
Put your details above.

Each slide contains example script in the notes. Once confident with the content, you can use the headings in the notes as cues to ad-lib the content in your own words.

# Corporate Overview – ValueMomentum Software Services

- Software & Services Firm
- **Financial Services & Insurance focused**
- Established in 2000 with HQ in NJ, USA
- 150+ dedicated R&D team
- Executive Leadership and Practice Heads based in the US
- Offshore centers are SSAE 16 SOC 2 certified. Clean Rooms for several clients offshore

**23%**
Compound Annual Growth Rate since 2000

**4**
Analysts covering ValueMomentum Software & Services

**>65**
Clients Served in North America

**1,850+**
Global employee strength

**Top 15**
IT Services Vendor for North American P&C Carriers by # of customers*

**14**
>5 Year Customer Relationships Average ~8 years

**BUSINESS FOCUS**

- Banking & Lending
- Capital Markets

- Property & Casualty
- Healthcare
- Life & Annuities

2


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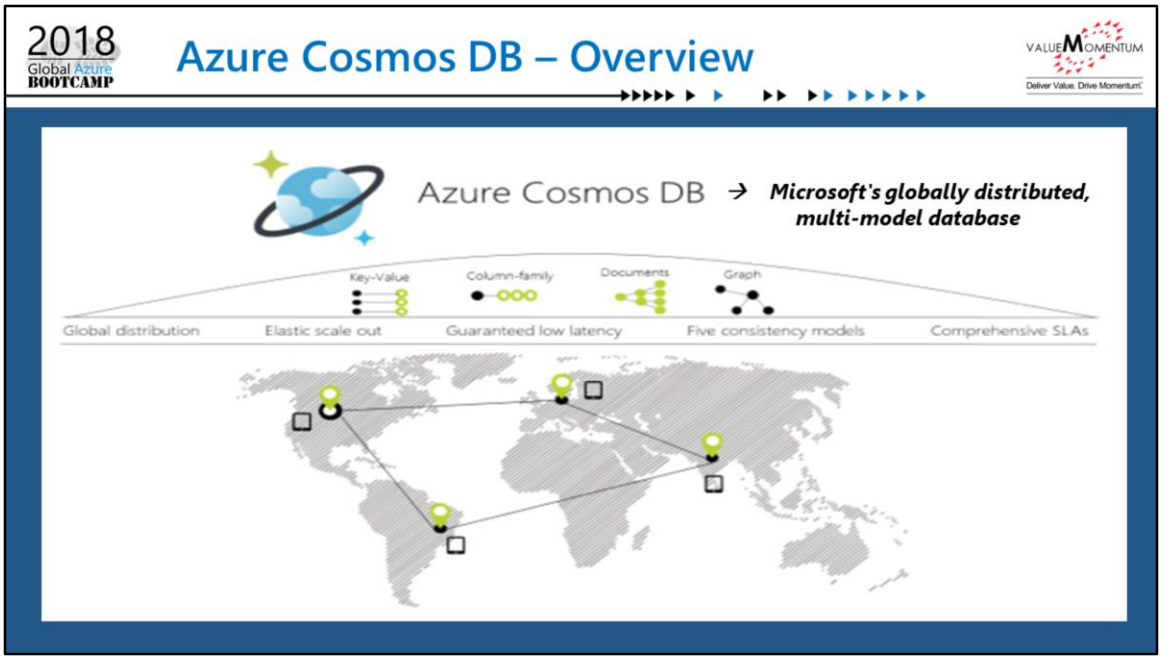
Agenda
Overview
Key Capabilities
Use-Cases
Existing Customers
Demo




We will go through each of the terms that you see on this slide in detail in this session. To set the context let us first understand the statement - globally distributed, multi model database. This statement is instrumental and foundational to this session on Cosmos DB. The words Globally Distributed implies Cosmos DB means →with the click of a button, to elastically and independently scale throughput and storage across any number of Azure's geographic regions and the term multi model database signifies using multiple databases in combination as per the need.
**Response Time** – Amount of time system takes to process a request after it has received one. For instance you have API and you want to find how much time that API takes to execute once invoked

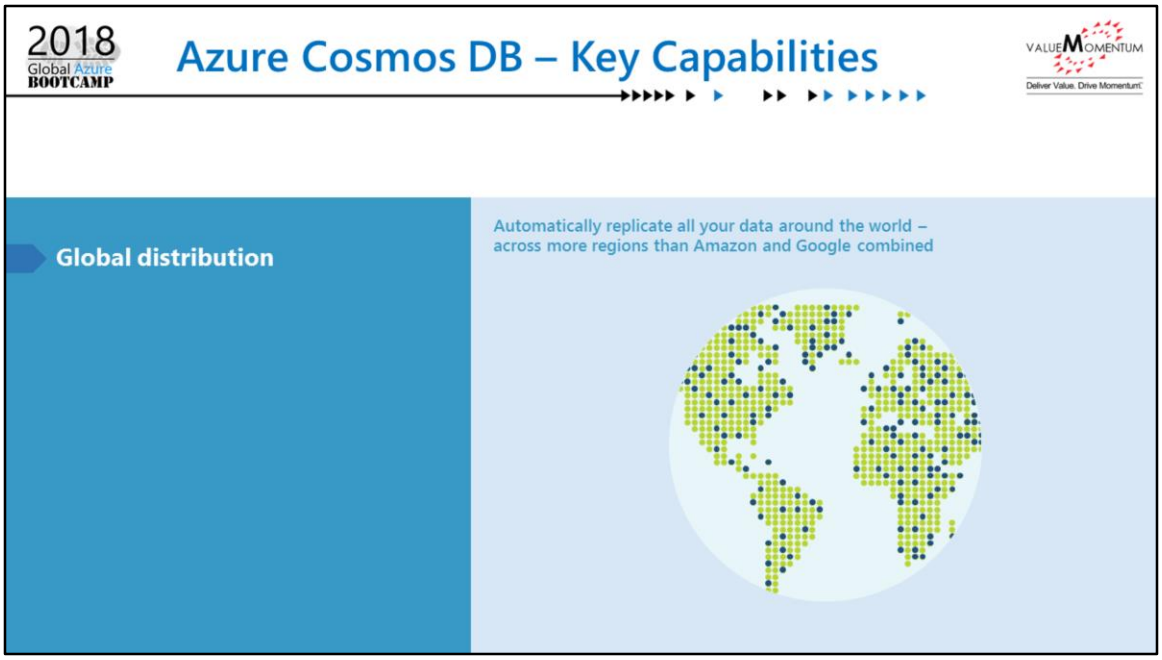
**Latency** – In simplest terms this is Remote Response time. For instance, you want to invoke a web service or access a web page. Apart from the processing time that is needed on the server to process your request, there is a **delay involved for your request to reach to server**. While referring to Latency, it's that delay we are talking about. This becomes a big issue for a remote data center which is hosting your service/page. Imagine your data center in US, and accessing it from India. If ignored, latency can trigger your SLA's.

**Throughput** – transactions per second your application can handle

**Scalability** – is the measure of how your system responds when additional hardware is added

**High Availability –** High availability refers to systems that are durable and likely to operate continuously without failure for a long time.

**Consistency -** Consistency, in the context of databases, states that data cannot be written that would violate the database's own rules for valid data.
The *consistency* property of a database means that once data is written to a database successfully, queries that follow are able to access the data and get a consistent view of the data. In practice, this means that if you write a record to a database and then immediately request that record, you're guaranteed to see it. It's particularly useful for things like Amazon orders and bank transfers.




Azure Cosmos DB can help you distribute your data to any number of Azure regions, with the click of a button. Once you login into the account, you will have an option to choose the regions to which the data can be distributed. This enables us to put the data where the users are, ensuring the lowest possible latency to the customers.

Then the question comes if there are multiple servers that are available in the region, how does Cosmos DB handle?

Azure Cosmos DB's has multi-homing APIs so the app always knows where the nearest region is and sends requests to the nearest data center. All of this is possible with no config changes. One can set their write-region and as many read-regions as one wants, and the rest is handled.

Then the question comes about → whether it needs to be deployed each time there is a change?

As One adds and remove regions to the Azure Cosmos DB database, the application does not need to be redeployed and continues to be highly available thanks to its multi-homing API capability.

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# Azure Cosmos DB – Key Capabilities

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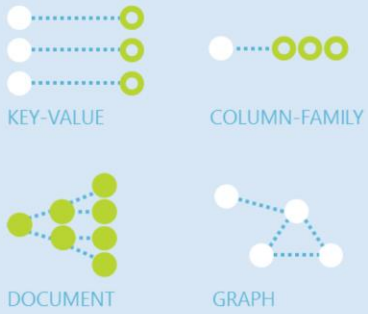
Global distribution

**Multi-model + multi API**



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# Azure Cosmos DB – Components

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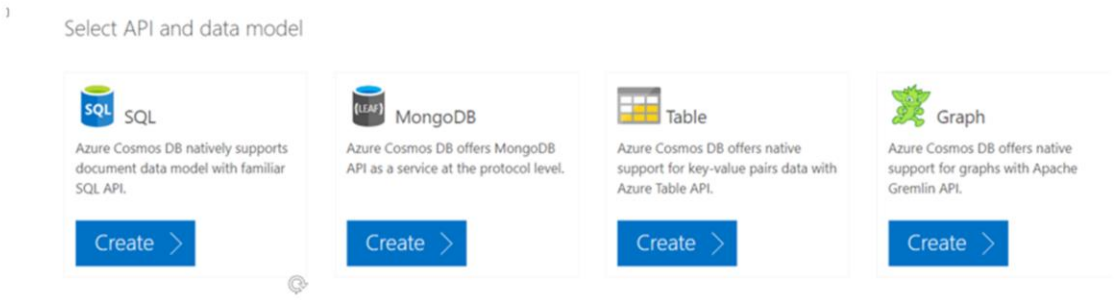


Reference: https://azure.microsoft.com/en-us/try/cosmosdb/

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# Azure Cosmos DB – Components

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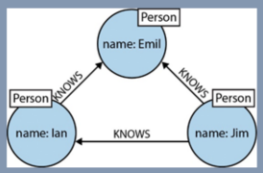
## Key Value Store – Azure Table

Example : Key-Value Store

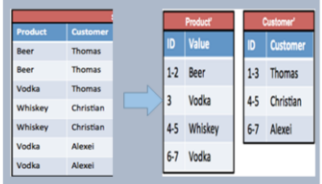
| Key | Value |
|---|---|
| Mahesh | {"Mathematics, Science, History, Geography"} |
| Uma | {"English, Hindi, French, German"} |
| Paul | {"Computers, Programming"} |
| Abraham | {"Geology, Metallurgy, Material Science"} |

## Document Store - MongoDB


## Graph Store - Gremlin




## Column Family Store -Cassandra



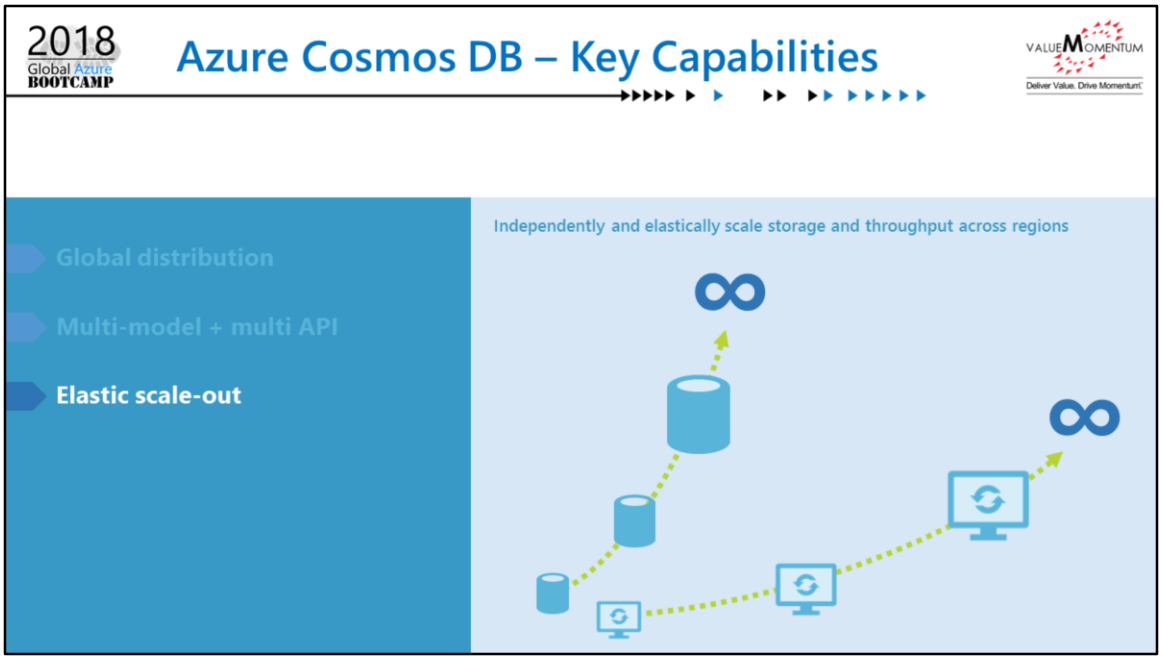

## Key Highlights

**Key Value**
- A key value store has multiple components
- Key identifies the entity and the "value" part is simply an un-interpreted string of bytes of arbitrary length

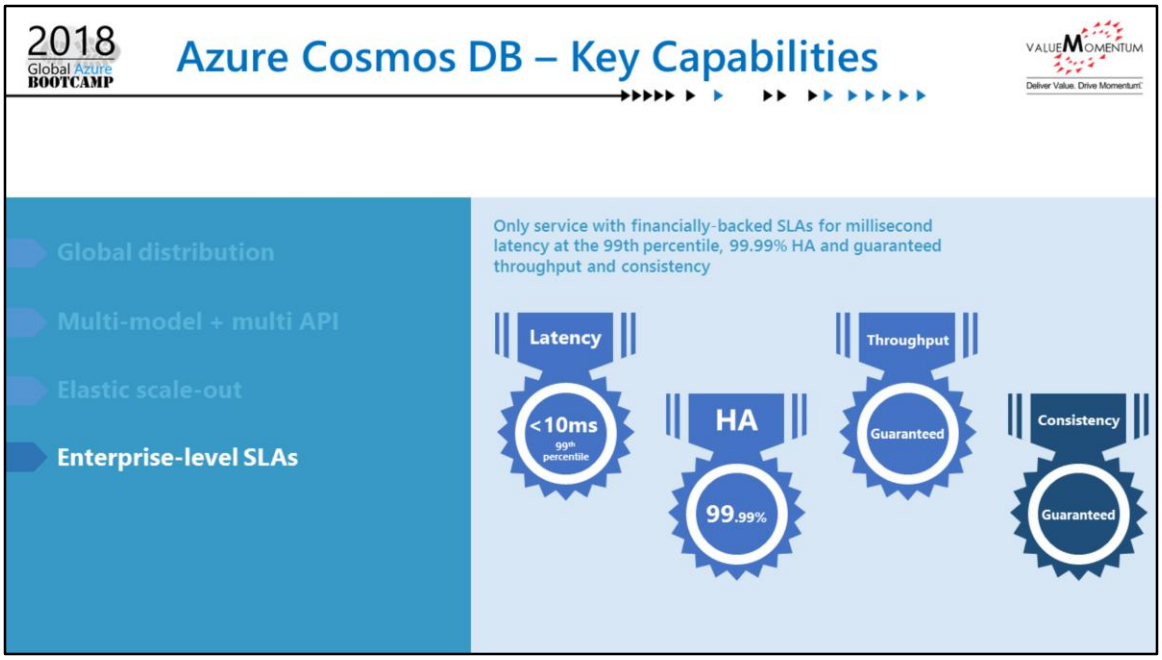
**Document**
- All the data for an object is placed in a single document, and stored in the store as a single entry

**Graph Store**
- Graph Data Store stores the data in the form of vertices which are the Nodes and Edges store the relationships between the vertices

**Column Store**
- Store all the cells corresponding to a column as a continuous disk entry thus making the search/access faster




Easily scale database throughput at a per-second granularity, and change it anytime you want.
Scale storage size transparently and automatically to handle your size requirements now and forever.




Azure Cosmos DB guarantees end-to-end low latency at the 99th percentile to its customers.
For a typical 1KB item, Cosmos DB guarantees end-to-end latency of reads under 10 ms and indexed writes under 15 ms at the 99th percentile, within the same Azure region. The median latencies are significantly lower (under 5 ms).
99.99% availability SLA for all single region database accounts, and all 99.999% read availability on all multi-region database accounts.
Deploy to any number of Azure regions for higher availability and better performance.
Dynamically set priorities to regions and simulate a failure of one or more regions with zero-data loss guarantees to test the end-to-end availability for the entire app (beyond just the database).

Besides the **strong** and **eventual consistency** models commonly offered by distributed databases, Azure
Cosmos DB offers three more carefully codified and operationalized consistency models: **bounded staleness**, **session**, and **consistent prefix**. The usefulness of each of these consistency levels has been validated against real world use cases. Collectively these five consistency levels enable you to make well-reasoned trade-offs between consistency, availability, and latency.

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# Azure Cosmos DB – Key Capabilities

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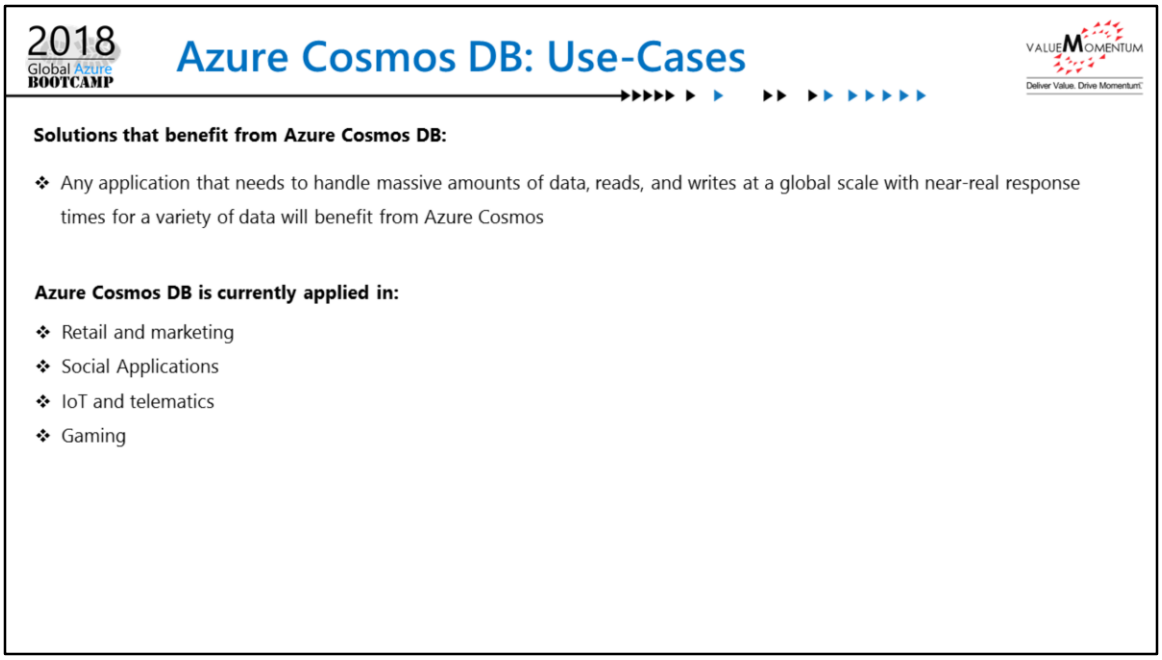
- Global distribution
- Multi-model + multi API
- Elastic scale-out
- Enterprise-level SLAs




*Retail and Marketing:for storing catalog data*

Consider an example of a product catalog for an automotive parts supplier. Every part may have its own attributes in addition to the common attributes that all parts share. Furthermore, attributes for a specific part can change the following year when a new model is released. Azure Cosmos DB supports flexible schemas and hierarchical data, and thus it is well suited for storing product catalog data.

Social Applications:

To store and query user generated content (UGC) for web, mobile, and social media applications.

Some examples of UGC are chat sessions, tweets, blog posts, ratings, and comments. Content such as chats, comments, and posts can be stored in Cosmos DB without requiring transformations or complex object to relational mapping layers. Many of these social applications run at global scale and can exhibit unpredictable usage patterns. Flexibility in scaling the data store is essential as the application layer scales to match usage demand.

IoT and telematics :

Data can be loaded into Azure Cosmos DB for adhoc querying and to support real time analytics

Gaming:

Azure Cosmos DB is used by games like The Walking Dead: No Man's Land by Next Games, and Halo 5: Guardians.
Azure Cosmos DB provides the following benefits to game developers:
Azure Cosmos DB allows performance to be scaled up or down elastically.
Azure Cosmos DB supports millisecond reads and writes to help avoid any lags during game play.
Azure Cosmos DB's automatic indexing allows for filtering against multiple different properties in real-time, for example, locate players by their internal player IDs, or their GameCenter, Facebook, Google IDs.
Social features including in-game chat messages, player guild memberships, challenges completed, high-score leaderboards, and social graphs are easier to implement with a flexible schema.

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# Azure Cosmos DB: Existing Customers

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The following customer stories are available:

- Jet.com. E-commerce challenger eyes the top spot, runs on the Microsoft cloud, leverages Cosmos DB at a global scale.
- Asos.com. Asos.com is a British online fashion and beauty store. Primarily aimed at young adults, Asos sells over 850 brands as well as its own range of clothing and accessories.
- Toyota. Toyota Motor Corporation is a Japanese automotive manufacturer. Toyota leveraged Cosmos DB for a global IoT app.
- Citrix. Citrix develops single-sign-on solution using Azure Service Fabric and Azure Cosmos DB
- TEXA TEXA's revolutionary IoT solution for vehicle owners helps save time, money, gas—and possibly lives.
- Domino's Pizza. Domino's Pizza Inc. is an American pizza restaurant chain.
- Johnson Controls. Johnson Controls is a global diversified technology and multi-industrial leader serving a wide range of customers in more than 150 countries.
- Sulekha.com. Sulekha uses Azure Cosmos DB to connect customers and businesses across India .
- NewOrbit. NewOrbit takes flight with Azure Cosmos DB.
- Affinio. Affinio switches from AWS to Azure Cosmos DB to harness social data at scale.
- Next Games. The Walking Dead: No Man's Land game soars to #1 supported by Azure Cosmos DB.
- Halo. How Halo 5 implemented social gameplay using Azure Cosmos DB.
- Cortana Analytics Gallery. Cortana Analytics Gallery - a scalable community site built on Azure Cosmos DB.
- Breeze. Leading Integrator Gives Multinational Firms Global Insight in Minutes with Flexible Cloud Technologies.
- News Republic. Adding intelligence to the news to provide information with purpose for engaged citizens.
- SGS International. For consistent color across the globe, major brands turn to SGS. And SGS turns to Azure.
- Telenor. Global leader Telenor uses the cloud to move with the speed of a startup.
- XOMNI. The store of the future runs on speedy search and the easy flow of data.
- Nucleo. Azure-based software platform breaks down barriers between businesses and customers
- Weka. Weka Smart Fridge improves vaccine management so more people can be protected against diseases
- Orange Tribes. There's more to that food app than meets the eye, or the mouth.
- Real Madrid. Real Madrid brings the stadium closer to 450 million fans around the globe, with the Microsoft Cloud.
- Tuku. TUKU makes car buying fun with help from Azure services

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# E-Commerce Example: Traditional Approach

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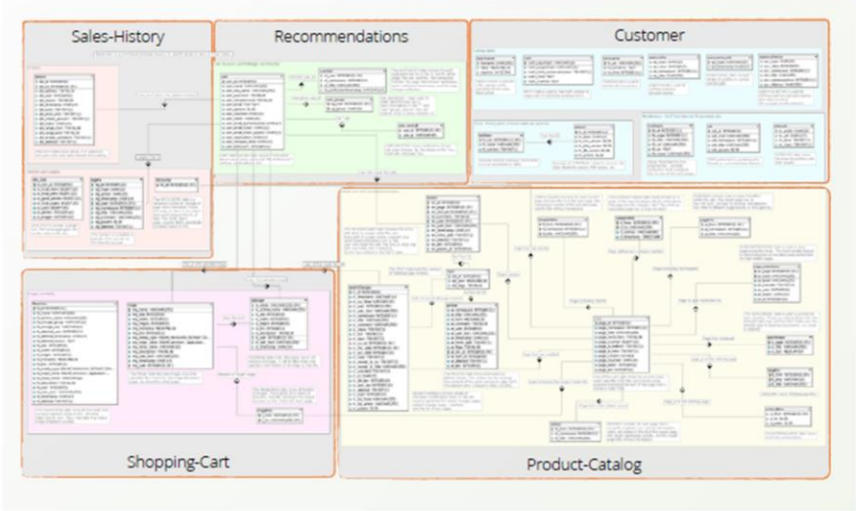

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# E-Commerce Example: Modern Approach

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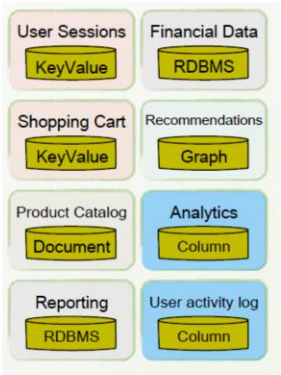


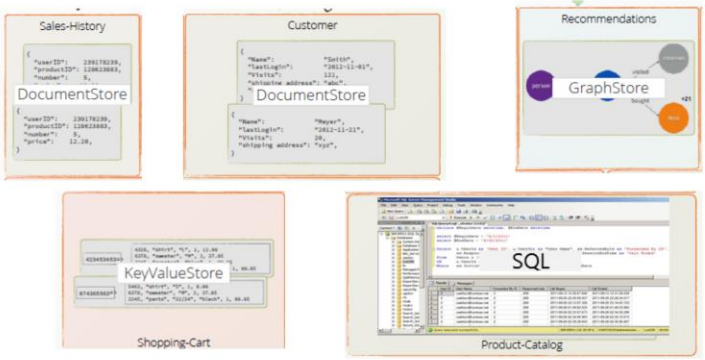

Demo

# Thank You

# Appendix

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# Key Capabilities: Consistency

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