



# Azure Cosmos DB

NoSQL Strikes Back

An introduction to the dark side of your data

Andre Essing

Technology Solutions Professional

Data Platform



# MODERN APPS FACE NEW CHALLENGES

Managing and syncing data distributed around the globe

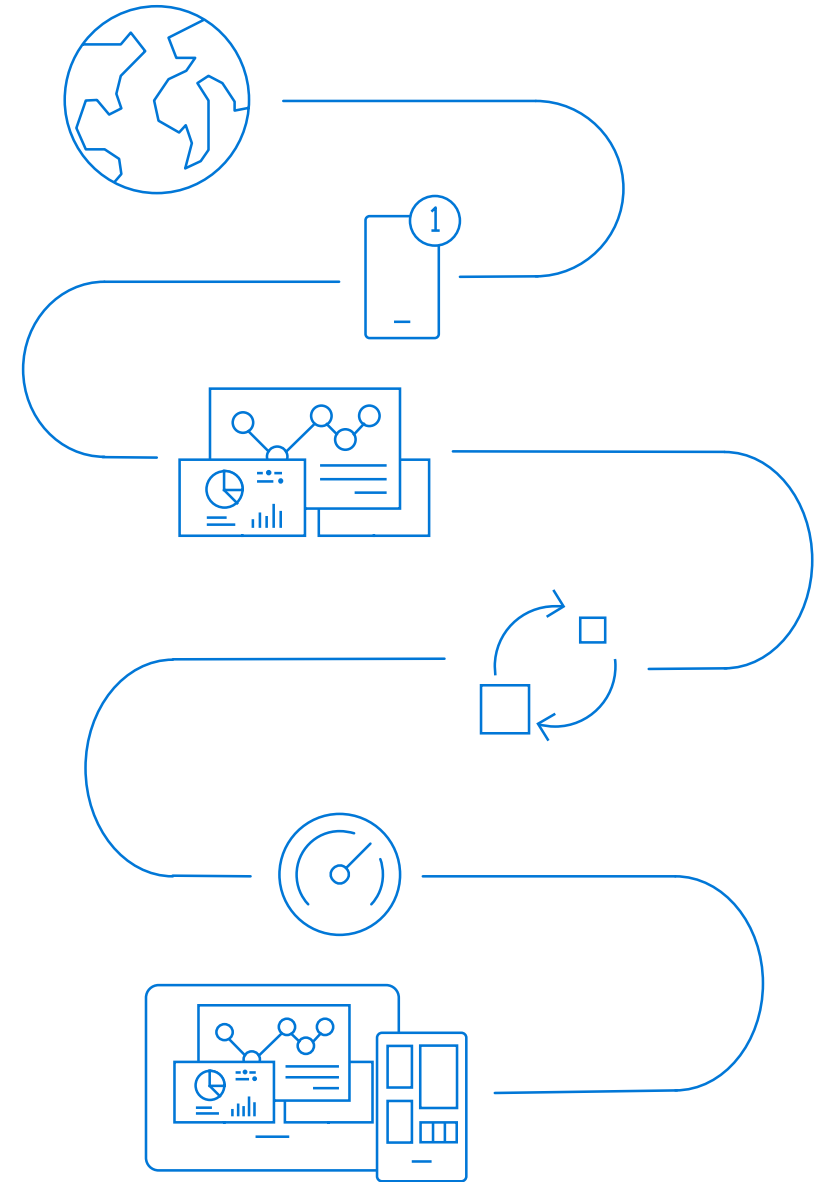
Delivering highly-responsive, real-time personalization

Processing and analyzing large, complex data

Scaling both throughput and storage based on global demand

Offering low-latency to global users

Modernizing existing apps and data





# Andre Essing

## Technology Solutions Professional

### Microsoft Deutschland GmbH

Andre advises customers in topics all around the Microsoft Data Platform. Since version 7.0, Andre gathering experience with the SQL Server product family. Today Andre concentrates on working with data in the cloud, like Modern Data Warehouse architectures, Artificial Intelligence and new scalable database systems like Azure Cosmos DB.

 [andre.essing@microsoft.com](mailto:andre.essing@microsoft.com)

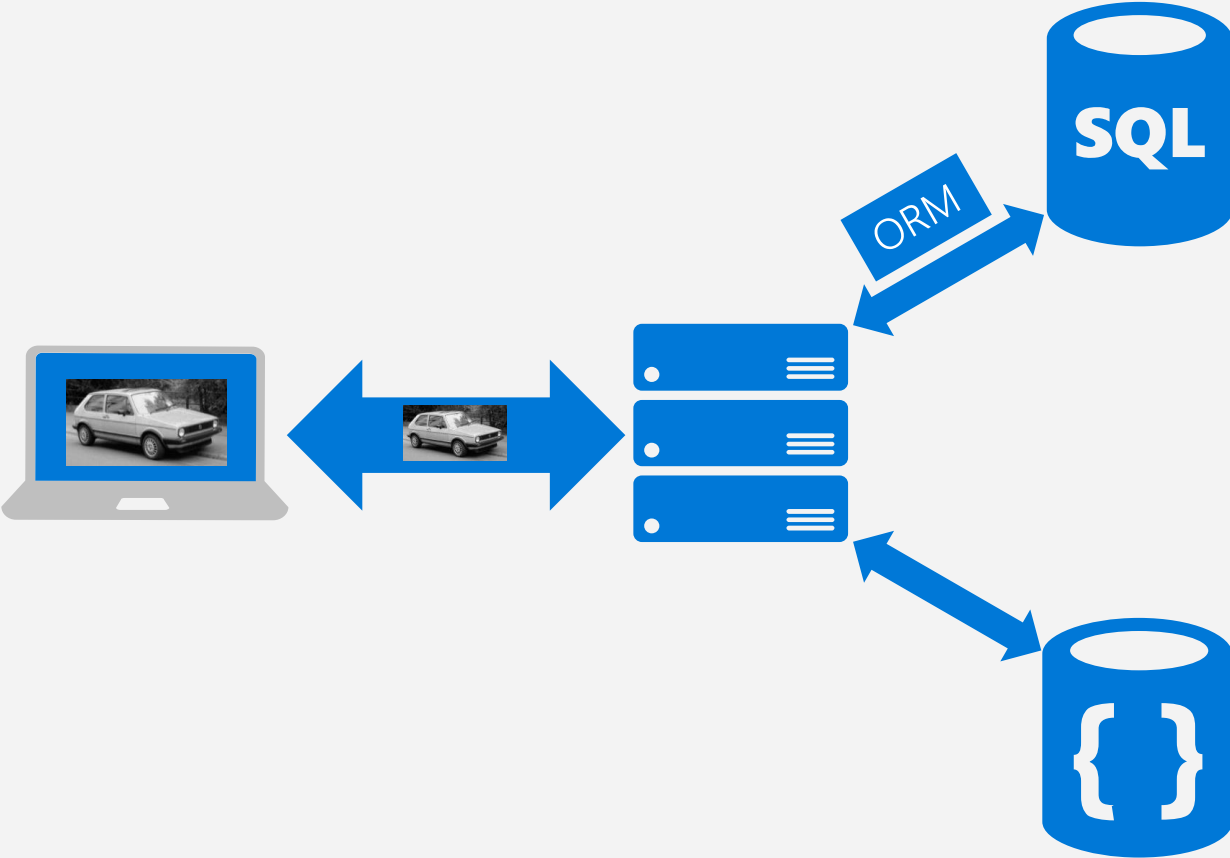
 [andreessing.de](http://andreessing.de)

 [/aessing](https://www.linkedin.com/in/aessing)

 [@aessing](https://twitter.com/aessing)

 [aessing](https://github.com/aessing)

# DIFFERENT WAYS OF STORING DATA WITH YOUR MODERN APP



Data normalization

Come as you are

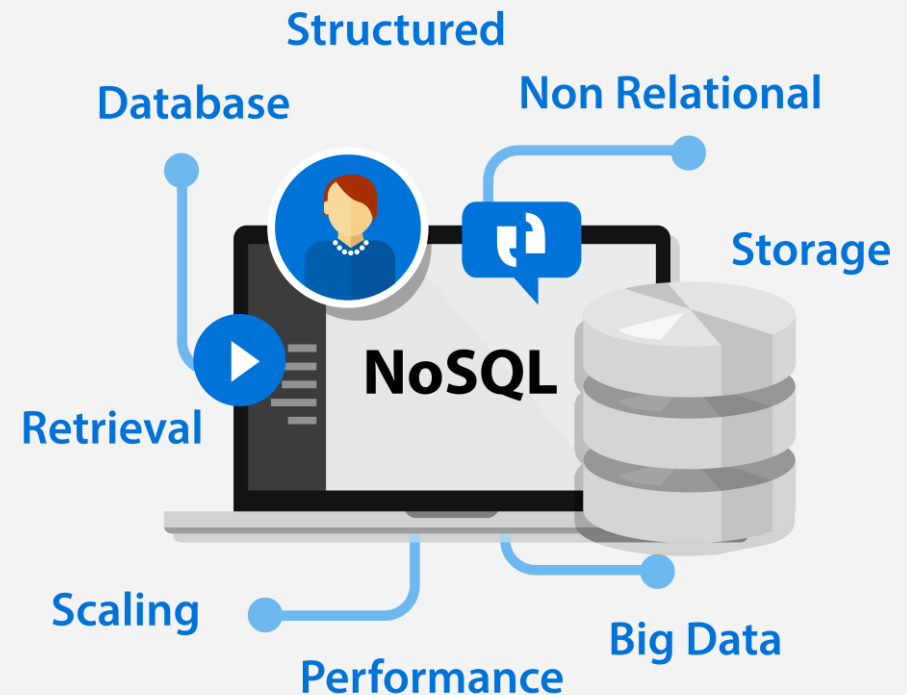


# WHAT IS NOSQL

## NOSQL, BUILT FOR SIMPLE AND FAST APPLICATION DEVELOPMENT

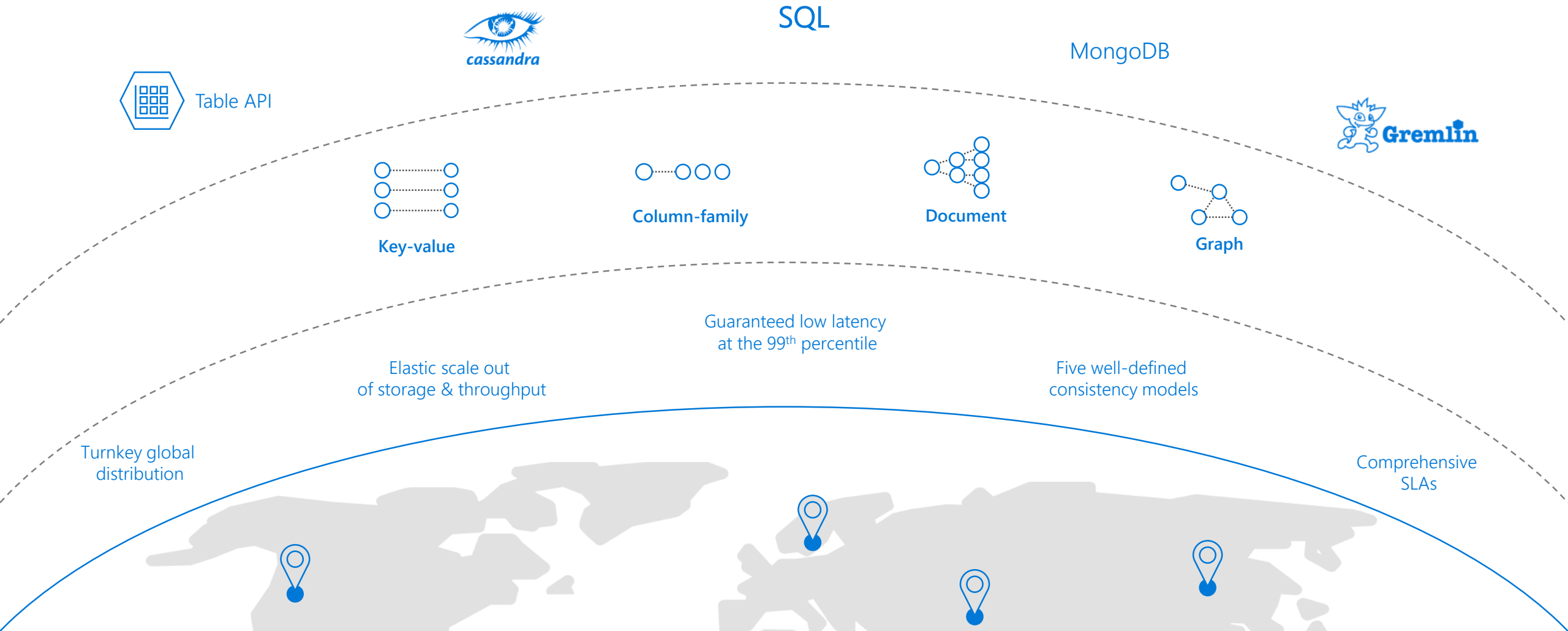
NoSQL, referring most times to “Non-SQL”, “Not Only SQL” or also “non-relational” is a kind of database where the data is modeled differently to relational systems.

- Different kinds available
  - Document
  - Key/Value
  - Columnar
  - Graph
  - etc.
- Non-Relational
- Schema agnostic
- Built for scale and performance
- Different consistency model



# AZURE COSMOS DB

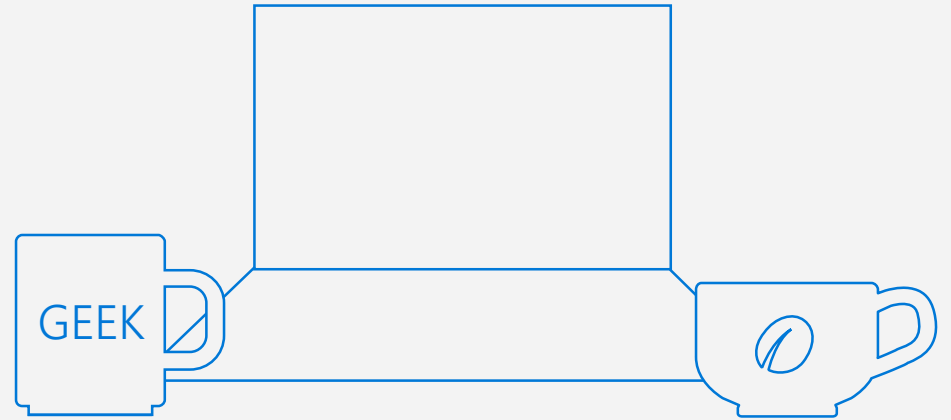
A globally distributed, massively scalable, multi-model database service



# HANDLE ANY DATA WITH NO SCHEMA OR INDEXING REQUIRED

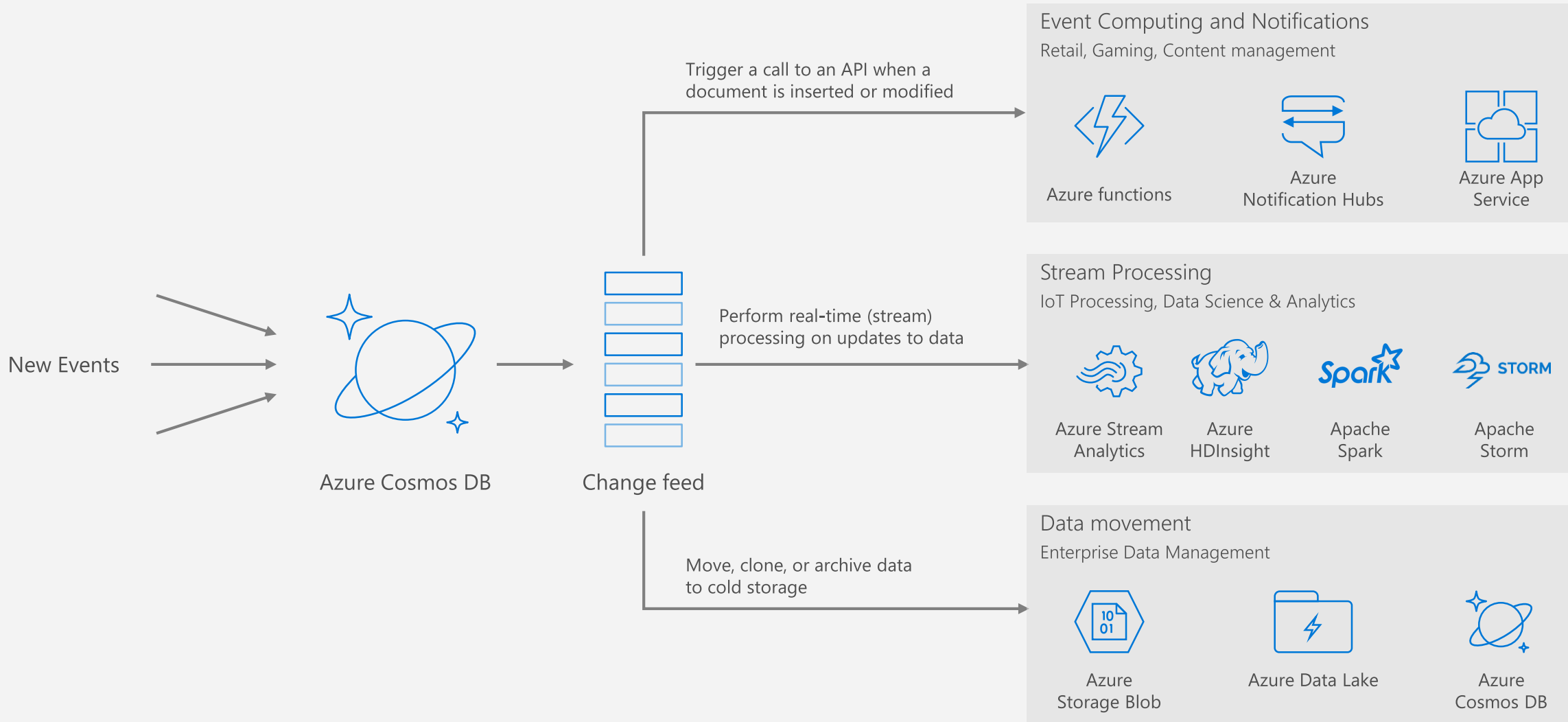
Azure Cosmos DB's schema-less service automatically indexes all your data, regardless of the data model, to delivery blazing fast queries.

- Automatic index management
- Synchronous auto-indexing
- No schemas or secondary indices needed
- Works across every data model



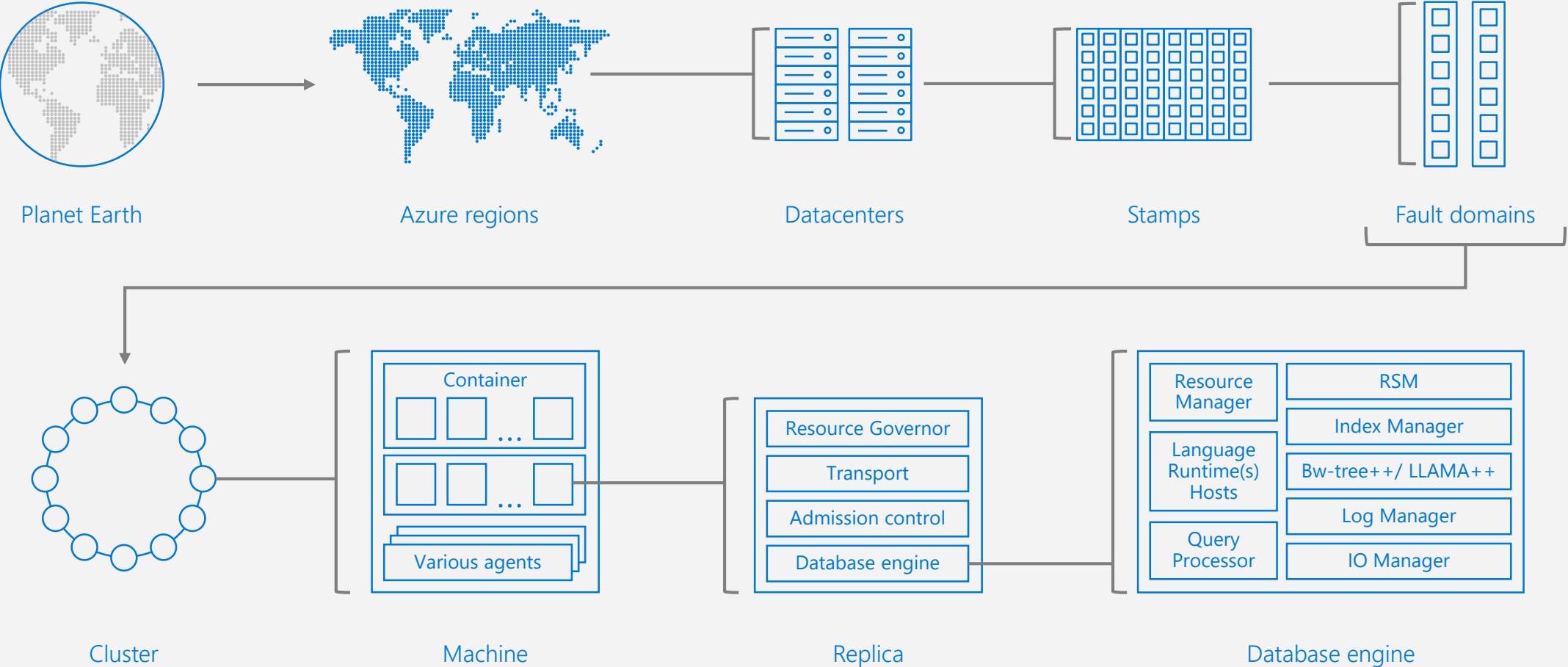
Item	Color	Microwave safe	Liquid capacity	CPU	Memory	Storage
Geek mug	Graphite	Yes	16oz	???	???	???
Coffee Bean mug	Tan	No	12oz	???	???	???
Surface book	Gray	???	???	3.4 GHz Intel Skylake Core i7-6600U	16GB	1 TB SSD

# CHANGE FEED SCENARIOS





# SYSTEM TOPOLOGY (BEHIND THE SCENES)



# AZURE COSMOS DB

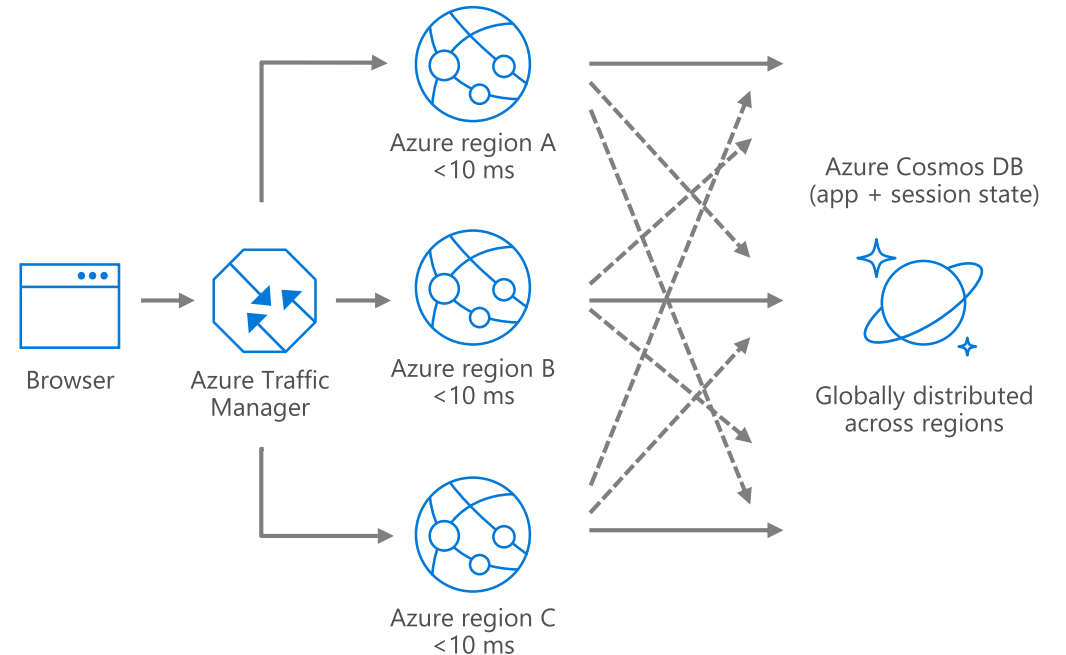
A FULLY-MANAGED GLOBALLY DISTRIBUTED DATABASE SERVICE BUILT TO GUARANTEE  
EXTREMELY LOW LATENCY AND MASSIVE SCALE FOR MODERN APPS



# DATA DISTRIBUTED AND AVAILABLE GLOBALLY

Put your data where your users are to give real-time access and uninterrupted service to customers anywhere in the world.

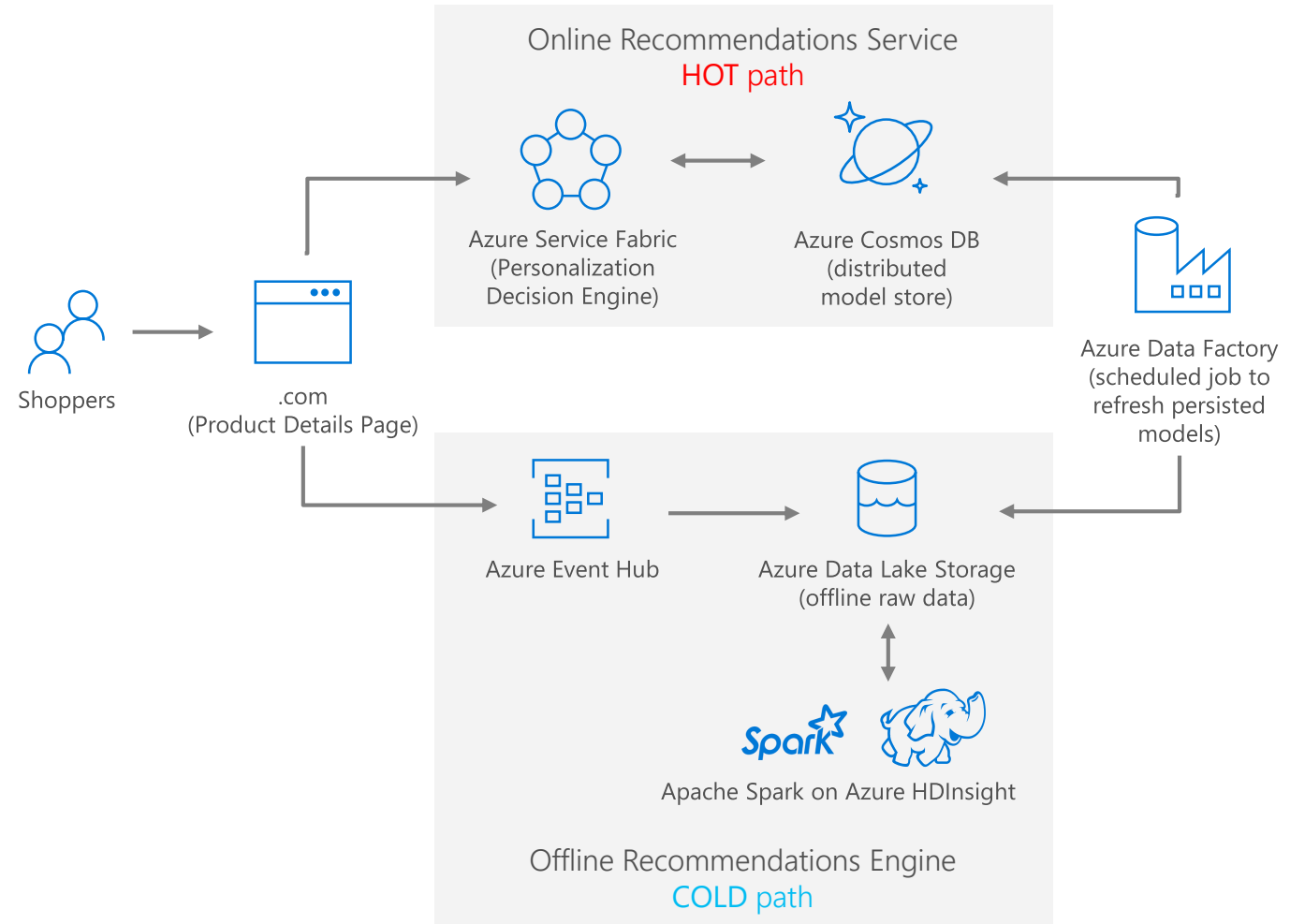
- Turnkey global data replication across all Azure regions
- Guaranteed low-latency experience for global users
- Resiliency for high availability and disaster recovery



# BUILD REAL-TIME CUSTOMER EXPERIENCES

Offer latency-sensitive applications with personalization, bidding, and fraud-detection.

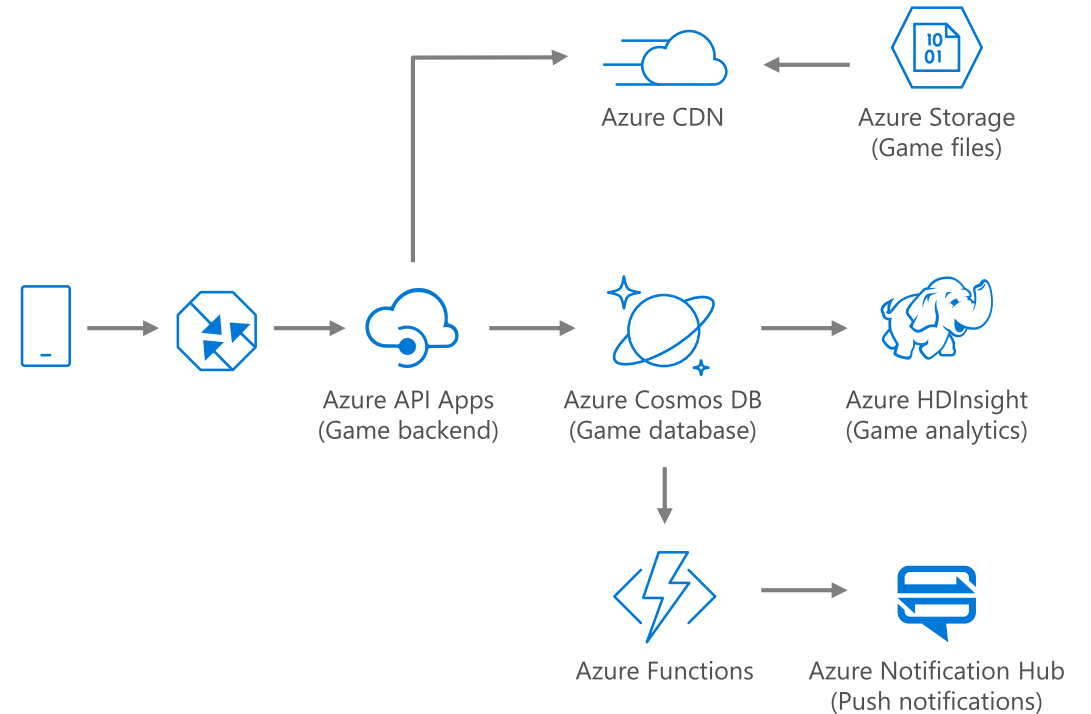
- Machine learning models generate real-time recommendations across product catalogues
- Product analysis in milliseconds
- Low-latency ensures high app performance worldwide
- Tunable consistency models for rapid insight



# IDEAL FOR GAMING AND ECOMMERCE

Maintain service quality during high-traffic periods requiring massive scale and performance.

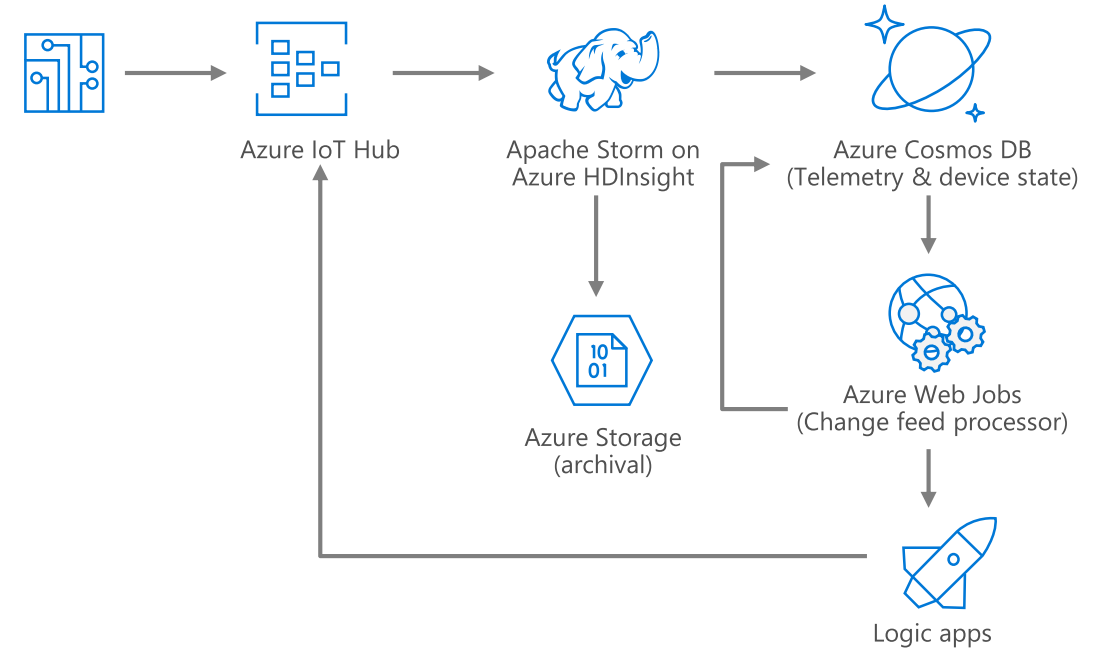
- Instant, elastic scaling handles traffic bursts
- Uninterrupted global user experience
- Low-latency data access and processing for large and changing user bases
- High availability across multiple data centers



# MASSIVE SCALE TELEMETRY STORES FOR IOT

Diverse and unpredictable IoT sensor workloads require a responsive data platform

- Seamless handling of any data output or volume
- Data made available immediately, and indexed automatically
- High writes per second, with stable ingestion and query performance



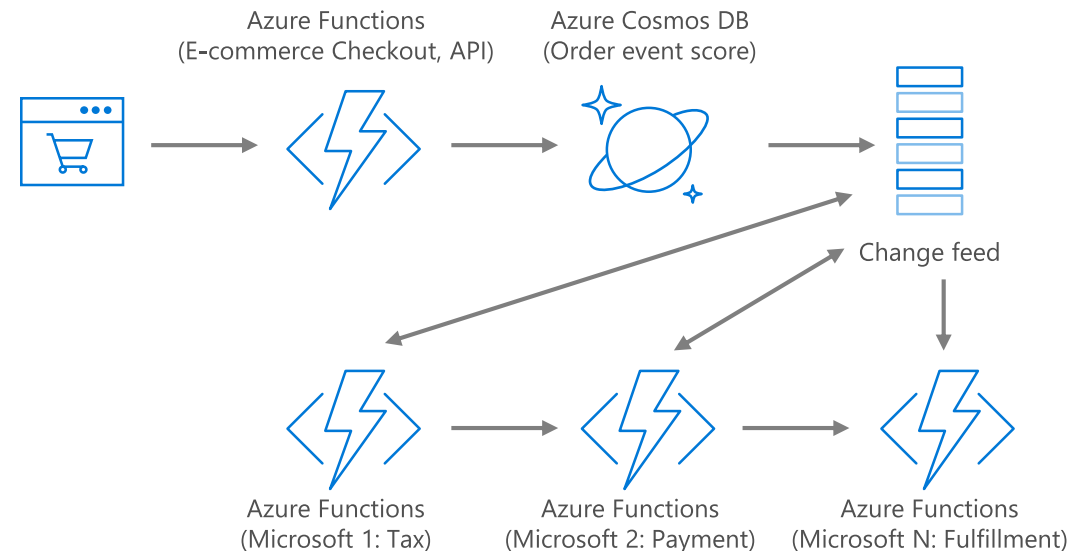
**Honeywell**



# SIMPLIFIED DEVELOPMENT WITH SERVERLESS ARCHITECTURE

Experience decreased time-to-market, enhanced scalability, and freedom from framework management with event-driven micro-services.

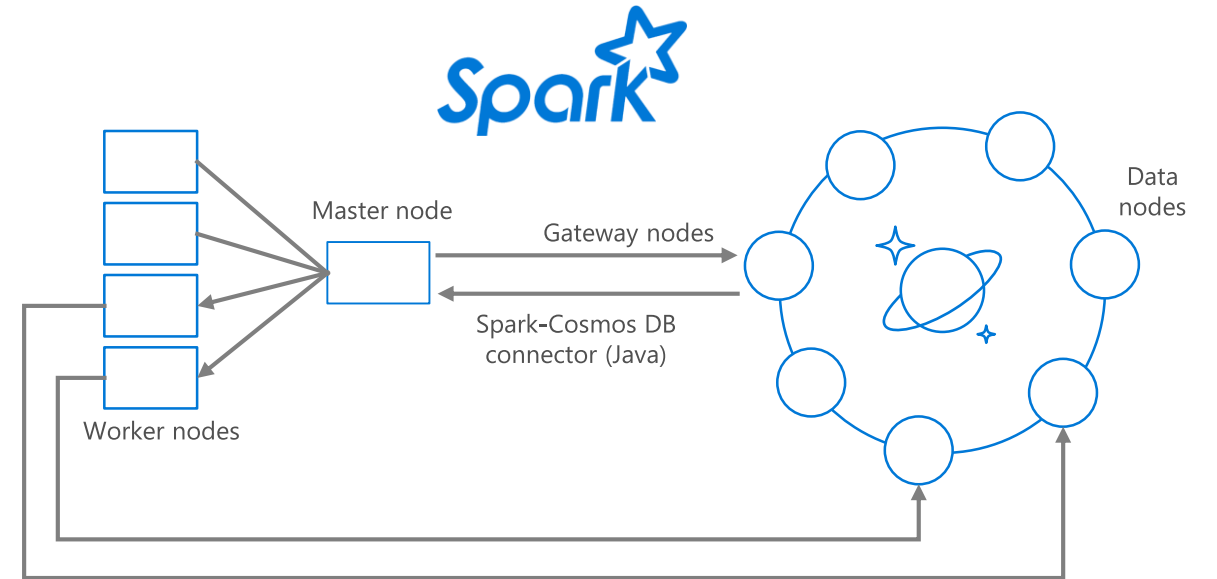
- Seamless handling of any data output or volume
- Data made available immediately, and indexed automatically
- High writes per second, with stable ingestion and query performance
- Real-time, resilient change feeds logged forever and always accessible
- Native integration with Azure Functions



# RUN SPARK OVER OPERATIONAL DATA

Accelerate analysis of fast-changing, high-volume, global data.

- Real-time big data processing across any data model
- Machine learning at scale over globally-distributed data
- Speeds analytical queries with automatic indexing and push-down predicate filtering
- Native integration with Spark Connector





DEMO

Lets have a look at it

