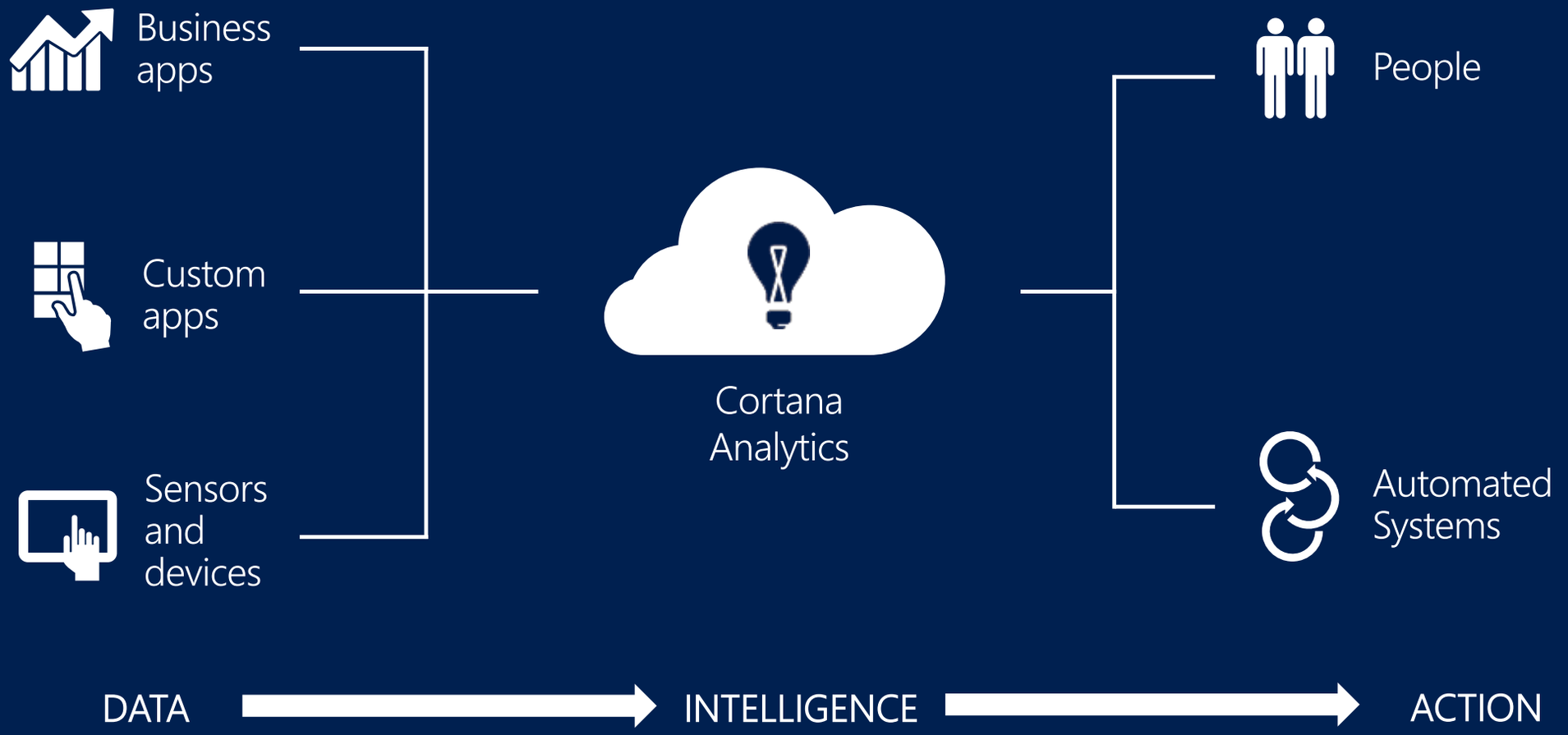
What happened? **Why did it** happen? **What will** happen? **Wh**

Cortana Analytics Suite

A fully managed Big Data and Advanced Analytics Suite that transforms your data into intelligent action.

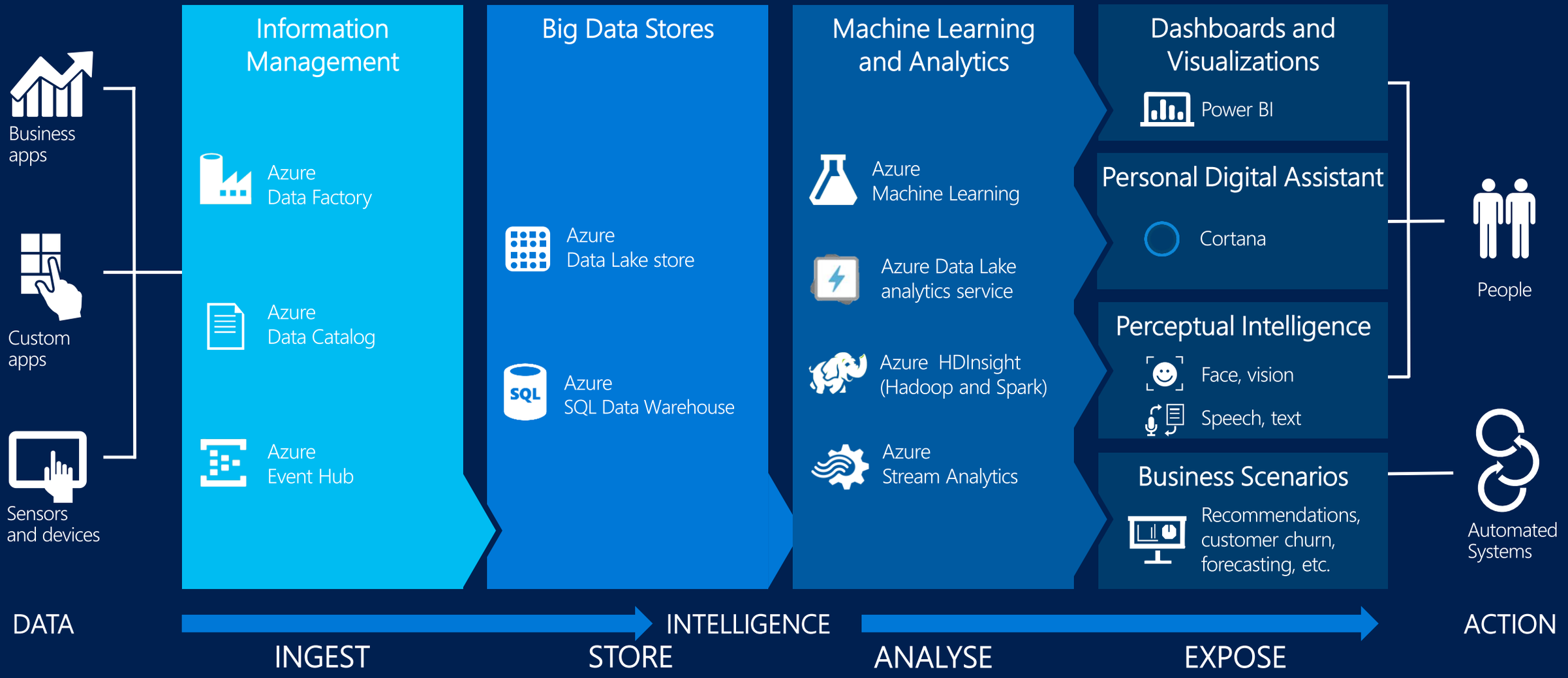
Cortana Analytics Suite

Transform data into intelligent action



Cortana Analytics Suite

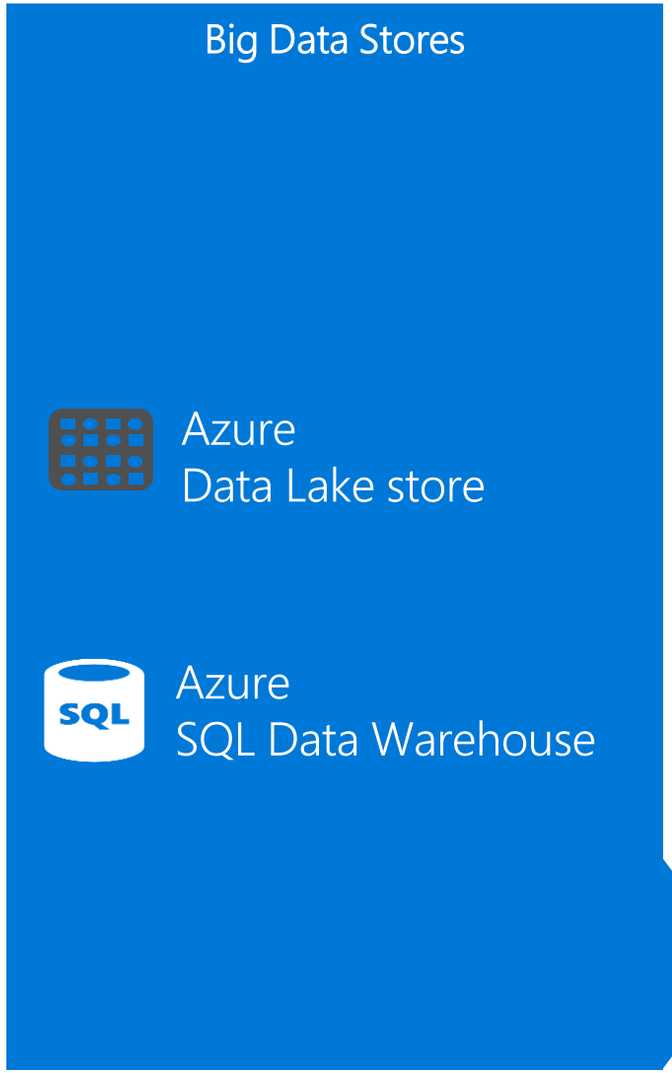
Transform data into intelligent action



Cortana Analytics scenarios

EXAMPLE SOLUTIONS

Sales and marketing	Finance and risk	Customer and channel	Operations and workforce
Customer acquisition	Fraud detection	Lifetime customer value	Pay for performance
Cross-sell and upsell	Credit risk management	Personalized offers	Operational efficiency
Loyalty programs		Product recommendation	Smart buildings
Marketing mix optimization			Predictive maintenance
			Supply chain management



Azure
SQL Database
SQL Data Warehouse

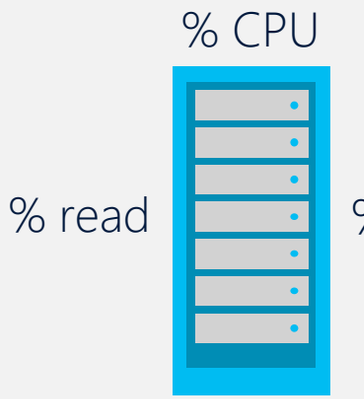
SQL Database Service

- A relational **database-as-a-service**, fully managed by Microsoft.
- **Near-zero administration** and **enterprise-grade** capabilities

Elastic scale & performance	Business continuity & data protection	Familiar & self-managed
Predictable performance levels	Self-service restore	Familiar & compatible
Programmatic scale-out	Disaster recovery	Programmatic
Dashboard views of DB metrics	Compliance-enabled	Self-managed

Designed for predictable performance

Redefined	Across Basic, Standard, and Premium, each performance level is assigned a defined level of throughput
Measure of power	Database Throughput Unit (DTU) represents database power and replaces hardware specs



DTU is defined by the bounding box for the resources required by a database workload and measures power across the six performance levels.

Basic — 5 DTU
S0 — 10 DTU
S1 — 20 DTU
S2 — 50 DTU
S3 — 100 DTU
P1 — 125 DTU
P2 — 250 DTU
P4 — 500 DTU
P6 — 1,000 DTU
P11 — 1,750 DTU

Standard geo-replication

Opt-in business continuity for greater geo-redundancies

Opt-in for Standard & Premium databases

Creates a stand-by secondary

Replicate to pre-paired Azure region

Automatic data replication, asynchronous

Opt-in via REST API, PowerShell or Azure Portal

Microsoft-managed, RTO<24h, RPO<1 hr

Active geo-replication

Mission-critical business continuity on your terms, via programmatic APIs

Self-service activation in Premium

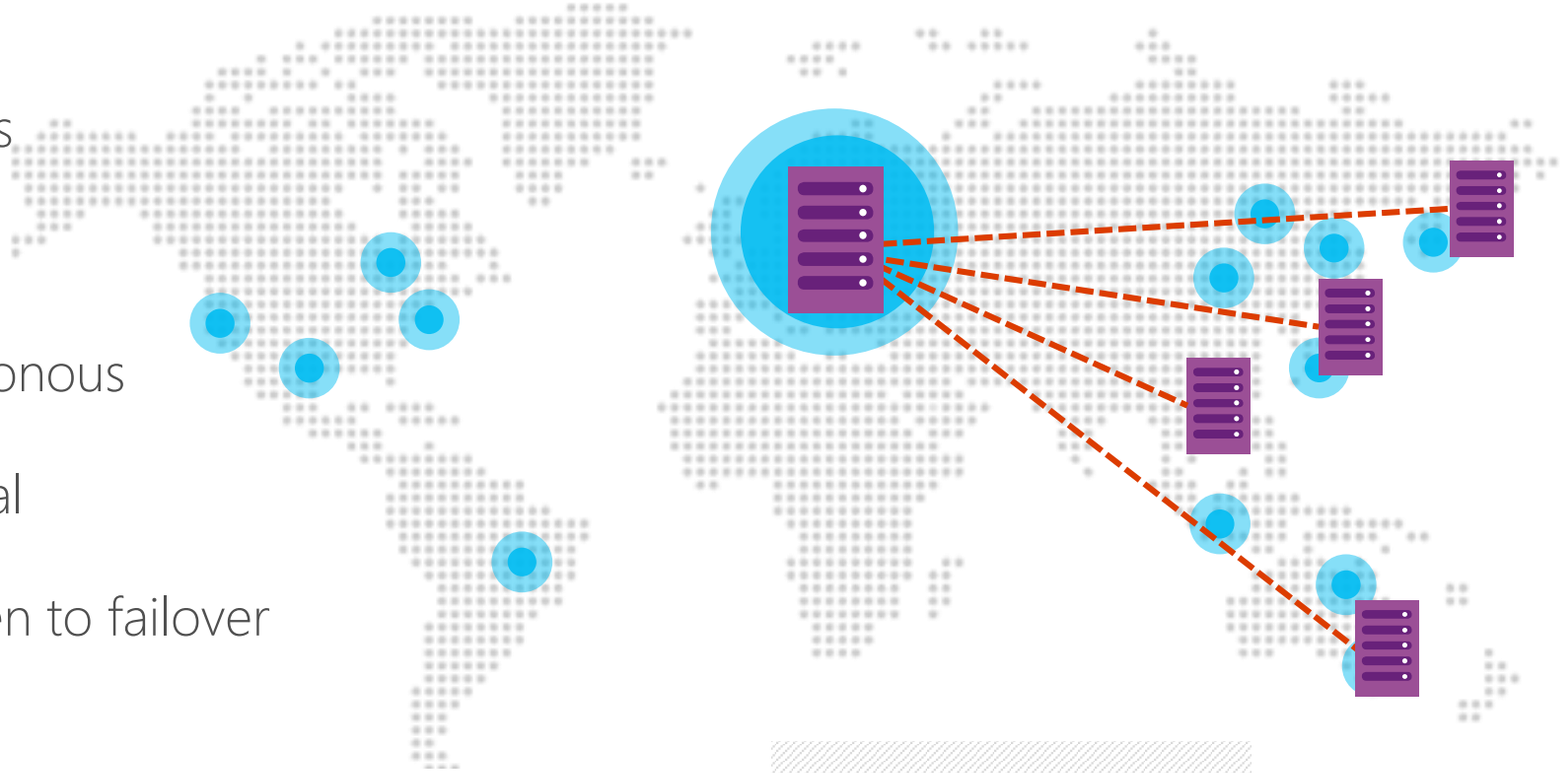
Create up to 4 readable secondaries

Replicate to any Azure region

Automatic data replication, asynchronous

REST API, PowerShell or Azure Portal

RTO<1h, RPO<5m, you choose when to failover



Up to 4
secondaries

Point-in-time restore

Programmatic “oops recovery” of data deletion or alteration

Auto backups, transactional logs every 5 min

Backups in Azure Storage and geo-replicated

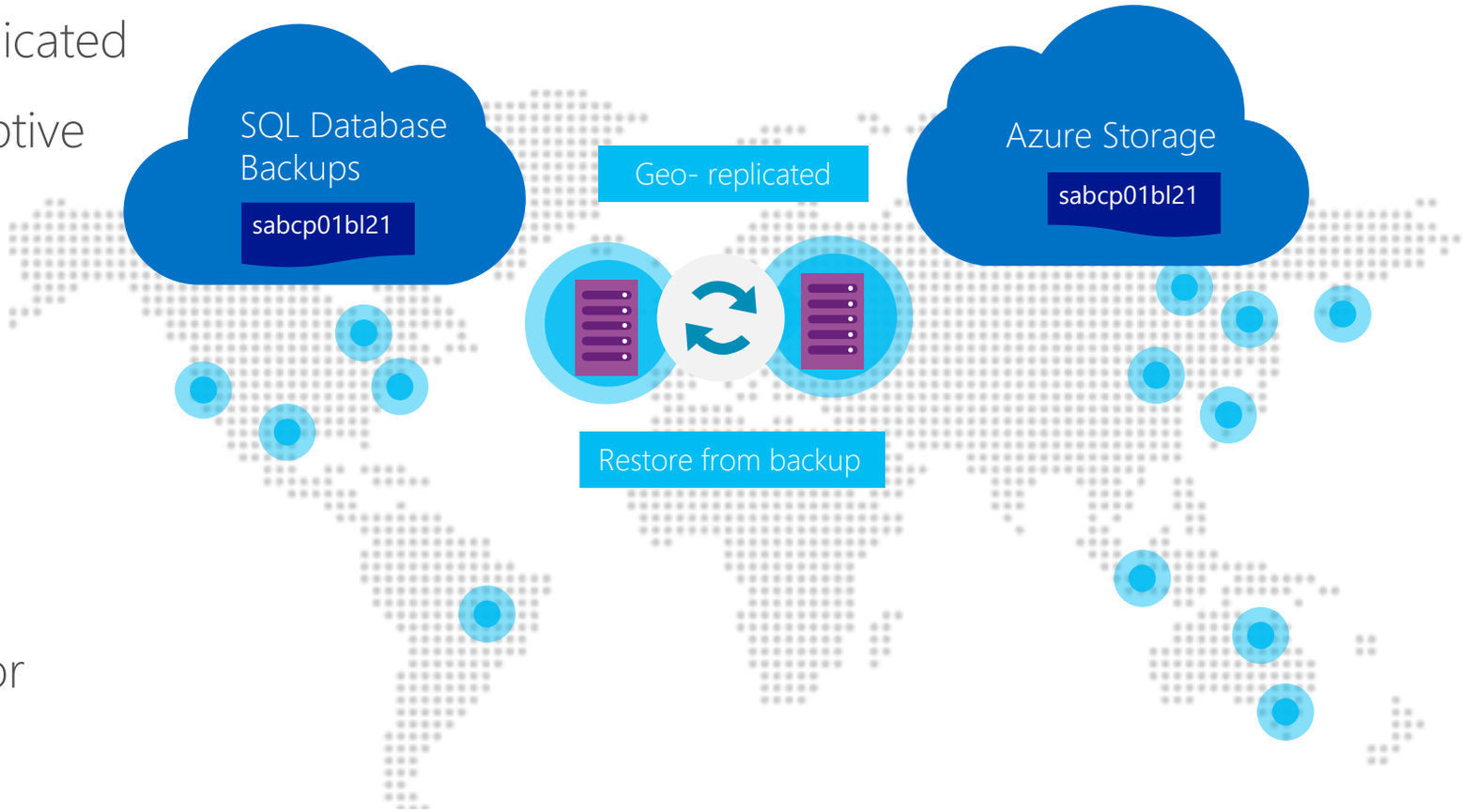
Creates a side-by-side copy, non-disruptive

REST API, PowerShell or Azure Portal

Backups retention policy:

- Basic, up to 7 days
- Standard, up to 14 days
- Premium, up to 35 days

Automated export of logical backups for long-term backup protection

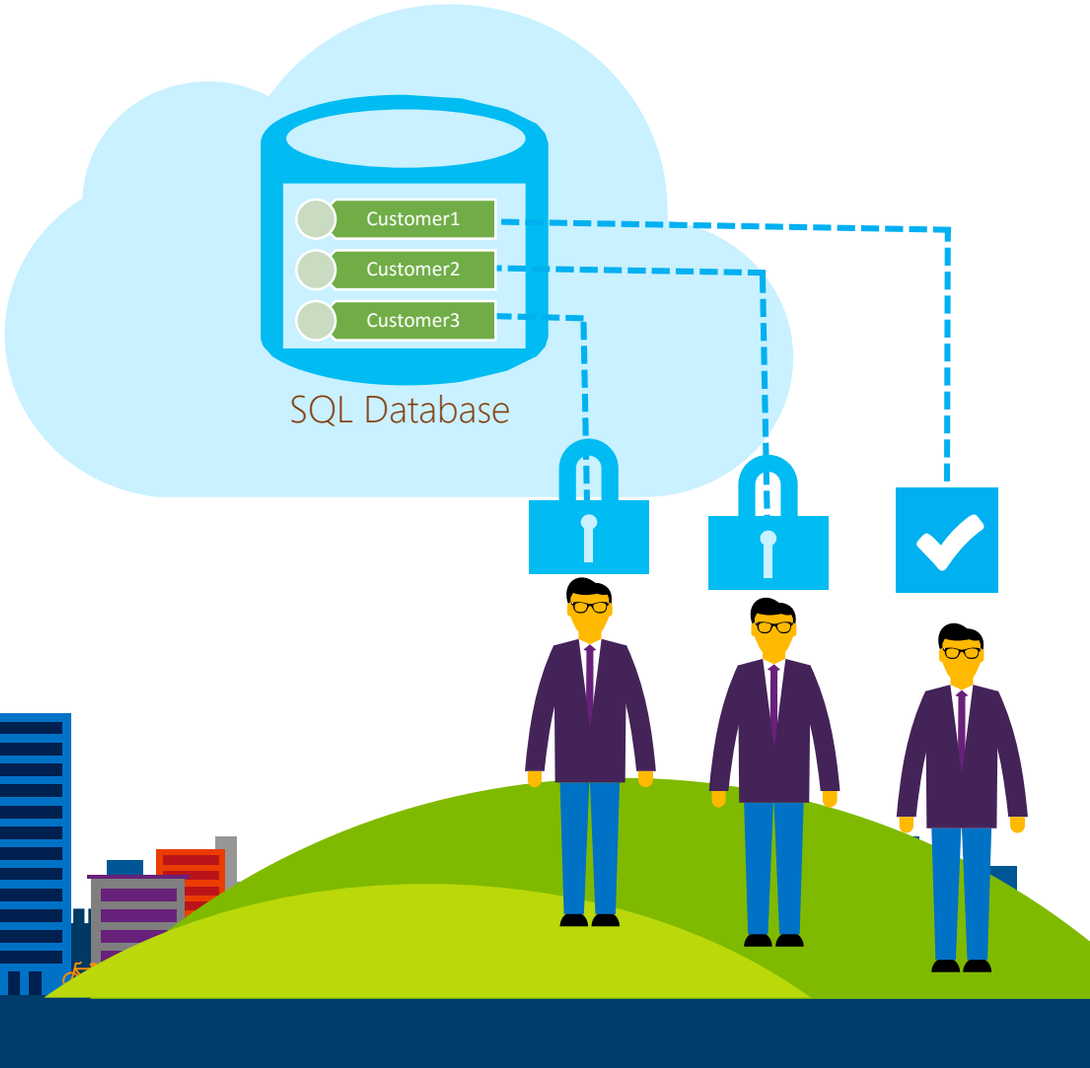


Row-Level Security

Protect data privacy by ensuring the right access across rows

Fine-grained access control over specific rows in a database table

Help prevent unauthorized access when multiple users share the same tables, or to implement connection filtering in multi-tenant applications



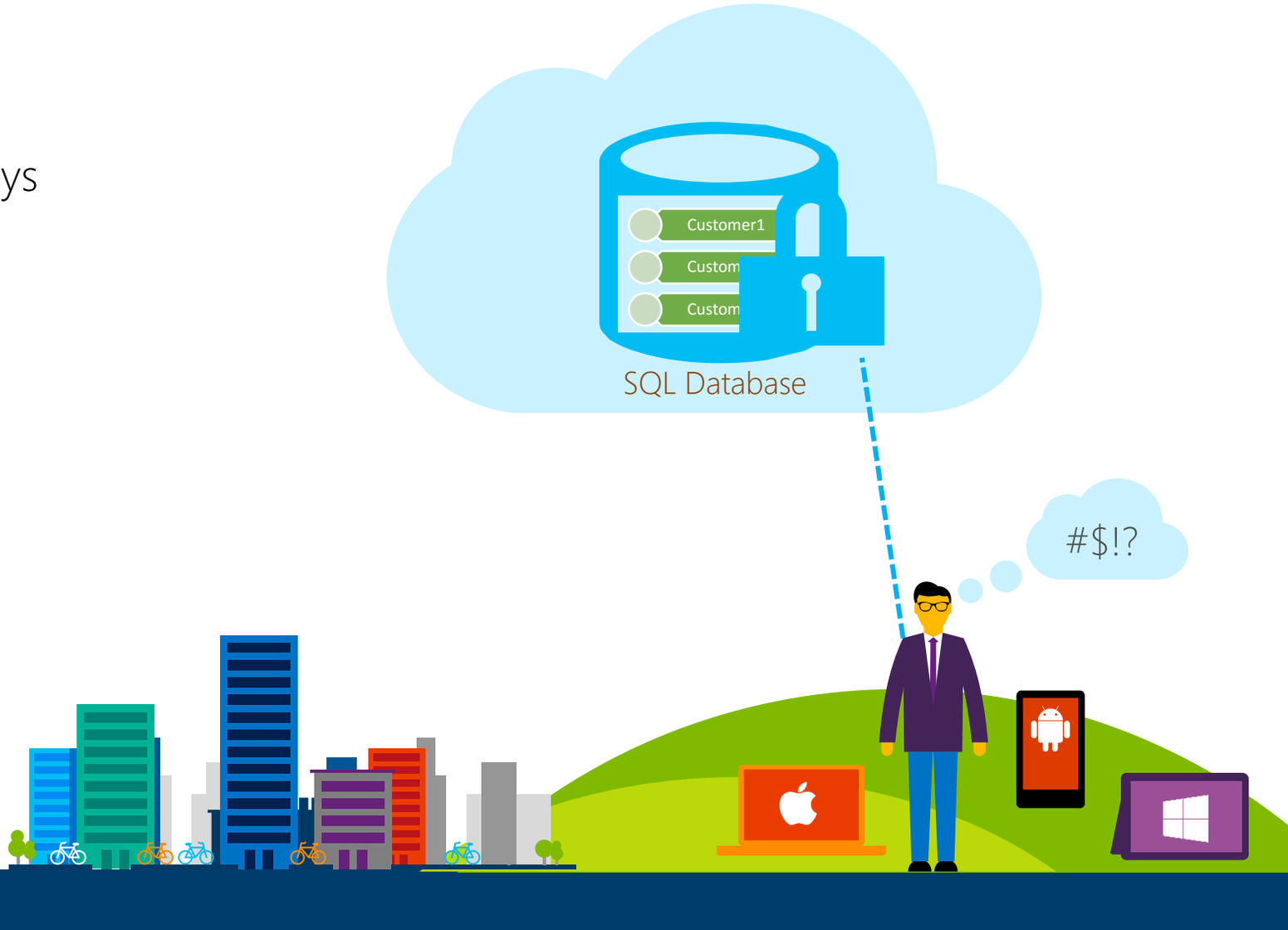
Transparent Data Encryption

Protect sensitive data stored in a SQL database from unauthorized access

Encrypted-at-rest

SQL Database service manages your keys

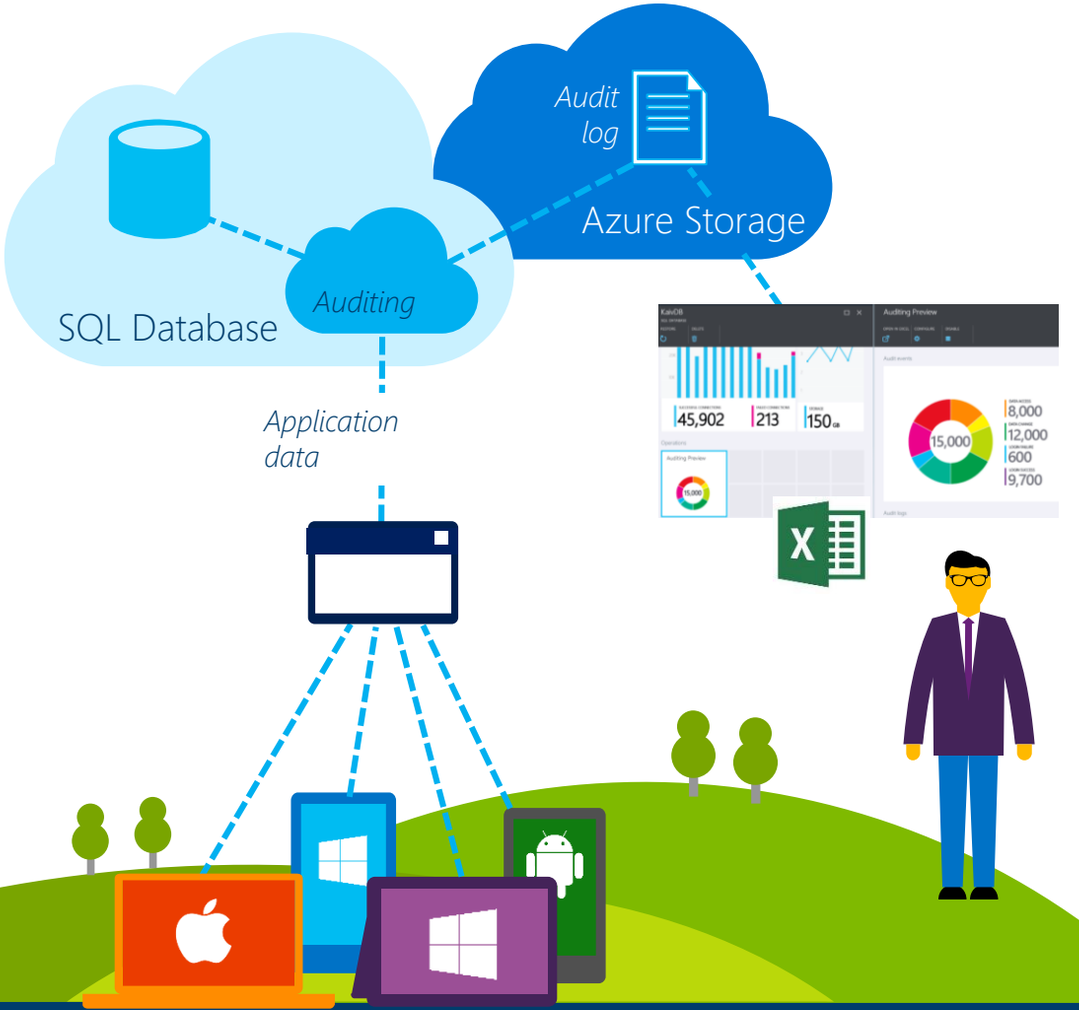
Predictable encryption performance



Auditing

Gain insight into database events & streamline compliance-related tasks

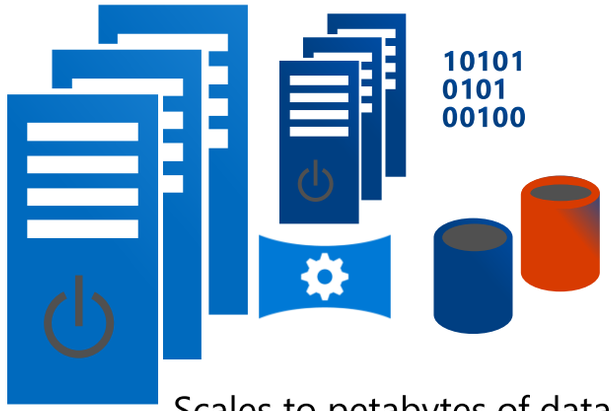
- Configurable to track & log database activity
- Dashboard views in the portal for at-a-glance insights
- Pre-defined Power View reports for deep visual analysis on Audit log data
- Audit logs reside in your Azure Storage account



Introducing Azure SQL DW Service

A relational **data warehouse-as-a-service**, fully managed by Microsoft.
Industries first **elastic** cloud data warehouse with proven SQL Server capabilities.
Support your **smallest to your largest** data storage needs.

Elastic scale & performance



Scales to petabytes of data

Massively Parallel Processing

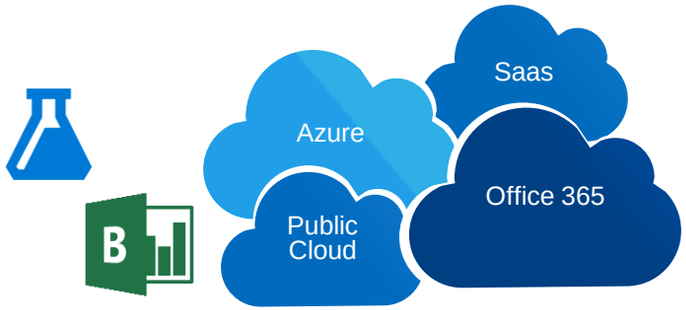
Instant-on compute scales in seconds

Query Relational / Non-Relational

Powered by the Cloud

Get started in minutes

Integrated with Azure ML, PowerBI & ADF



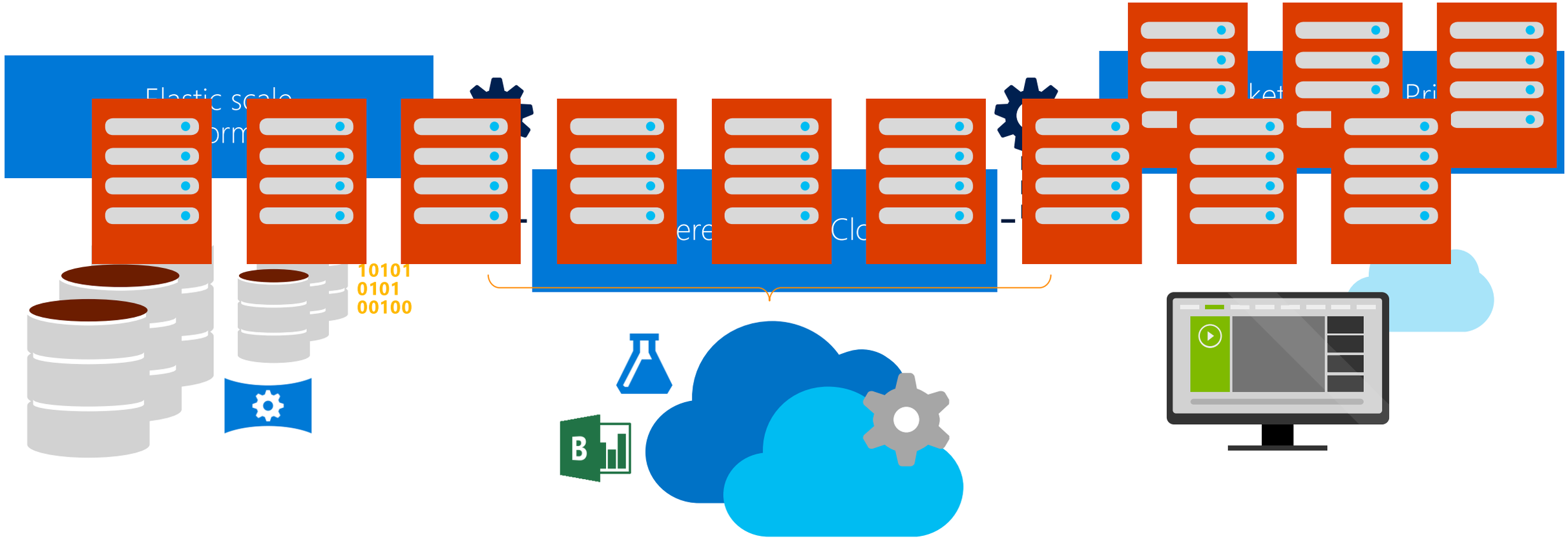
Market Leading Price & Performance

Simple billing compute & storage

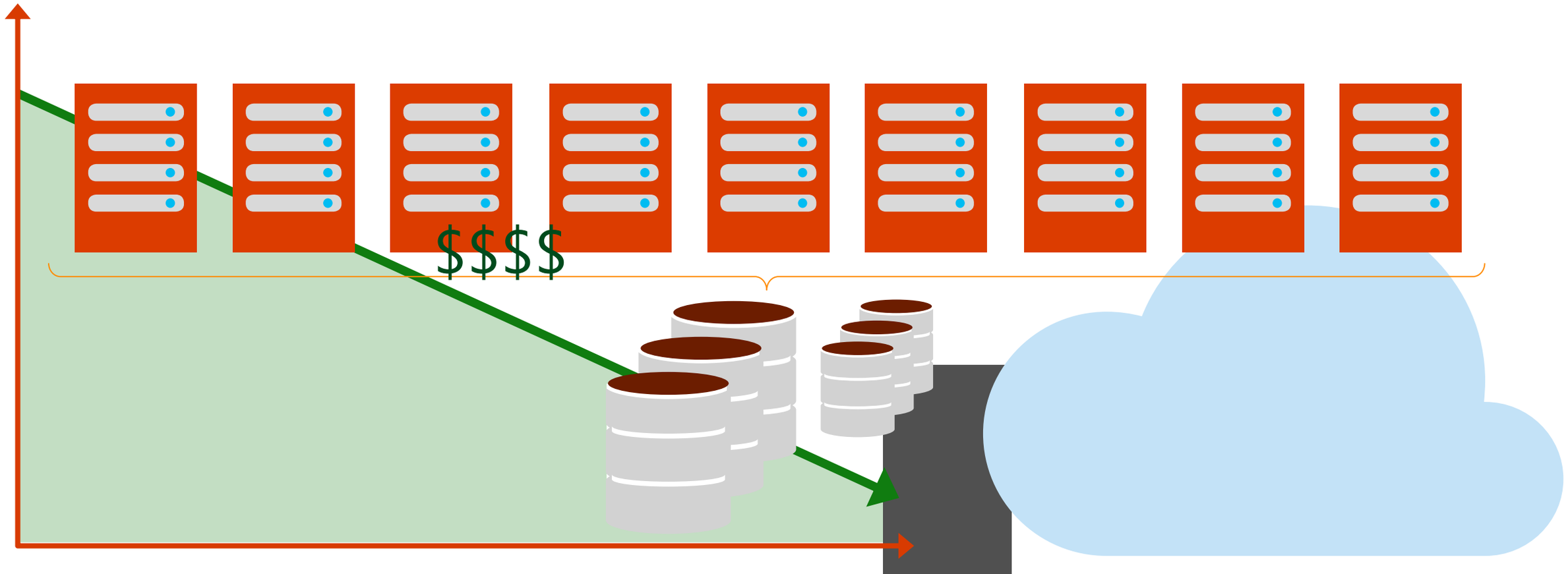
Pay for what you need, when you need it with dynamic pause

Elastic Scale

- Spin up for heavy workloads, cycle down for daily activity
- Buy time to insight based on what you need, when you need it
- Choose the combo of compute and storage that meets your needs

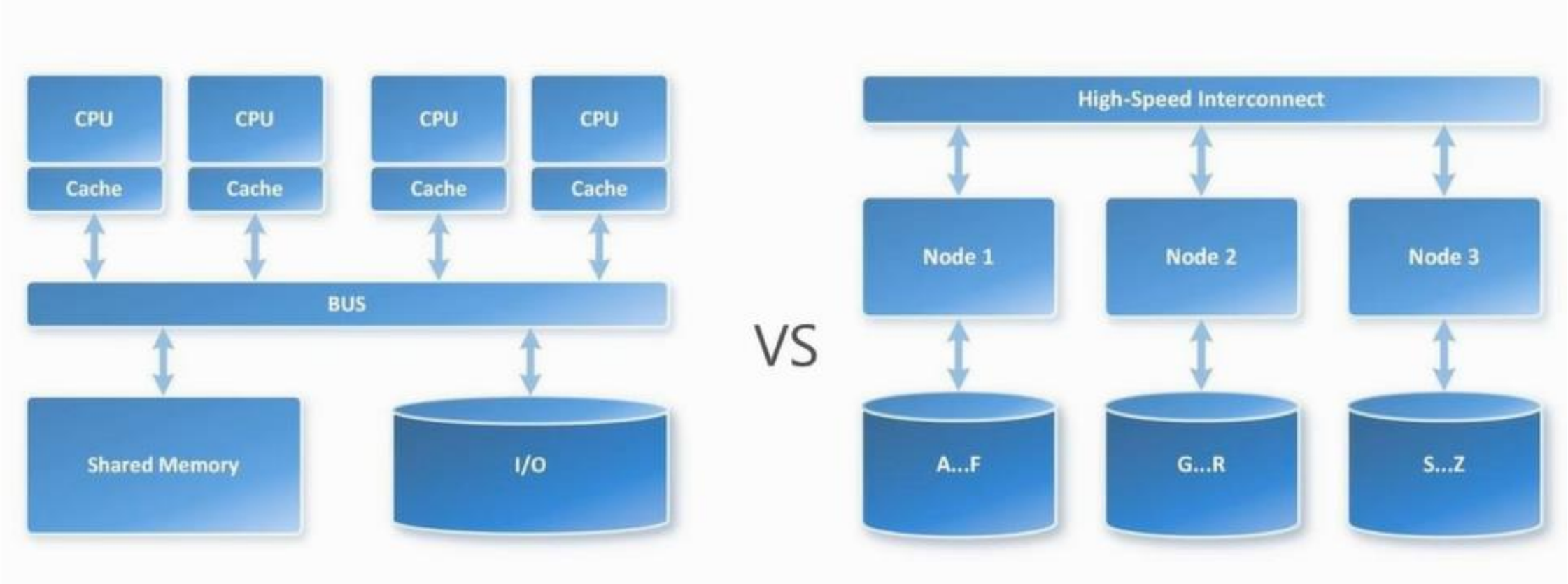


Pause & Restart

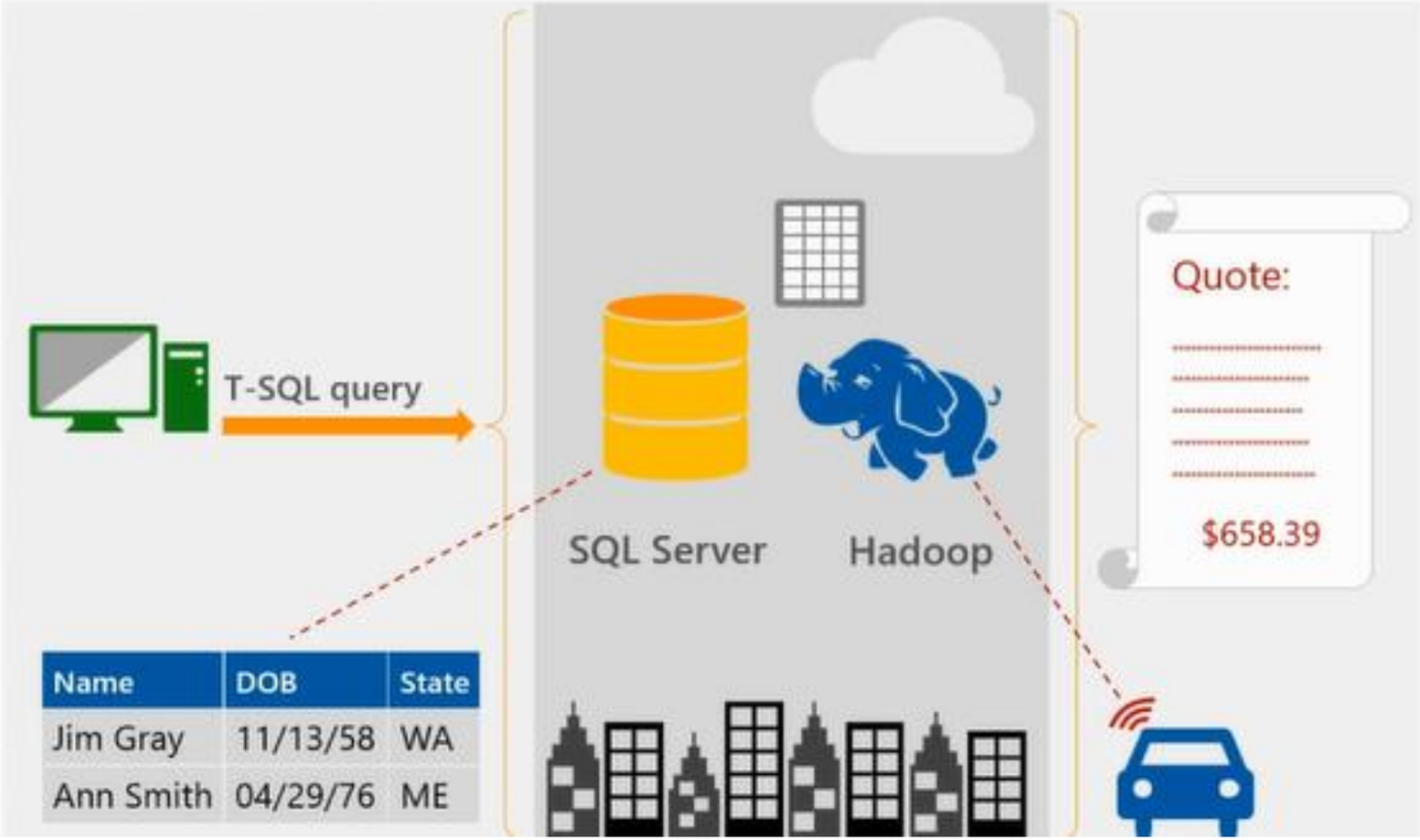


SMP vs MPP

Symmetric Multi-Processing access single shared memory, scale up (classic SQL)
Multi Parallel-Processing, shared nothing (Data warehouse)



Query unstructured data via Polybase/T-SQL



Capability

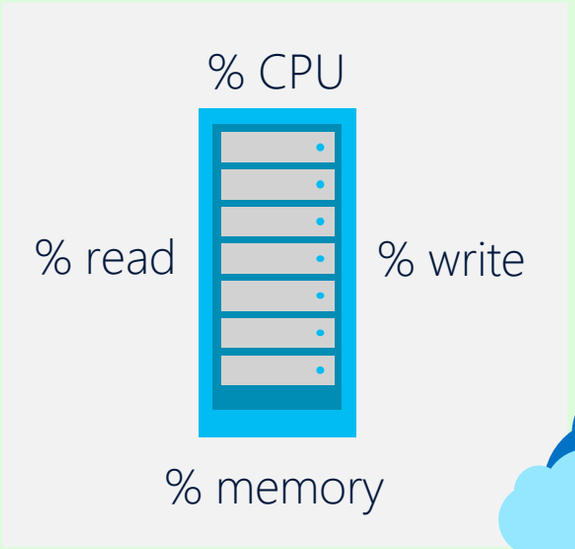
T-SQL for querying relational and non-relational data across SQL Server and Hadoop

Benefits

- New business insights across your data lake
- Leverage existing skillsets and BI tools
- Faster time to insights and simplified ETL process

Data Warehouse Units (DWUs)

Load rate	Number of records that can be loaded into the data warehouse per second
Scan rate	Number of records that can be sequentially retrieved from the data warehouse per second



SQL Data Warehouse introduces Data Warehouse Units (DWUs) as an abstraction of computational resources (CPUs, memory, storage I/O) aggregated across a number of nodes

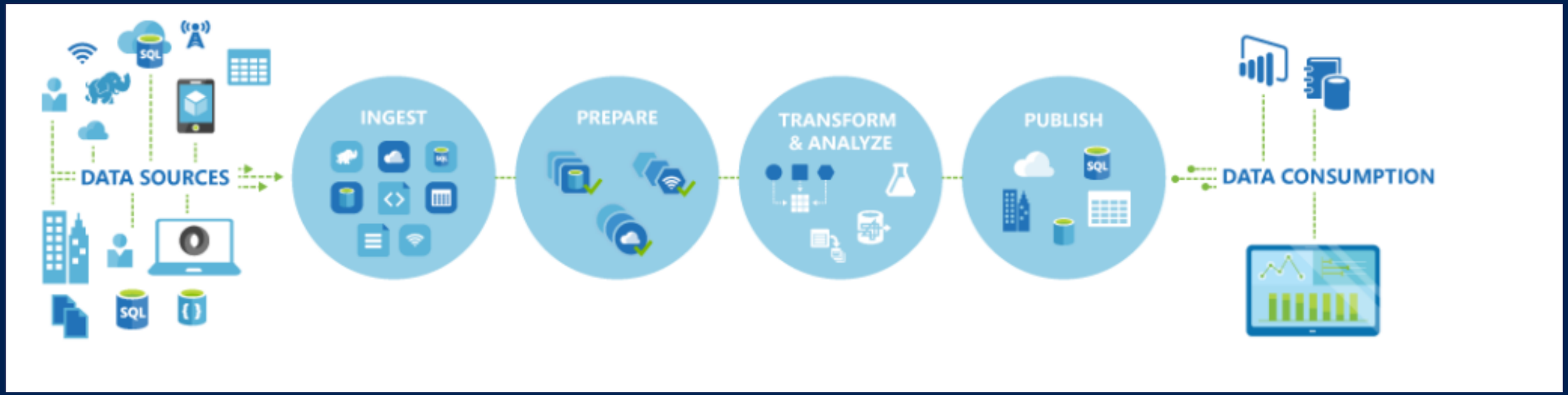
Where does SQL DW fit?

existing services

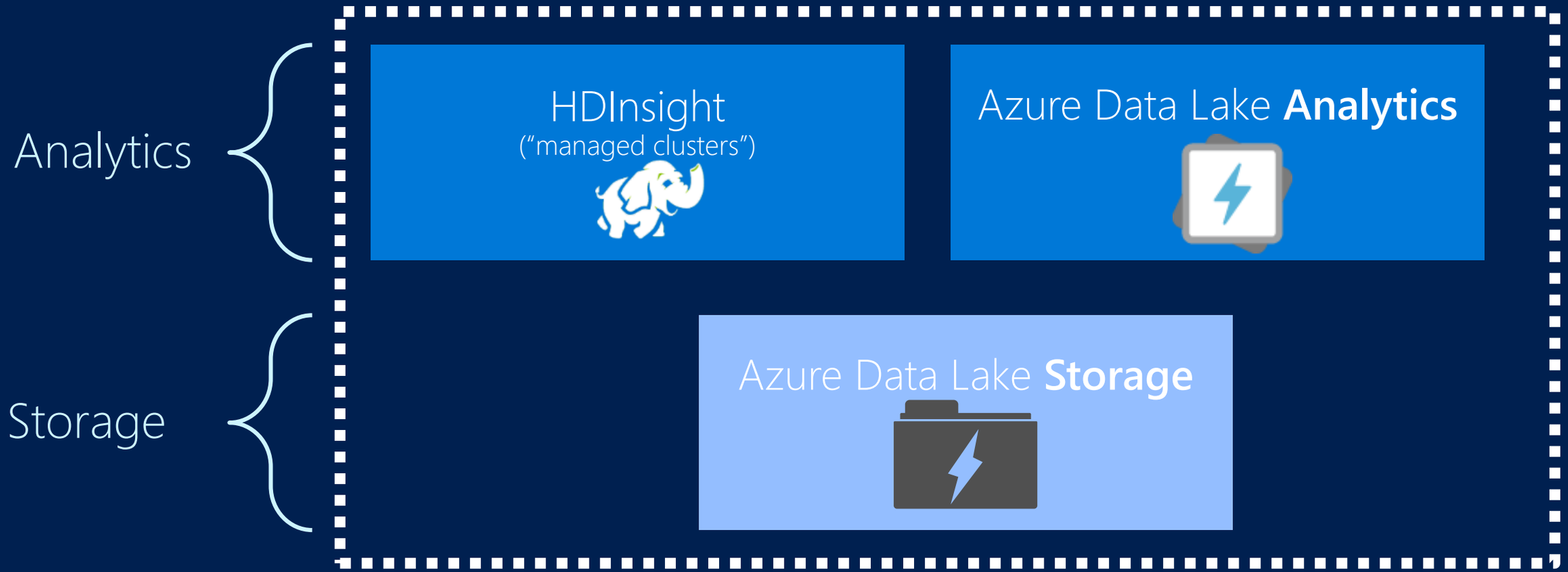
SQL Server VM (Iaas)	Azure SQL Database	Azure SQL Data Warehouse
OLTP / DW workloads	OLTP/ DW workloads	DW workloads only
Lift and Shift	Net new development	Fully managed
Customer managed	Fully managed service	Dynamic compute scaling and pause
1-1TB+	1-500 GB	250GB – PB+

Azure Data Factory

A managed cloud service for building and operating data pipelines

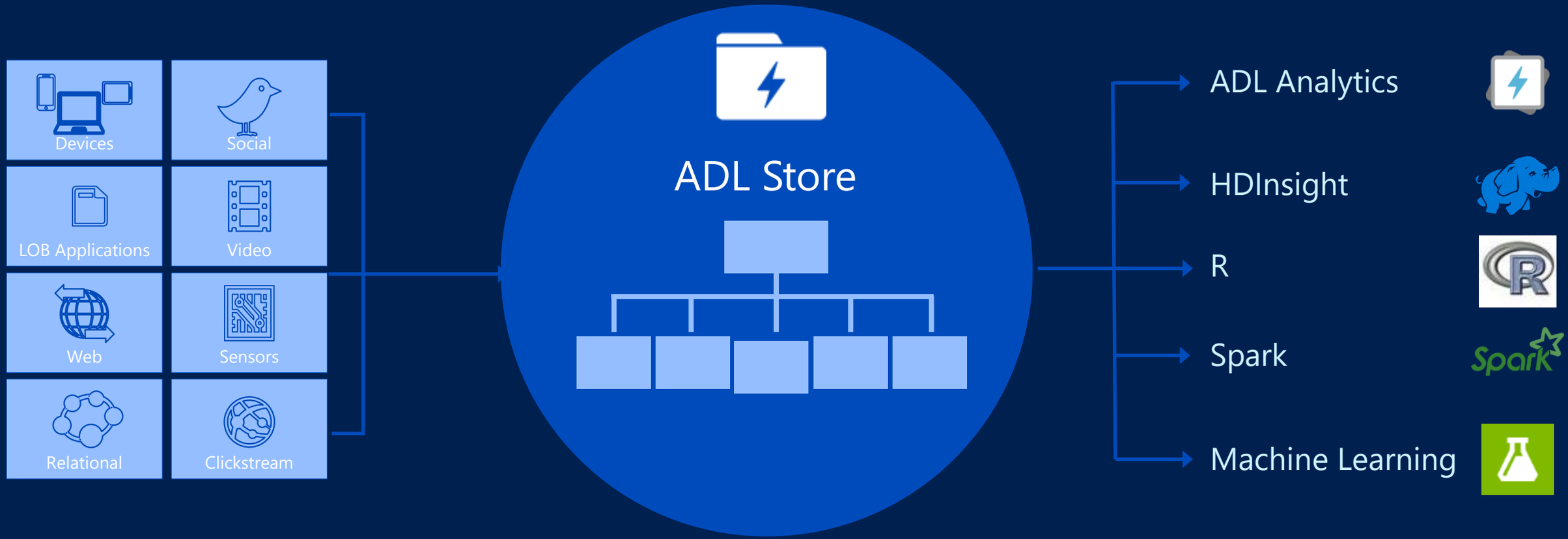


Azure Data Lake



What is Azure Data Lake Store?

A highly scalable, distributed, parallel file system in the cloud specifically designed to work with multiple analytic frameworks

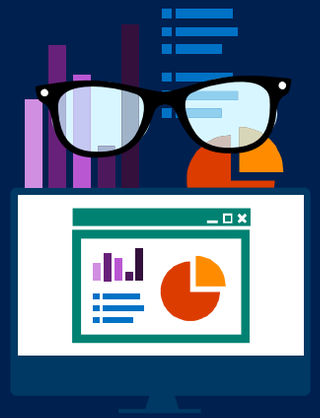


Azure Data Lake Analytics

All data

Productivity from day one

Easy and powerful data preparation



Limitless scale

Enterprise-grade

Azure Data Lake Analytics Service

A new distributed analytics service

- Built on **Apache YARN**
- **Scales dynamically** with the turn of a dial
- **Pay by the query**
- Supports **Azure AD** for access control, roles, and integration with on-prem identity systems
- Built with **U-SQL** to unify the benefits of SQL with the power of C#
- Processes data **across Azure**

Work across all cloud data

Azure Data Lake Analytics

Azure SQL DW

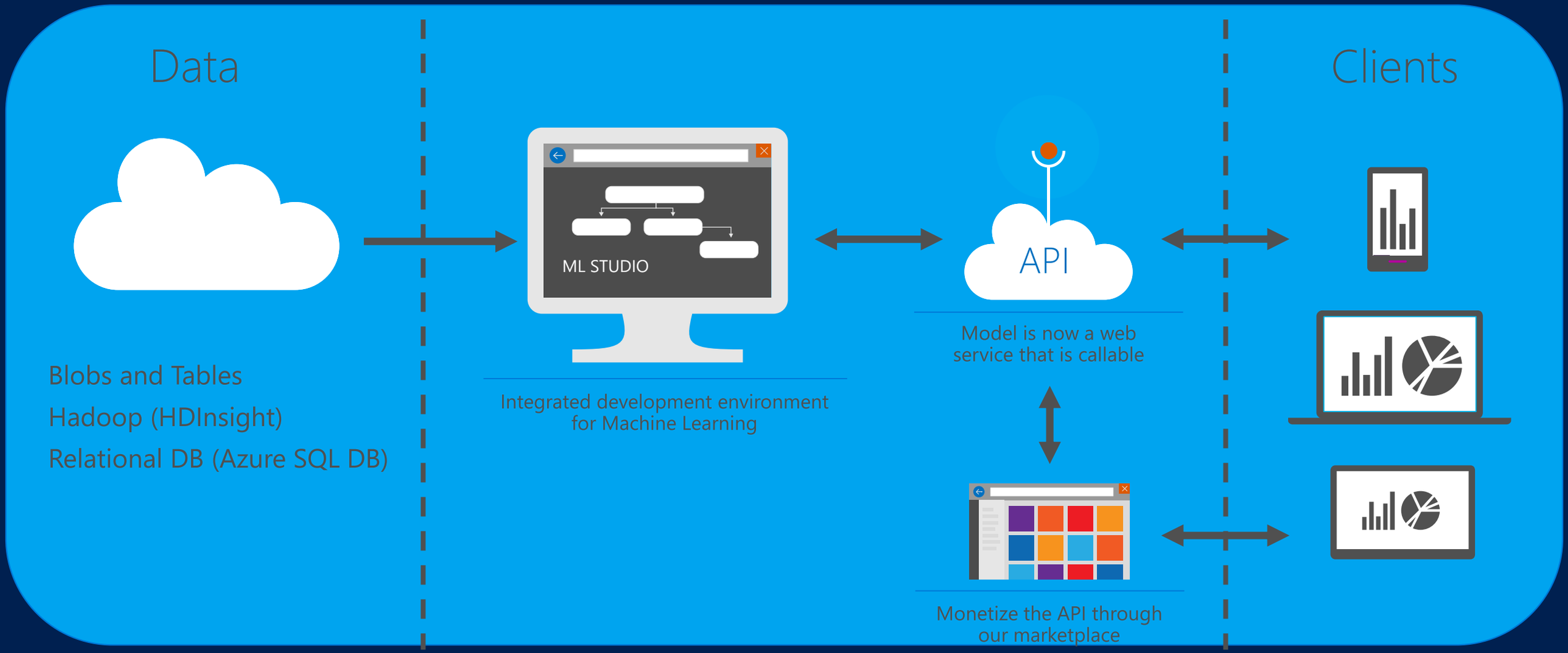
Azure SQL DB

Azure Data Lake Store

Azure Storage Blobs

SQL DB in an Azure VM

Azure Machine Learning



Cortana Analytics Process

Setup Cloud Environment → Load Data → Explore Data, Engineer Features, Sample Data → Build Model → Deploy Model → Consume Model