

Adnan Hashmi

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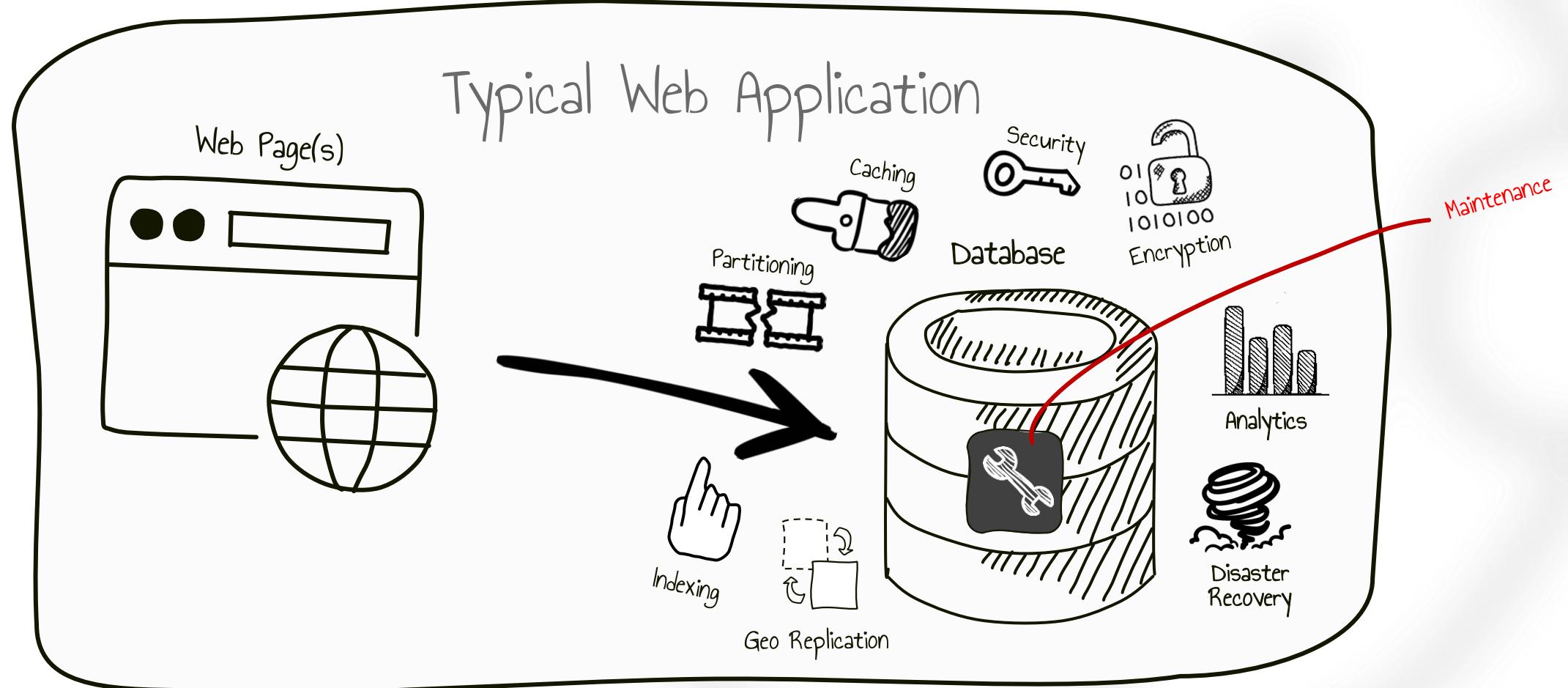
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Azure Cosmos DB

An Overview

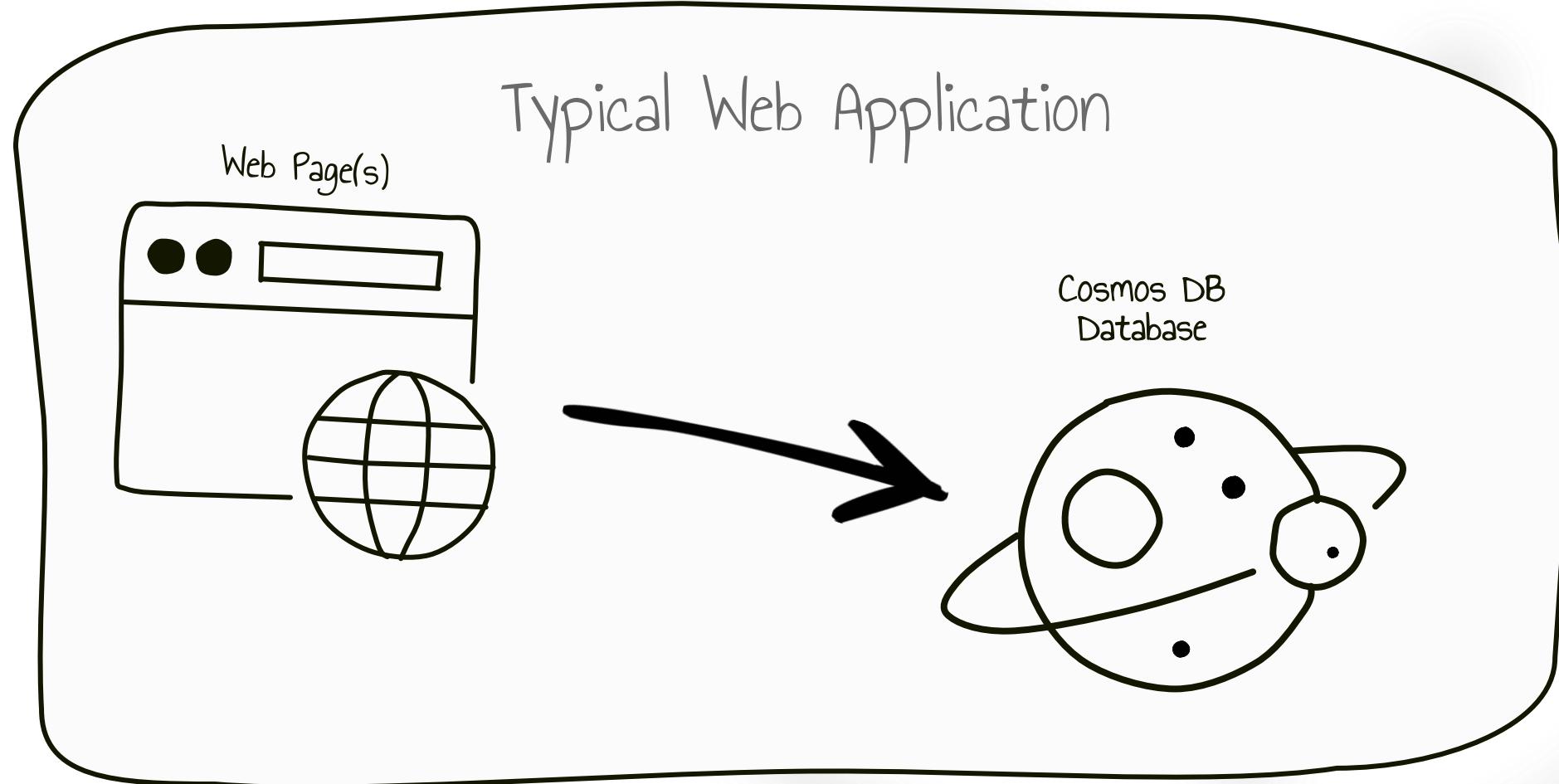
tags: azure, cosmos db, data, organization

WHY Azure Cosmos DB?



tags: azure, cosmos db, data, organization

WHY Azure Cosmos DB?



Platform

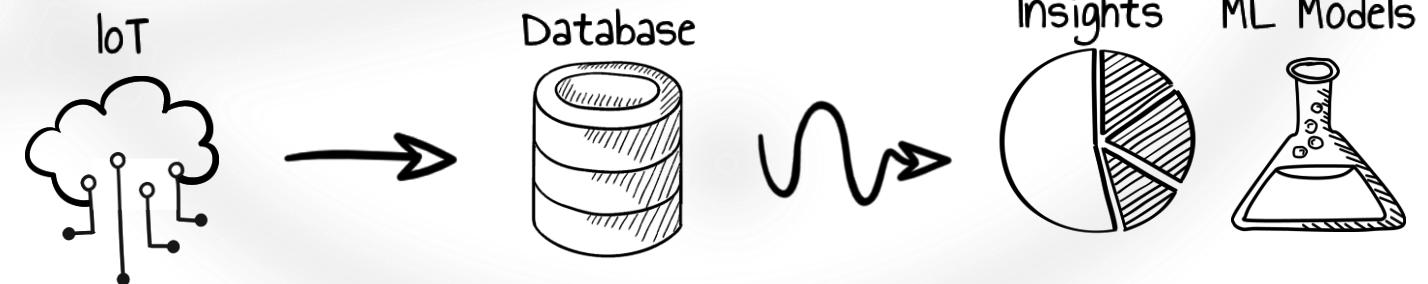
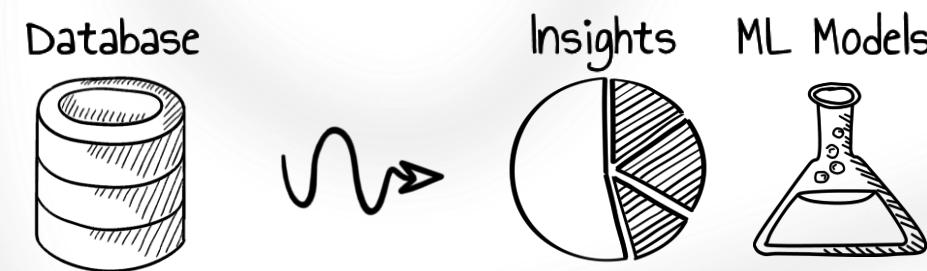
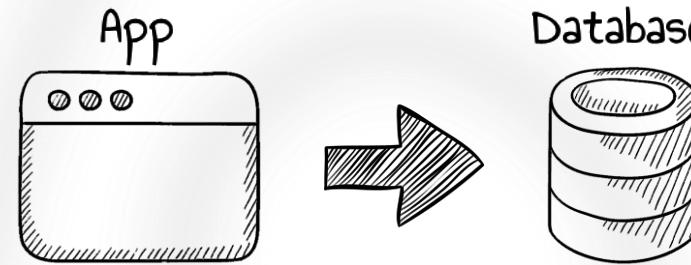
A closer look at Azure Cosmos DB



tags: workloads, web application, database, machine learning, report, visualization

Application Workloads

- Operational
- Analytical
- Streaming



Application Workloads

- Operational



SQL Server
Azure Storage Tables
HBase
Cosmos DB ✓

- Analytical



Azure Data Lake
Hive + Apache Spark
Cosmos DB ✓

- Streaming

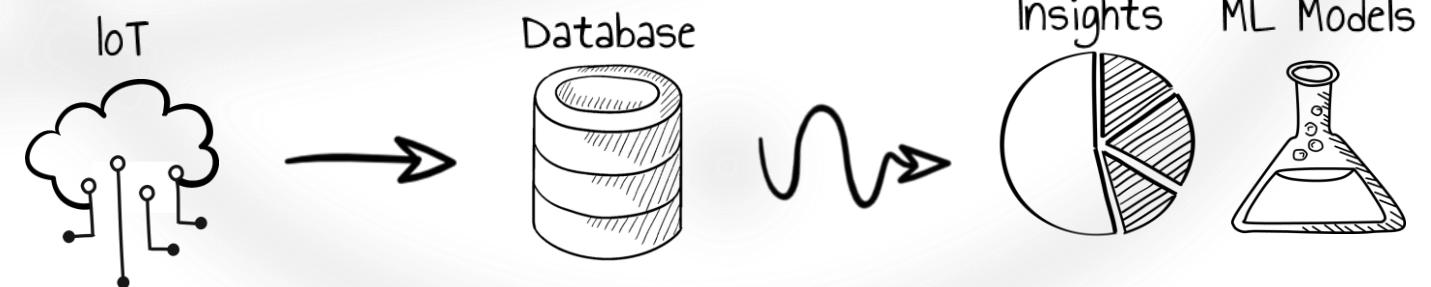
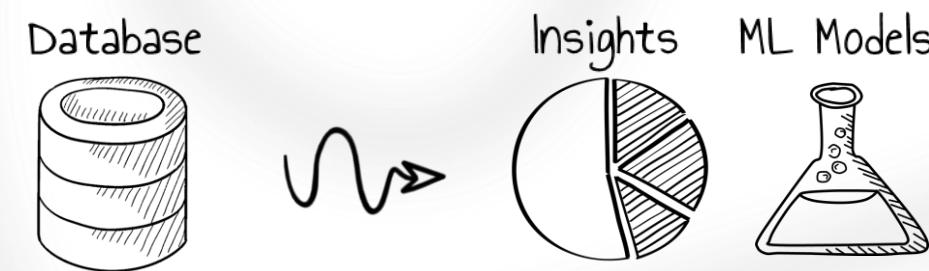
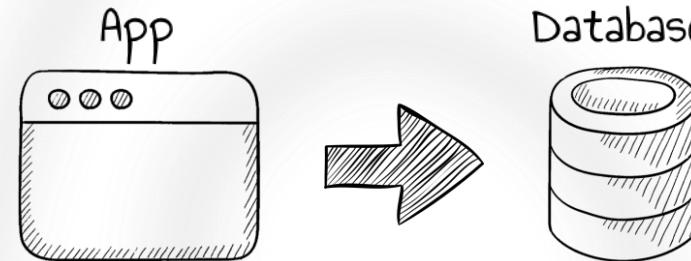


Stream Analytics
HDInsight Kafka
Event Hubs
IoT Hub
Cosmos DB ✓

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Application Workloads

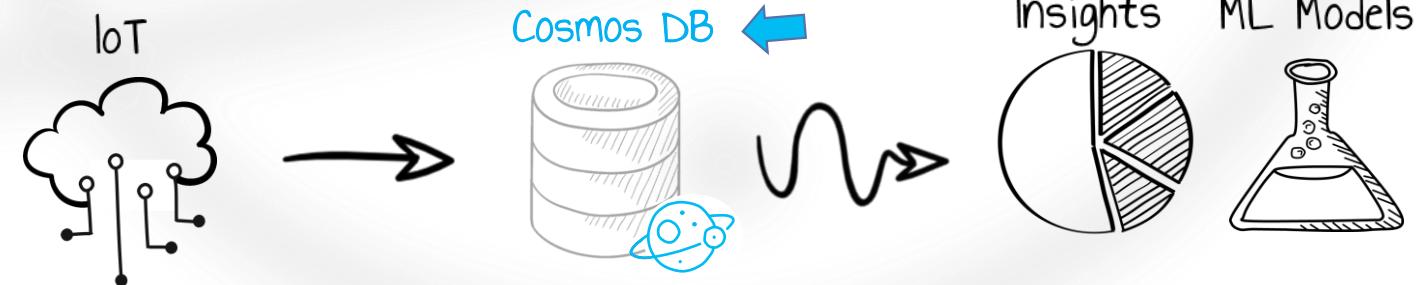
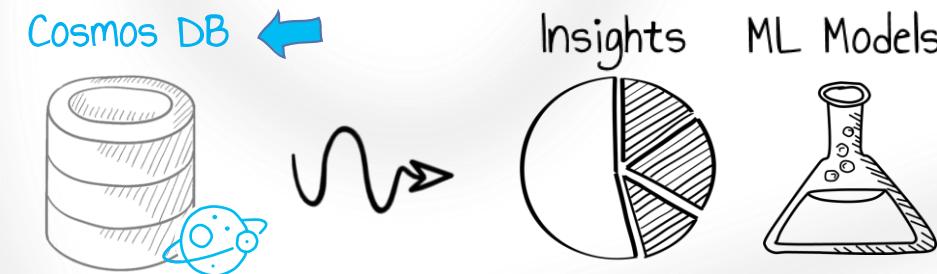
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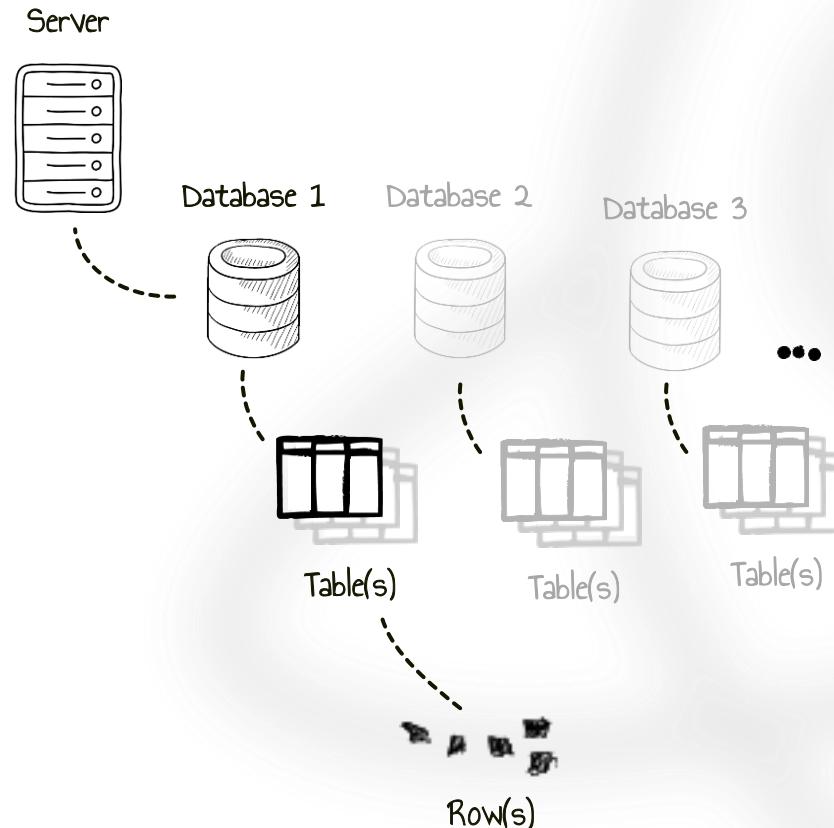
Cosmos DB Workloads

- Operational
- Analytical
- Streaming



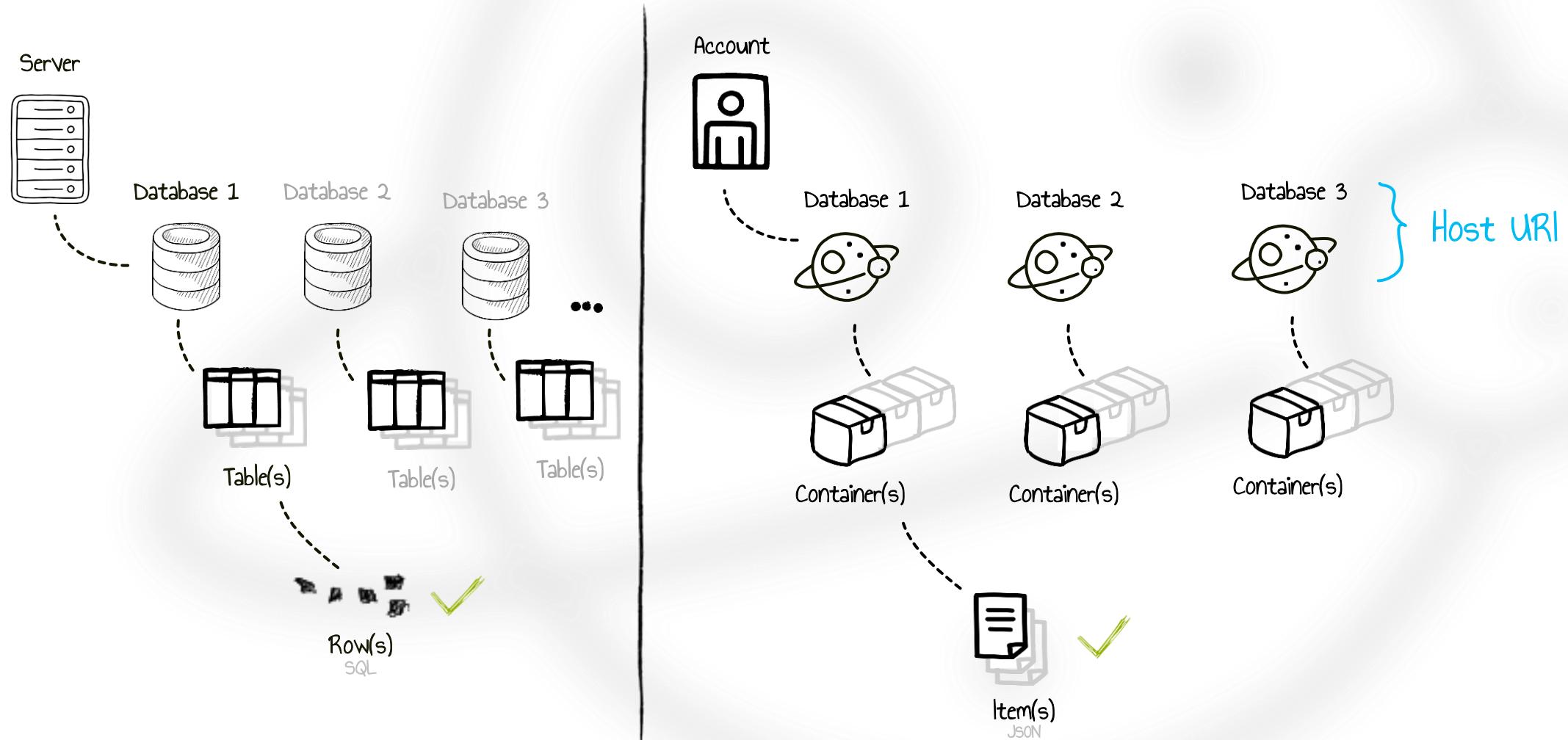
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Typcial Database Architecture

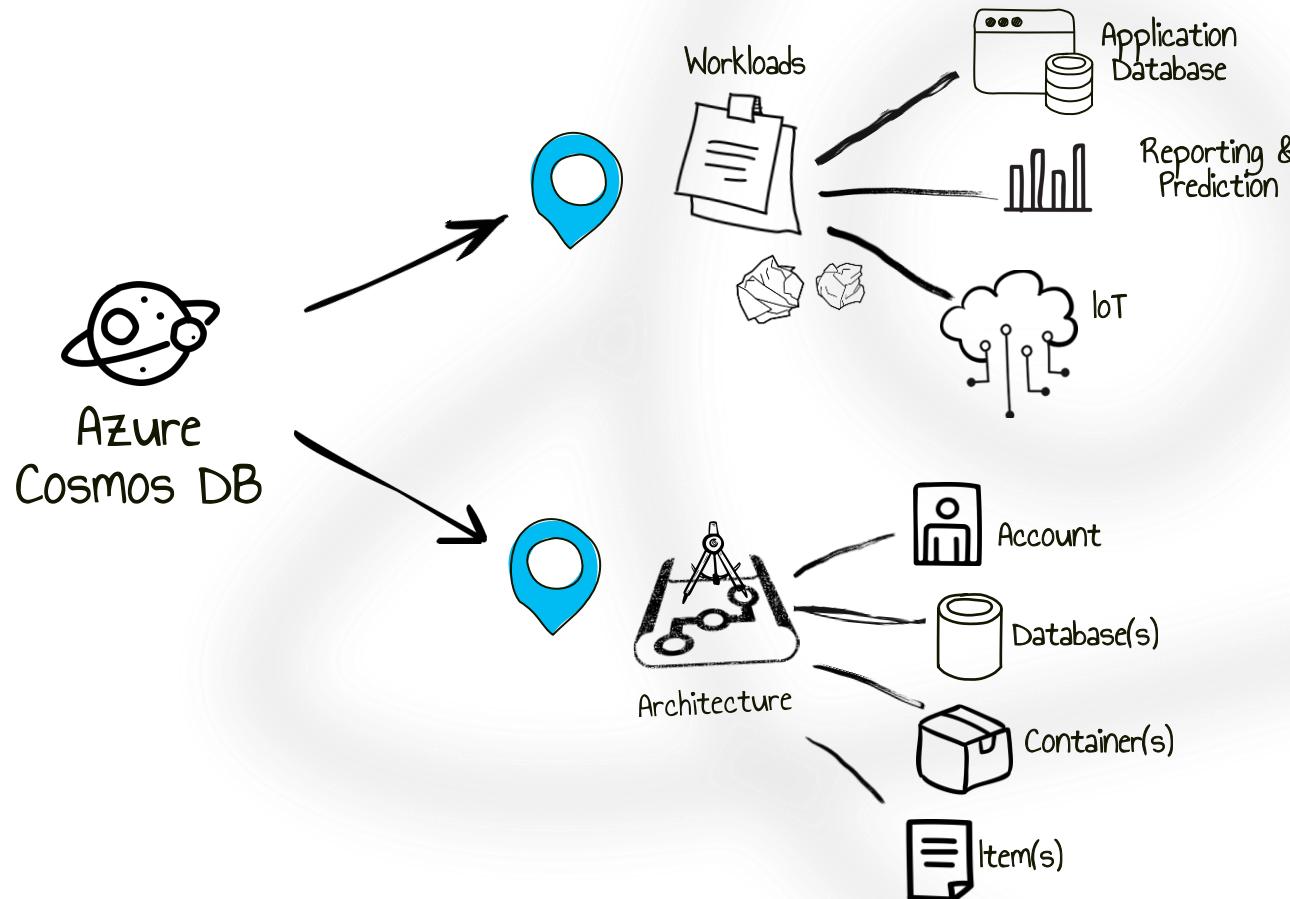


tags: workloads, web application, cosmos db, machine learning, report, visualization

Cosmos DB Architecture



Section Recap



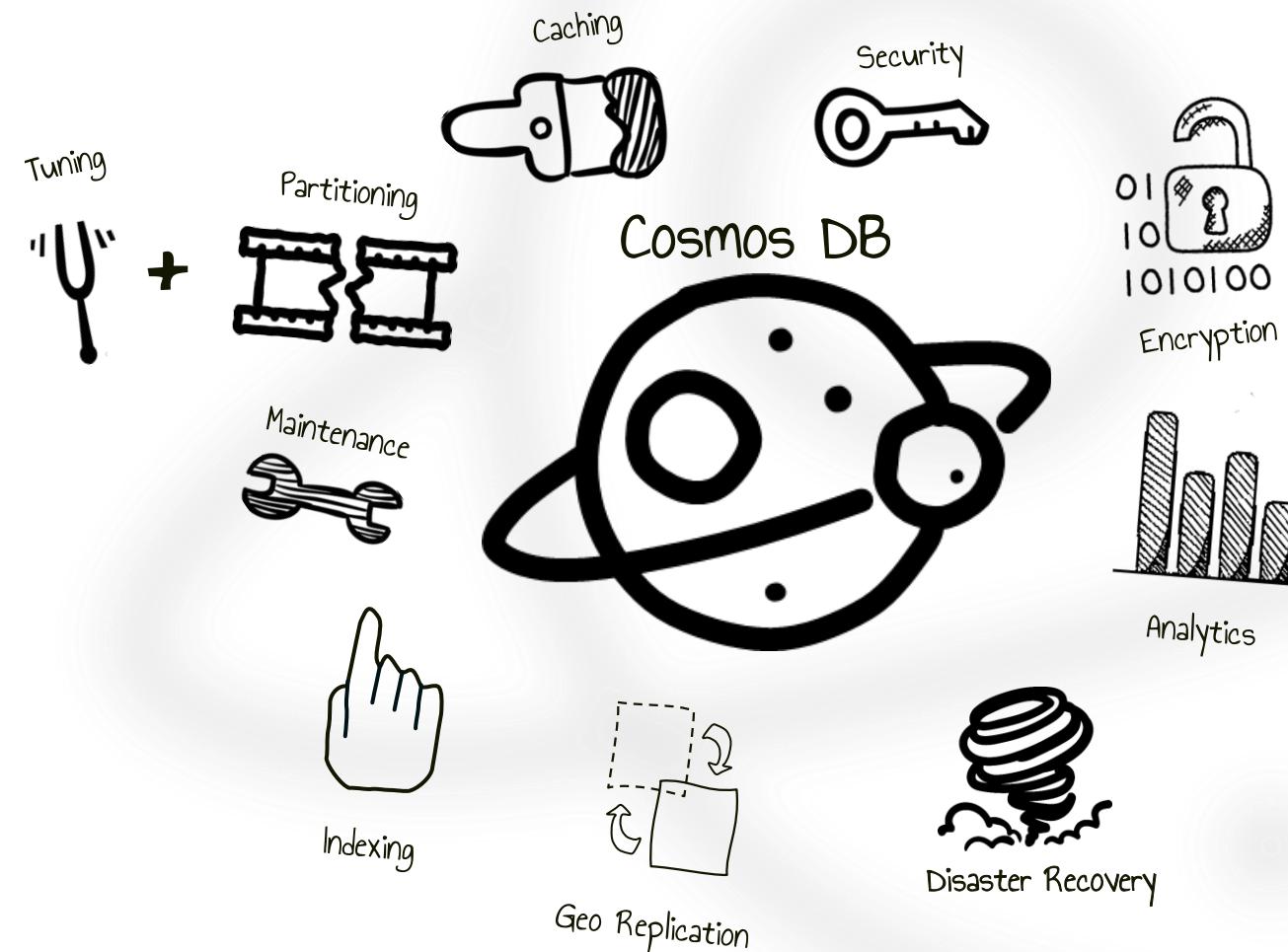
Capabilities

Individual database capabilities required by application developers



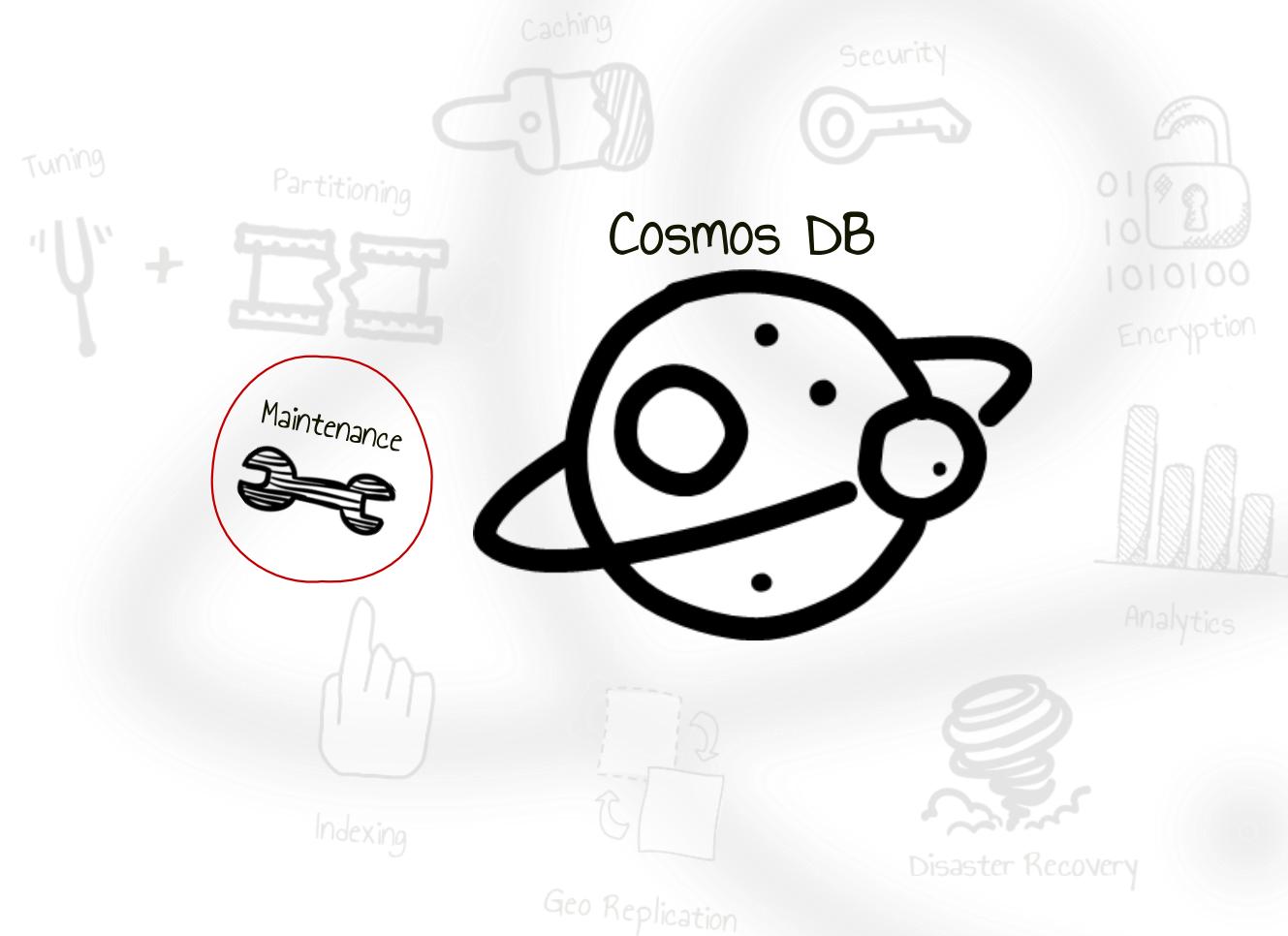
tags: azure, cosmos db, capability

Notable Capabilities



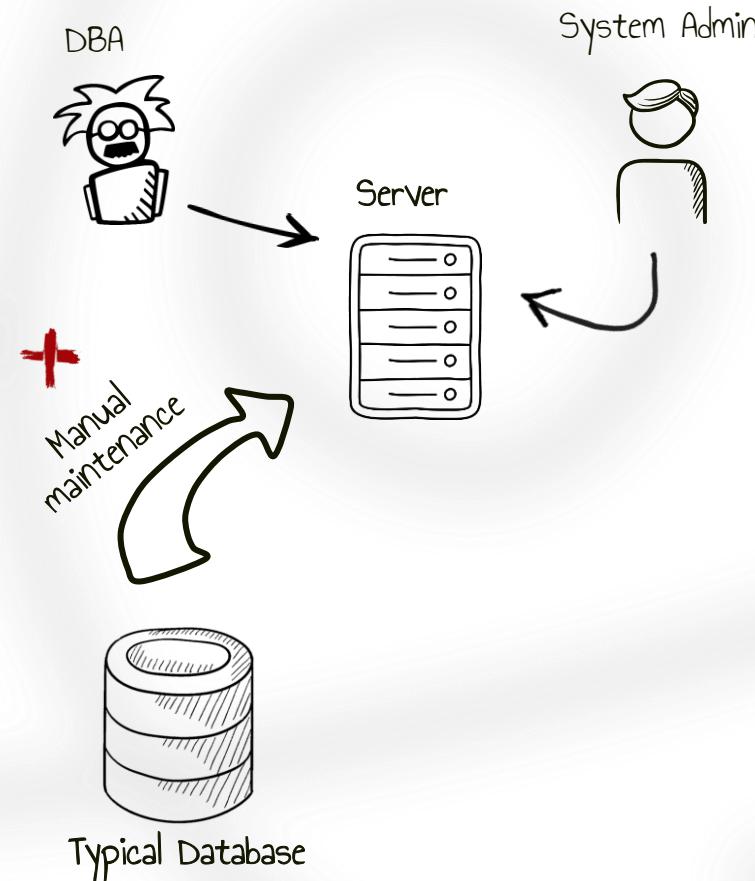
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Azure Cosmos DB



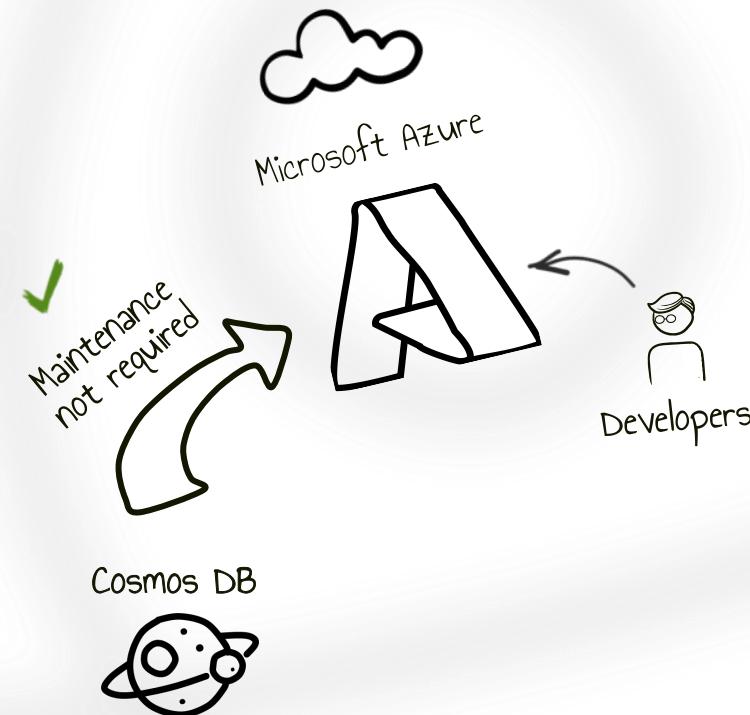
tags: azure, cosmos db, install, maintain

Maintenance



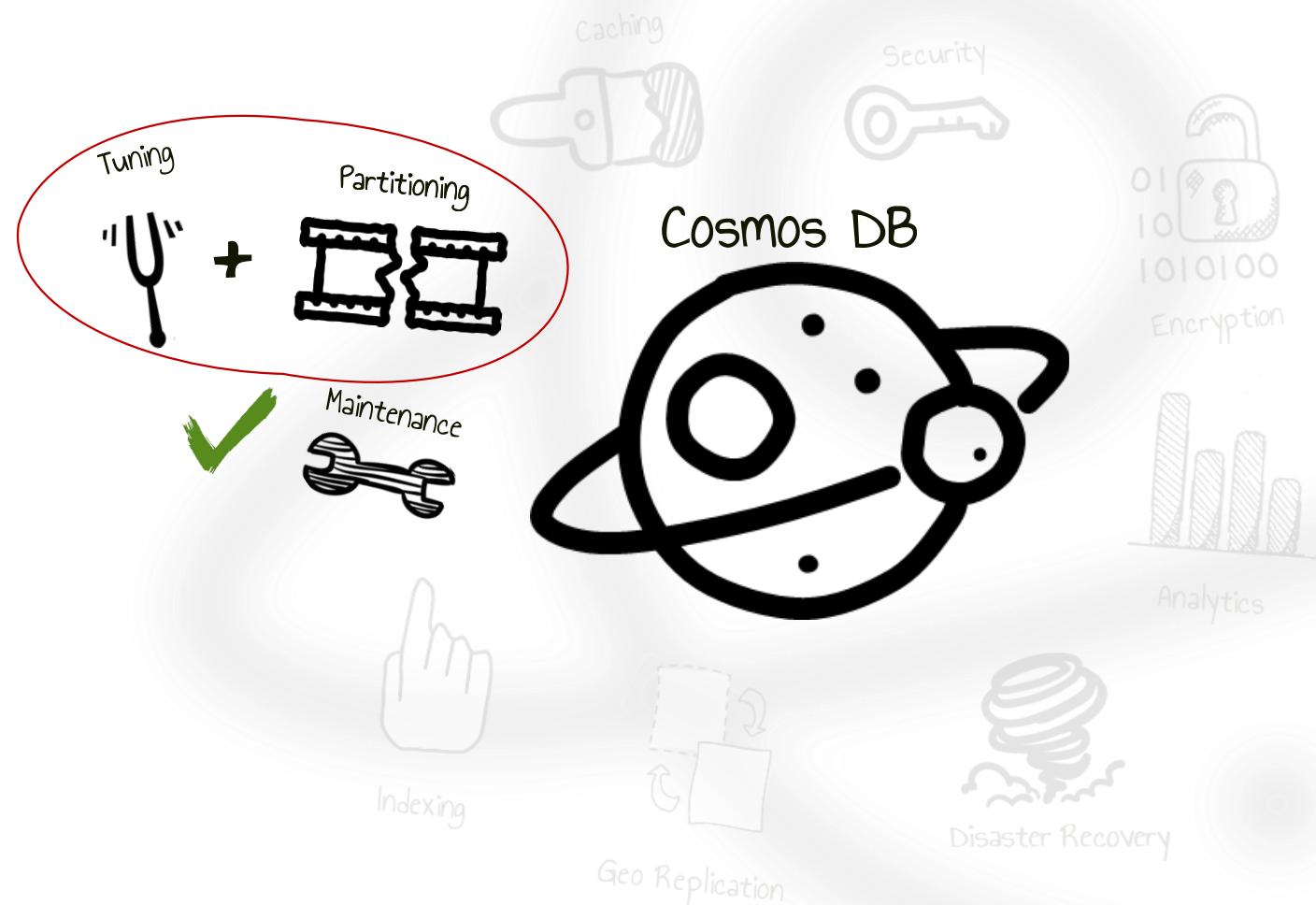
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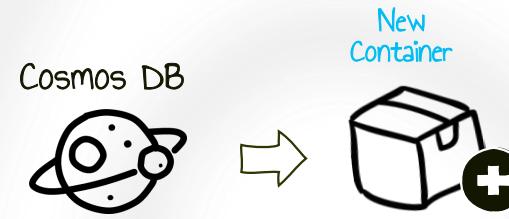
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Azure Cosmos DB



tags: azure, cosmos db, partition, provision

Tuning + Partitioning



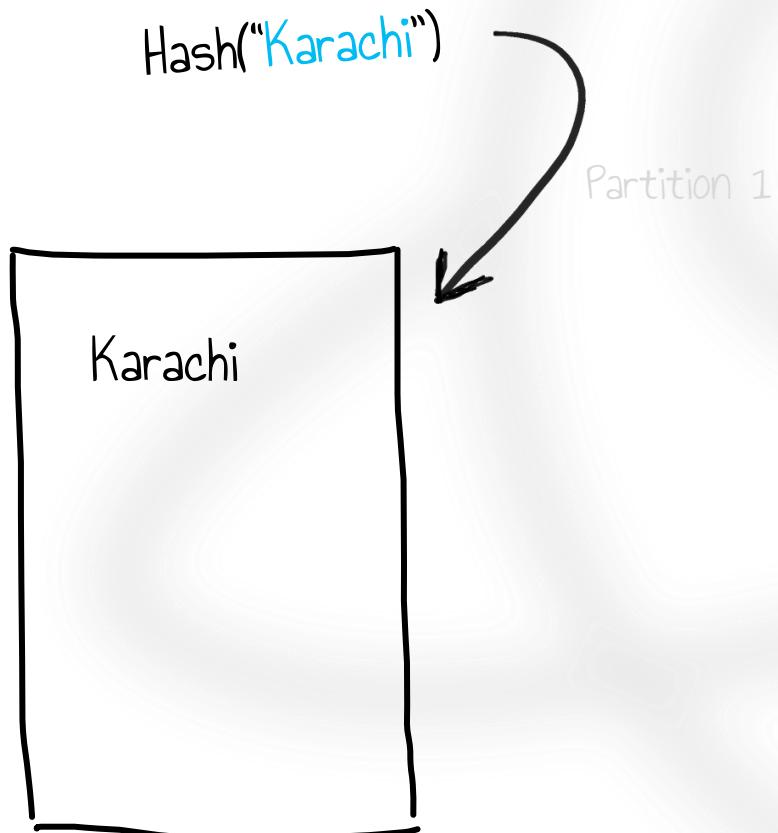
Partition Key → City

Hash(City)

Used to determine partition

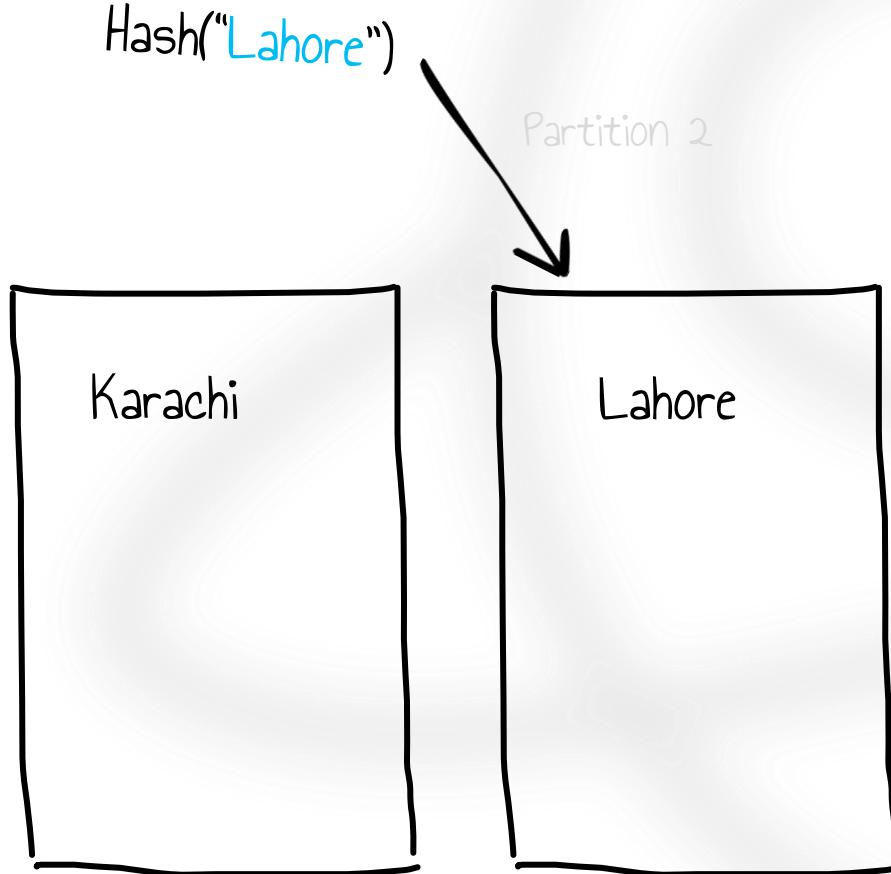
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Tuning + Partitioning



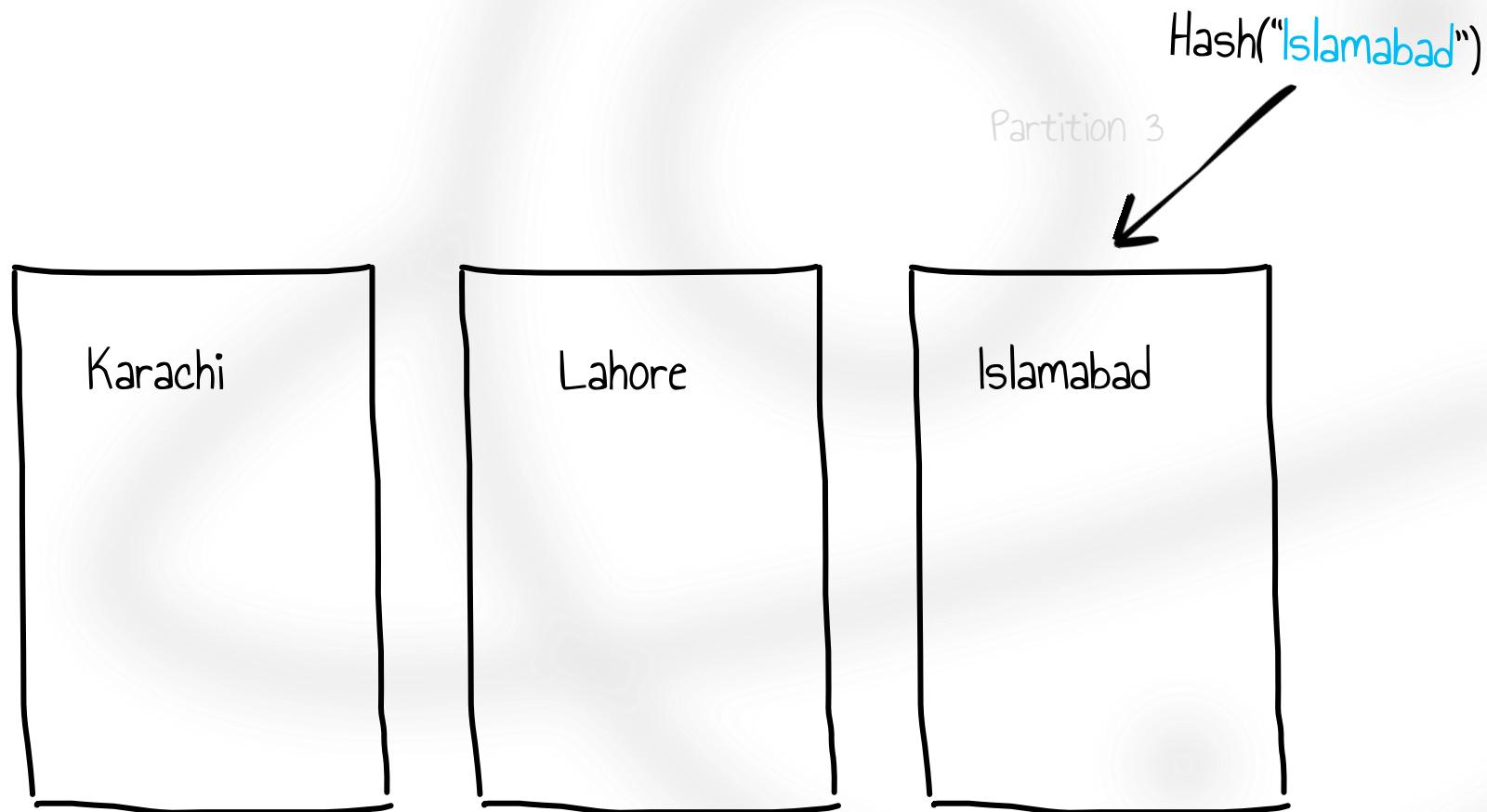
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Tuning + Partitioning



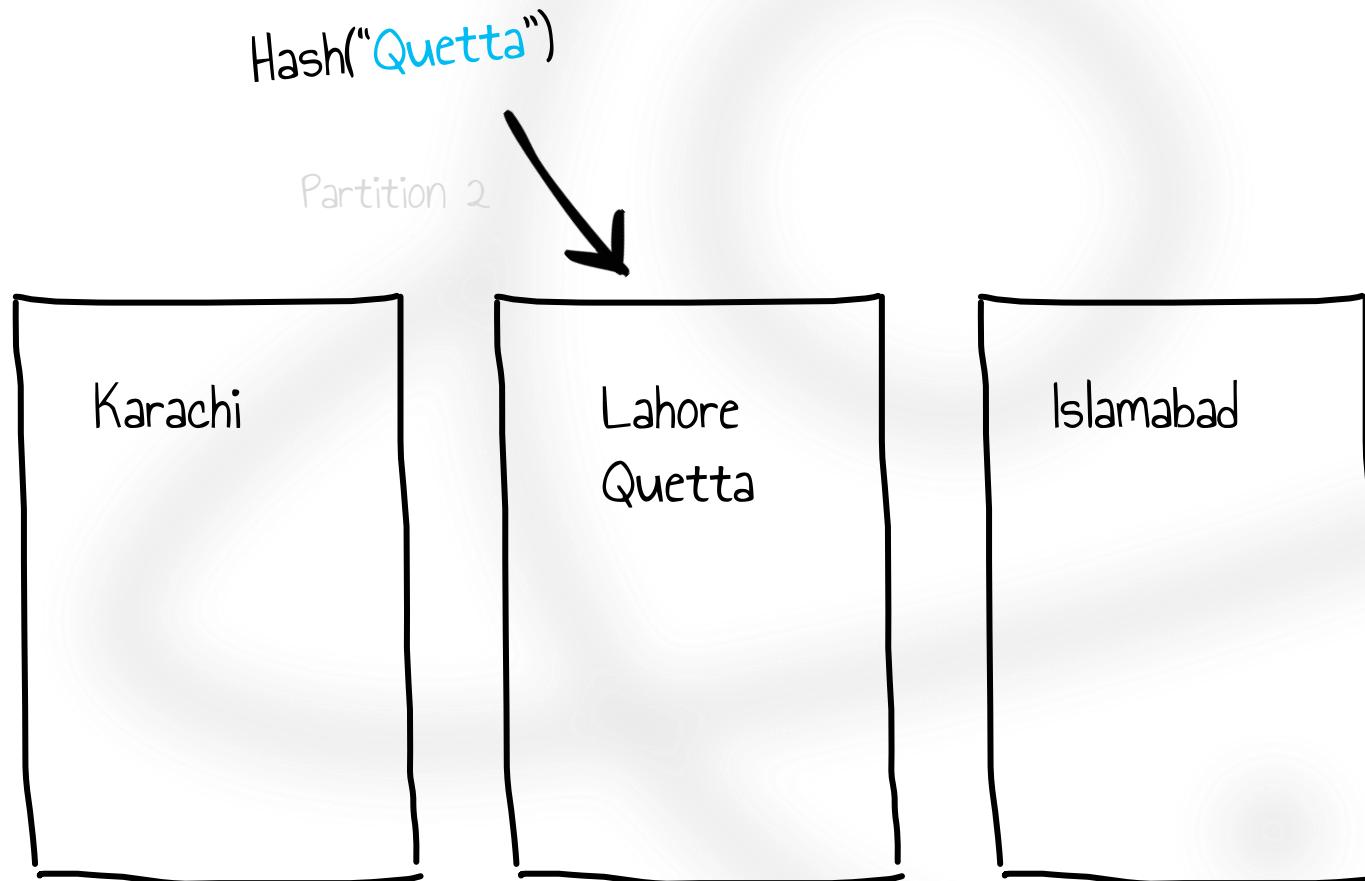
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Tuning + Partitioning



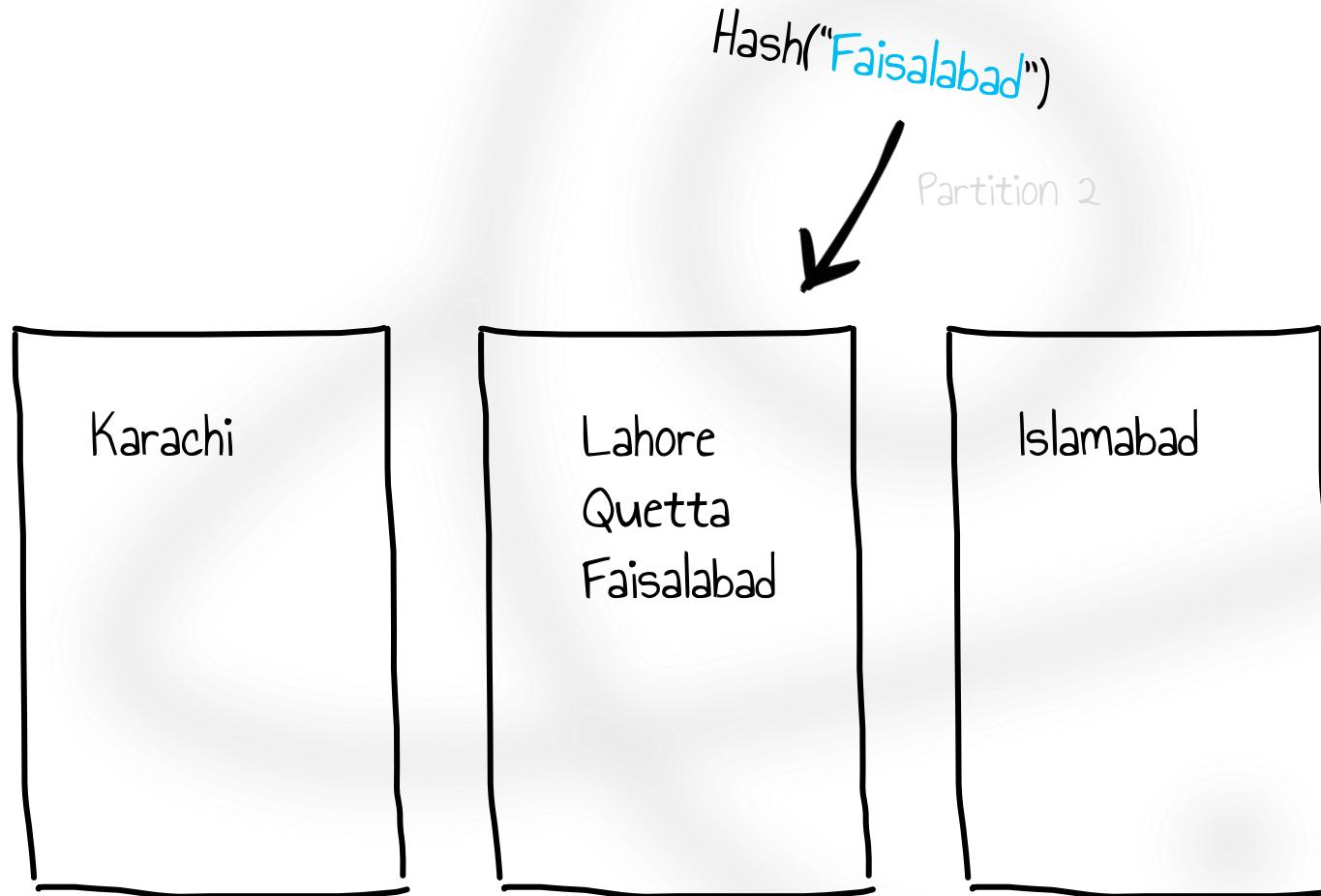
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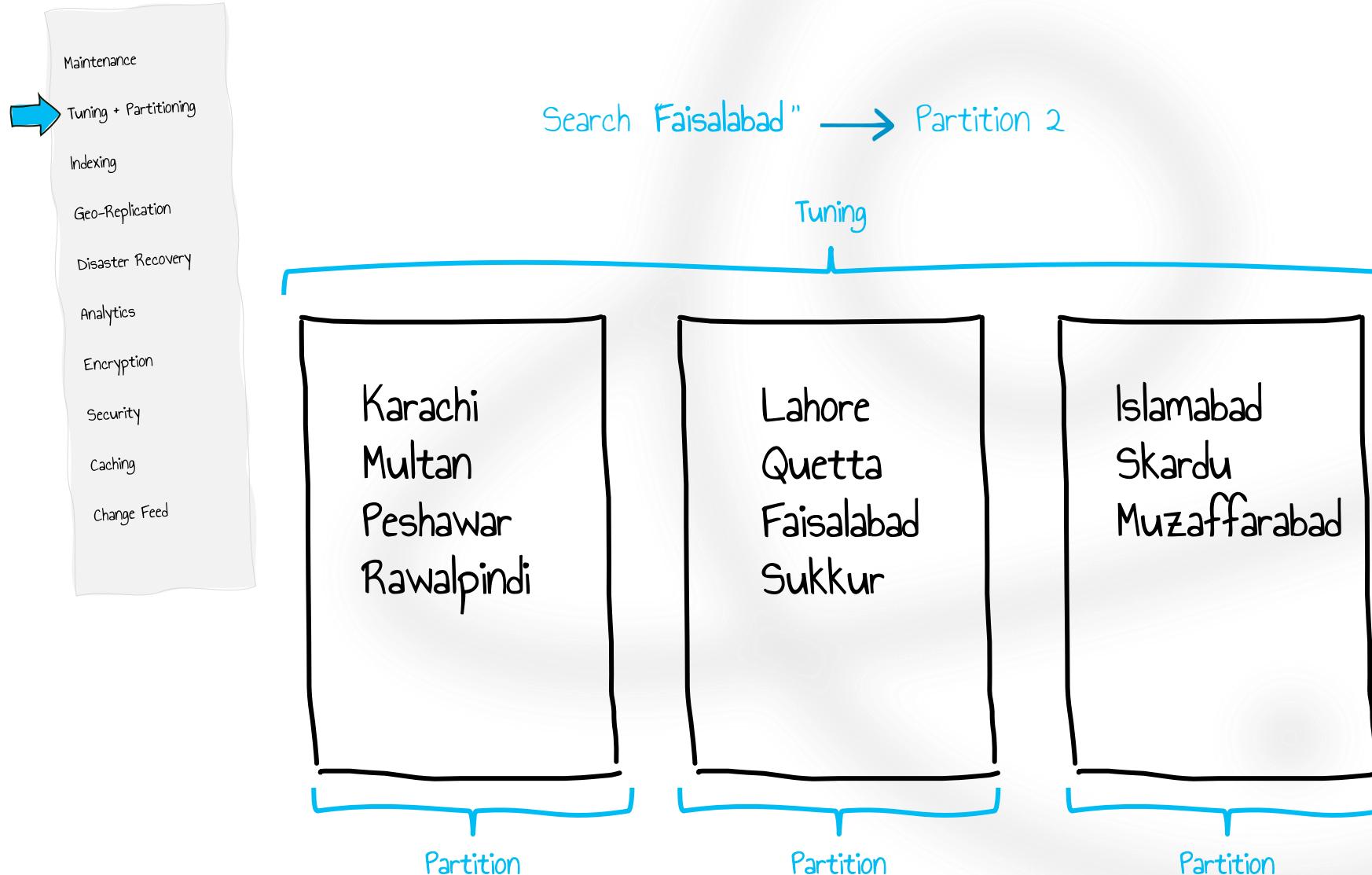


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Tuning + Partitioning

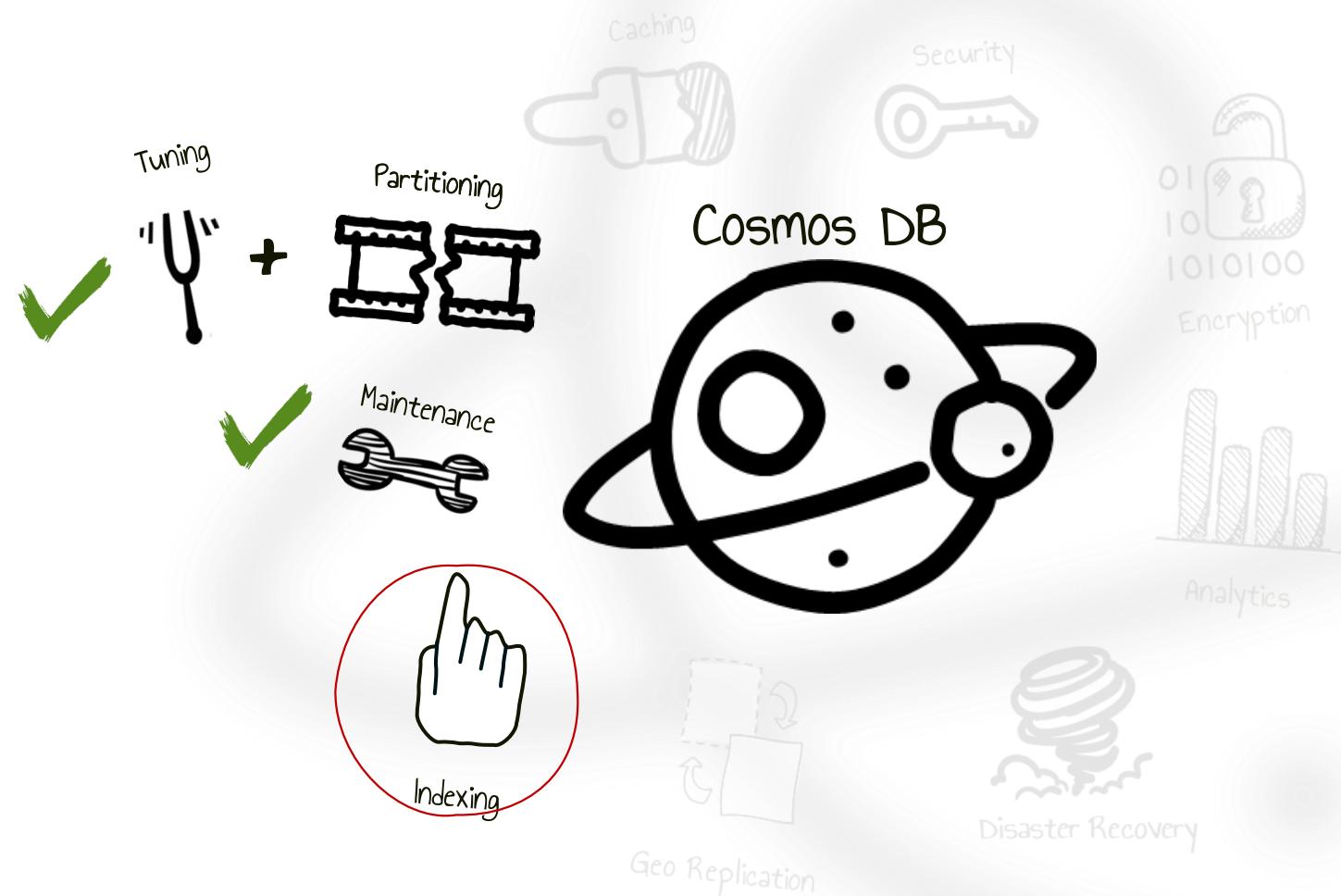


Tuning + Partitioning

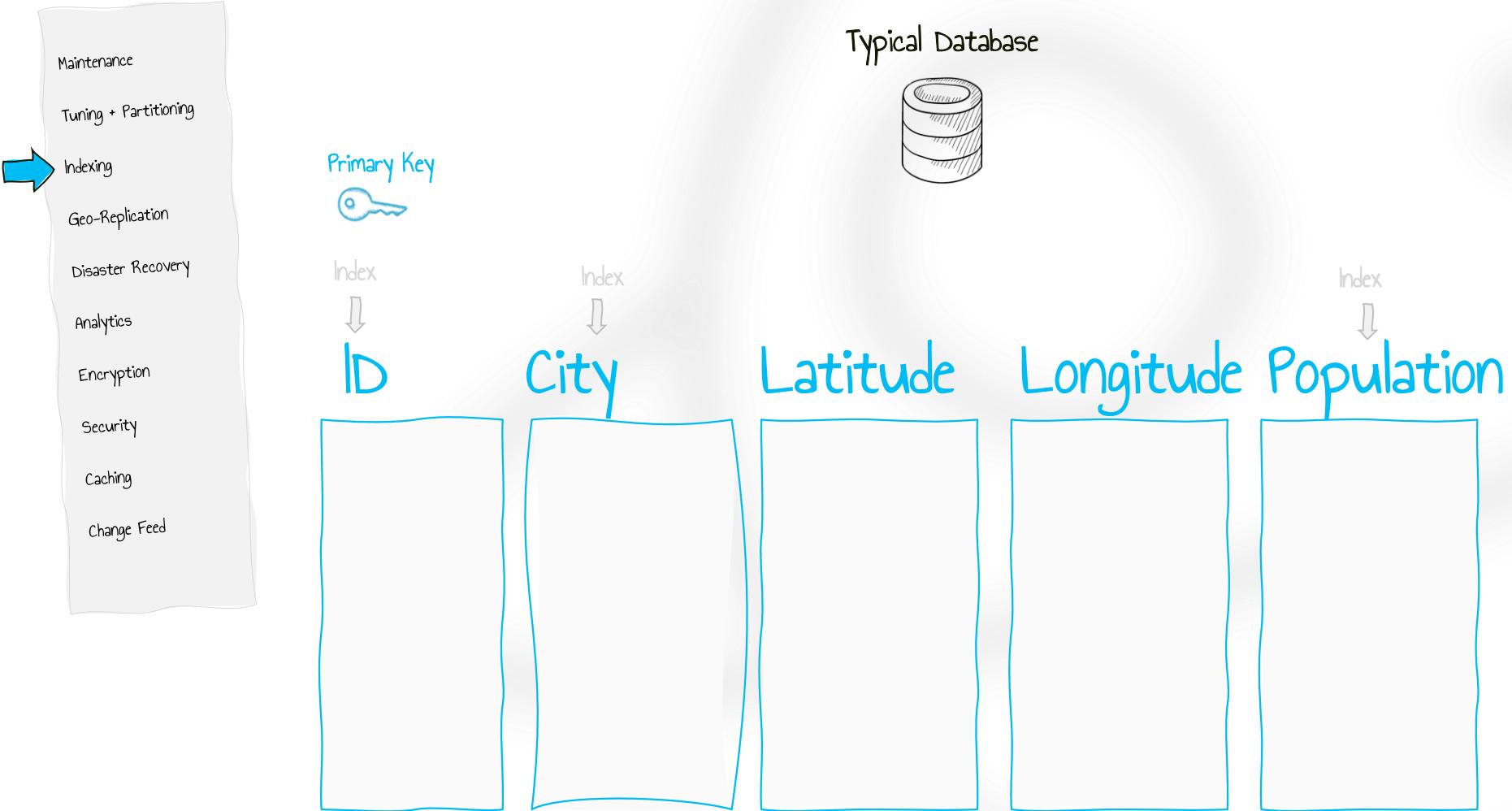


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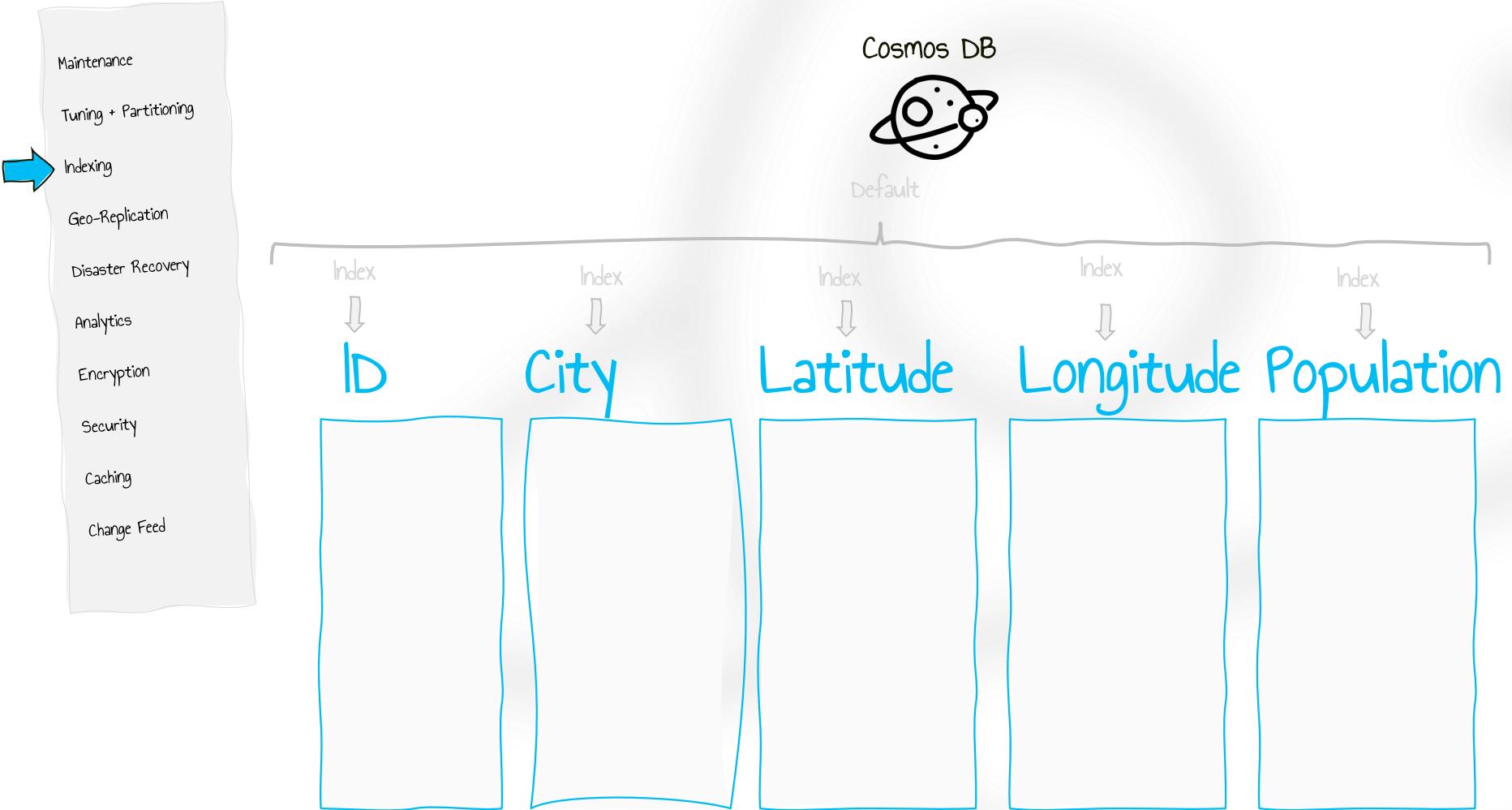
Azure Cosmos DB



Indexing

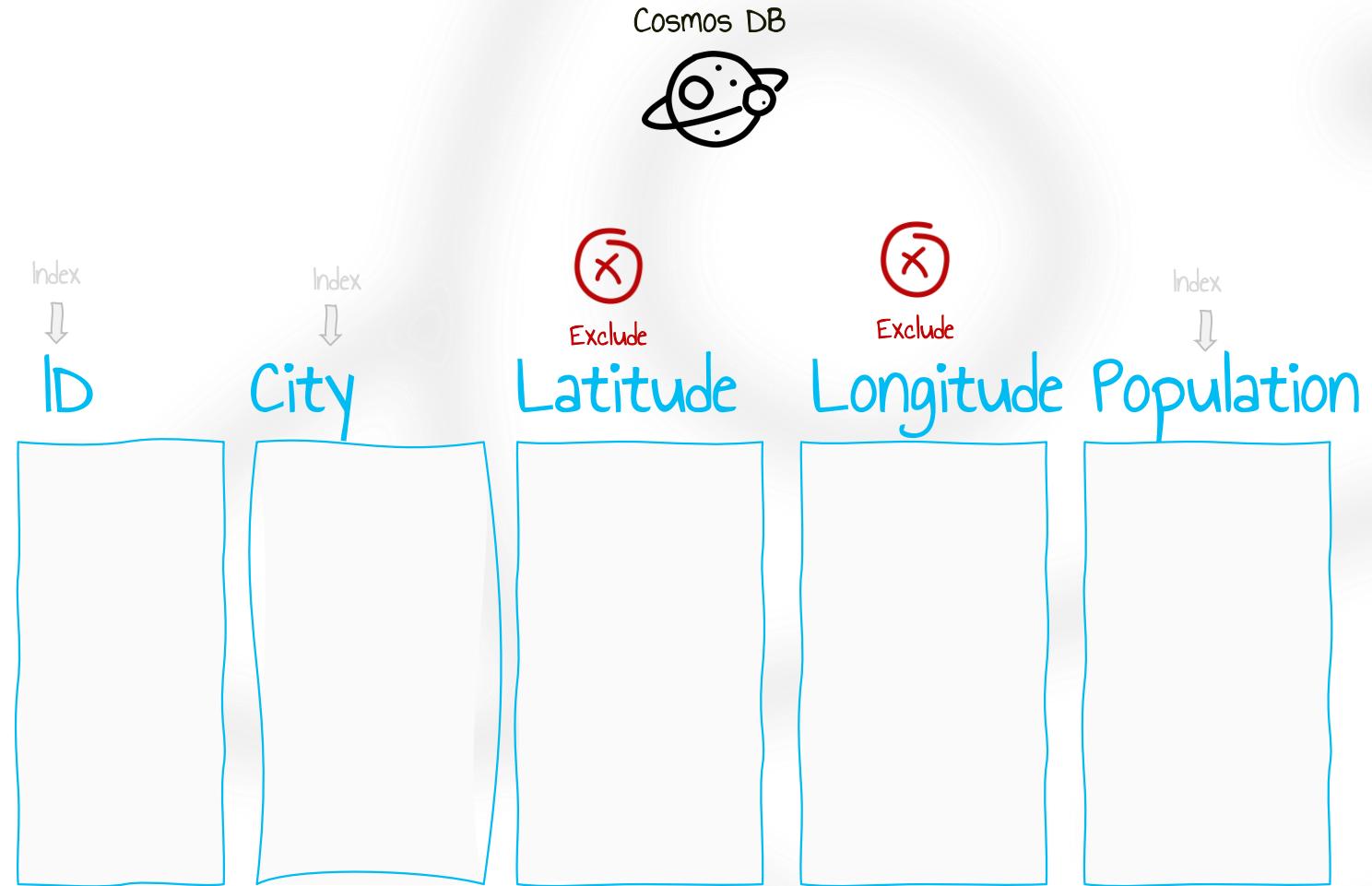


Indexing



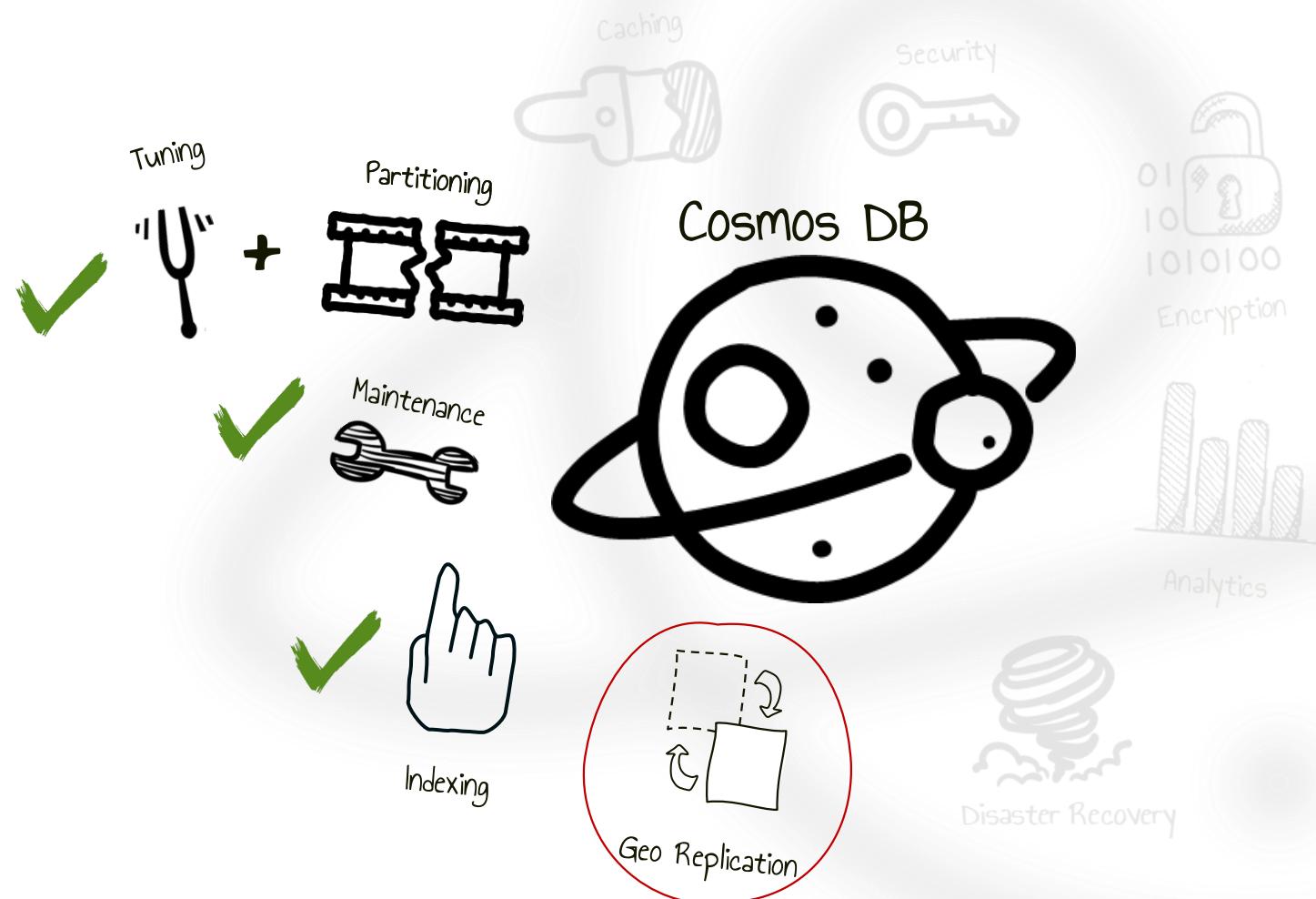
tags: azure, cosmos db, index, performance

Indexing



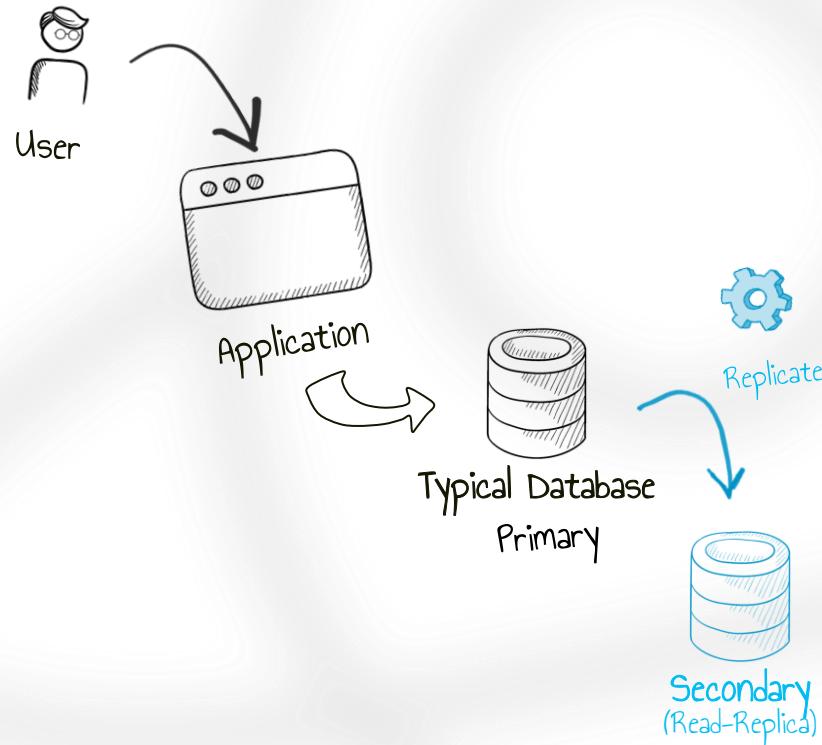
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Azure Cosmos DB



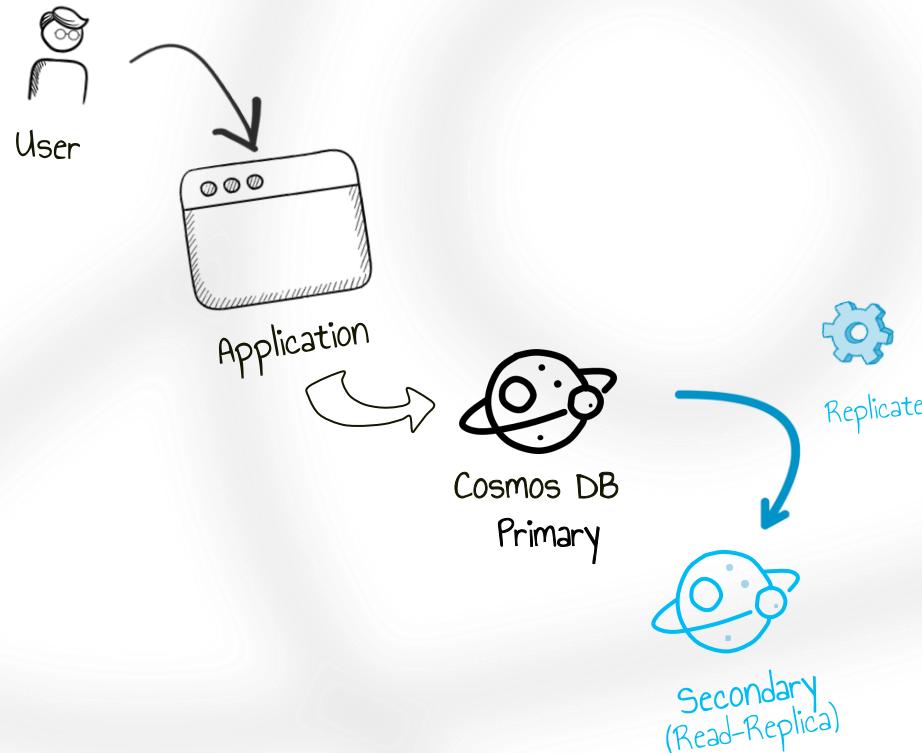
tags: azure, cosmos db, copy, geography, replicate

Geo-Replication



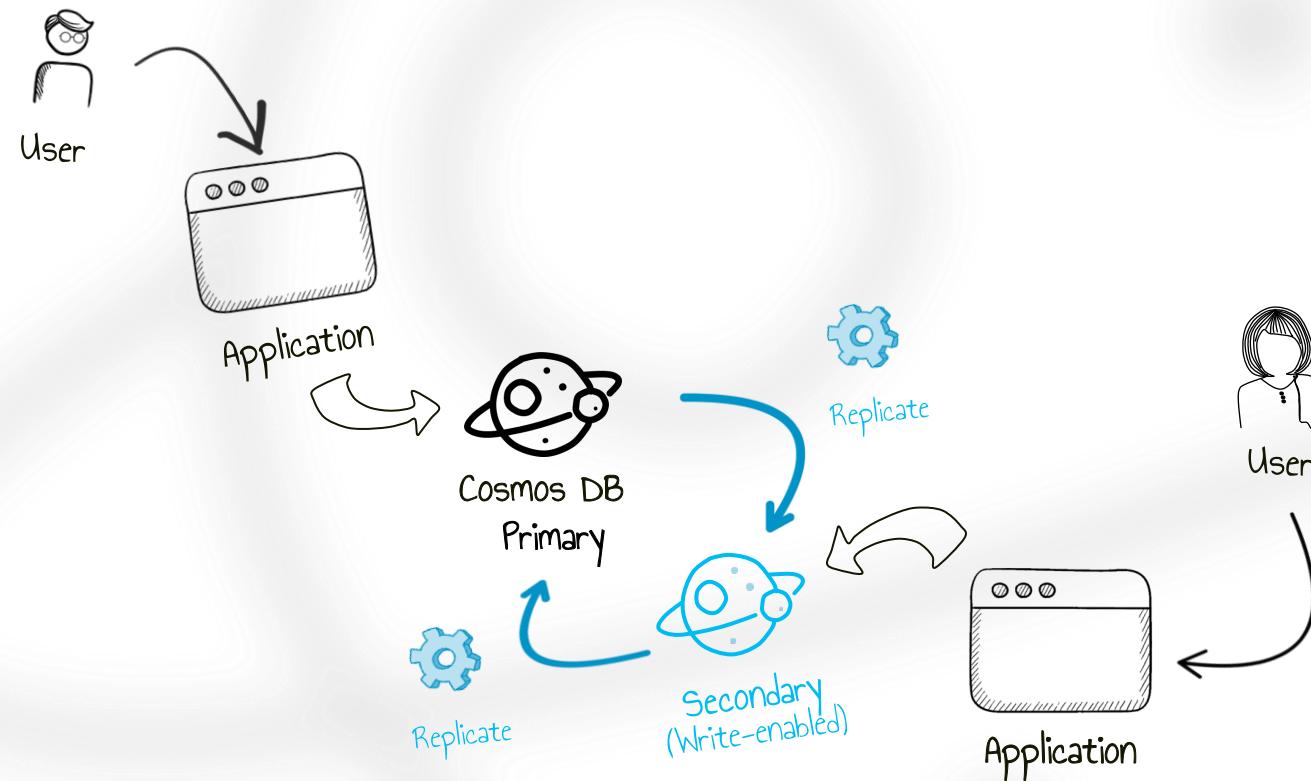
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Geo-Replication



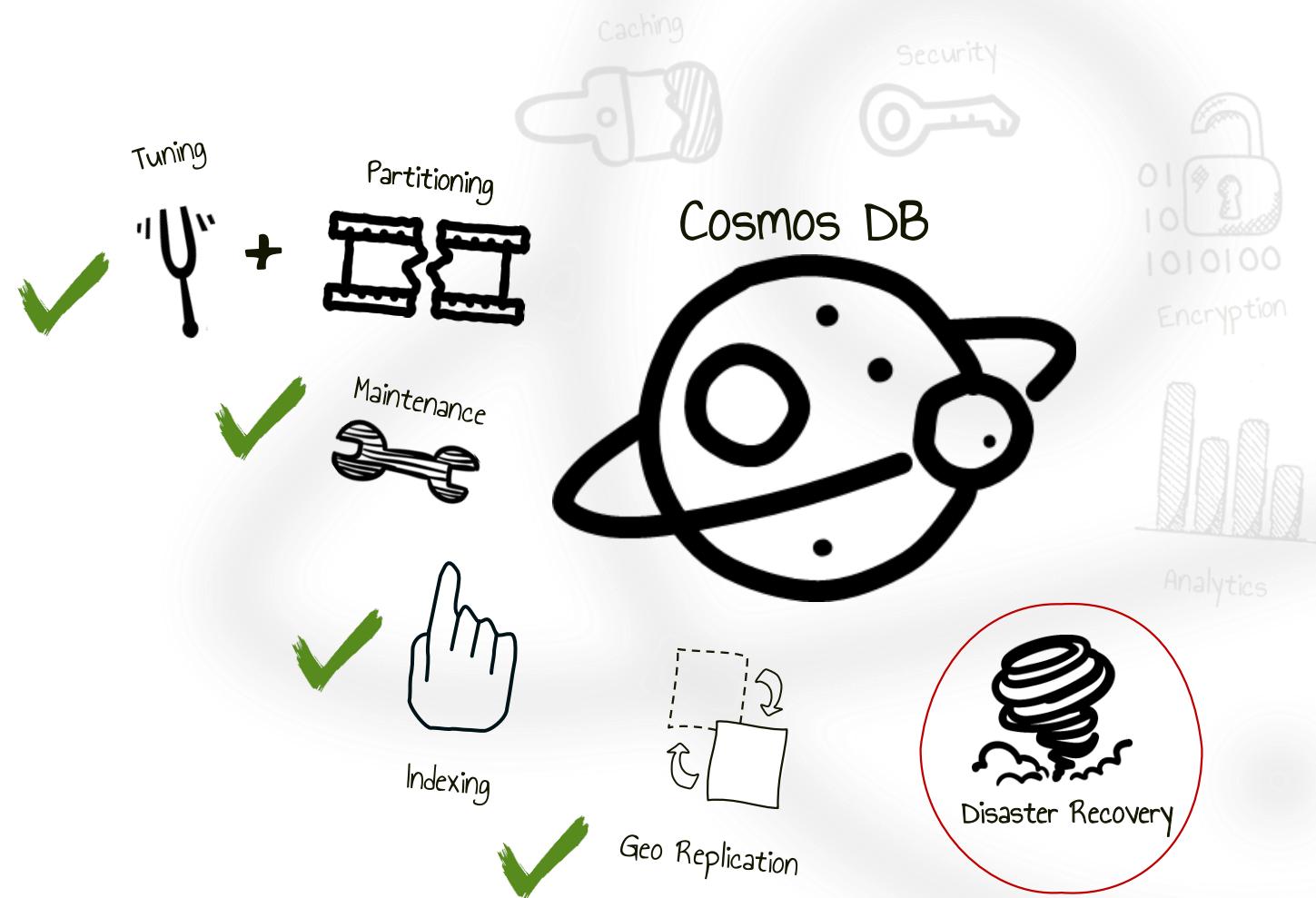
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Geo-Replication



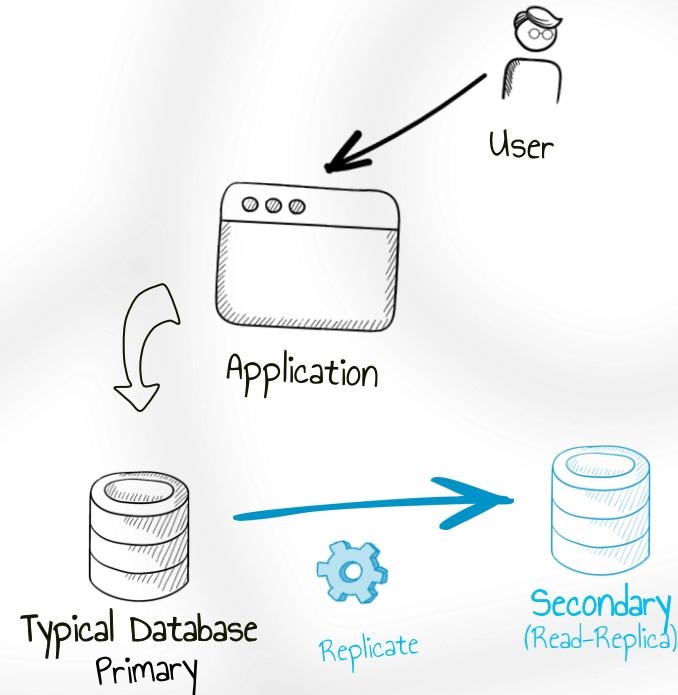
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Azure Cosmos DB



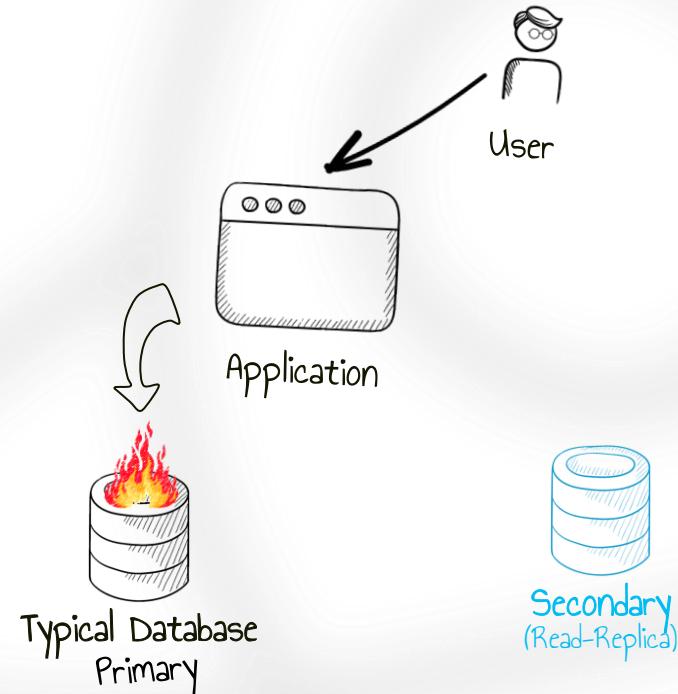
tags: azure, cosmos db, failover, recover, bcdr

Disaster Recovery



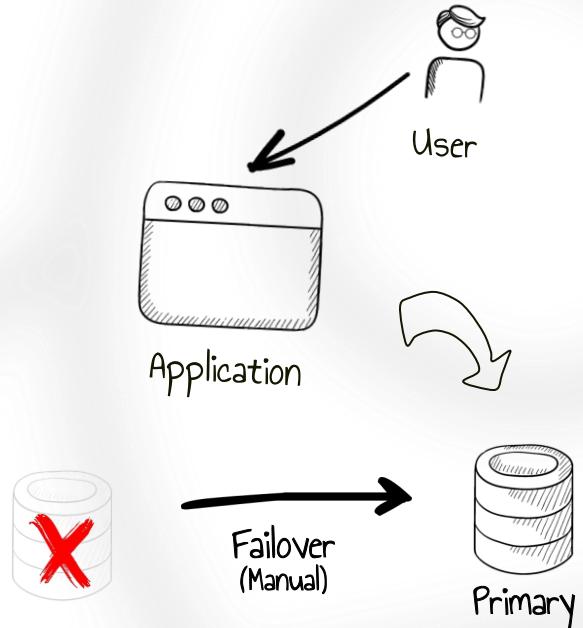
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Disaster Recovery



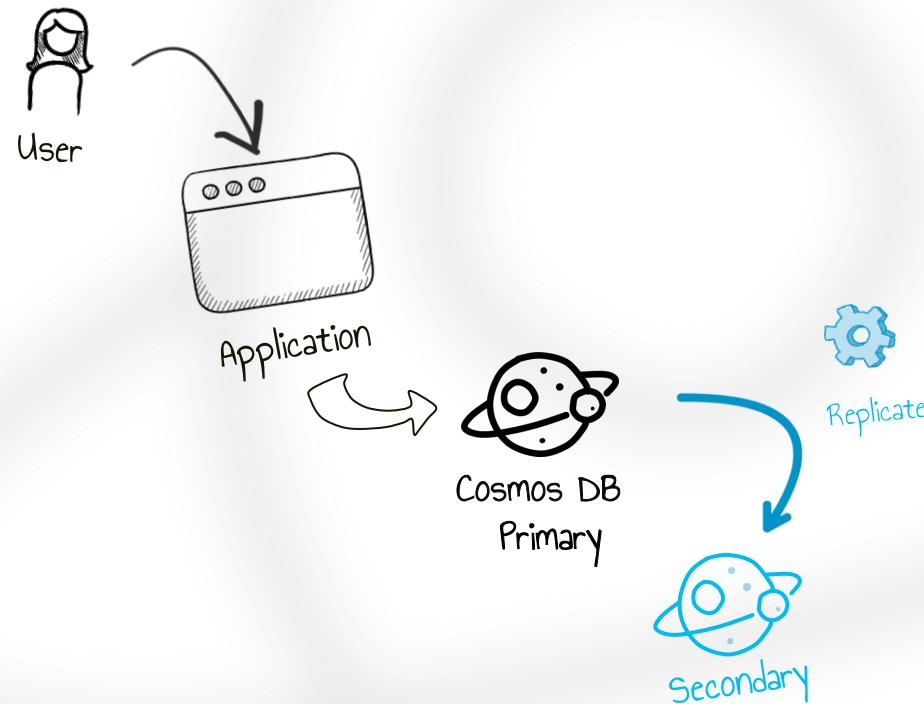
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Disaster Recovery



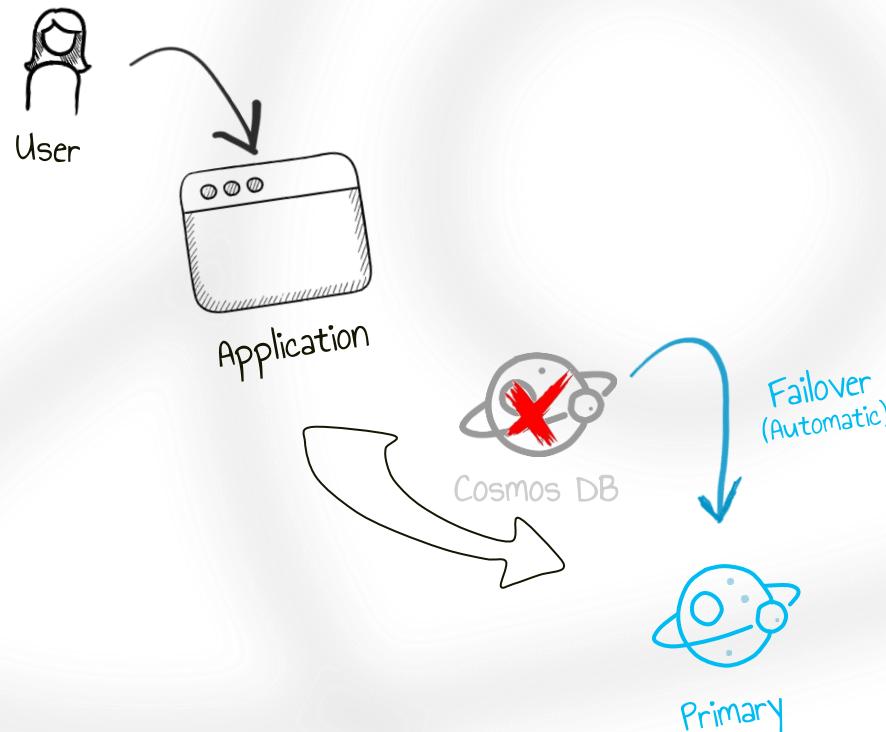
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Disaster Recovery



tags: azure, cosmos db, failover, recover, bcdr

Disaster Recovery



tags: azure, cosmos db, failover, recover, consistency

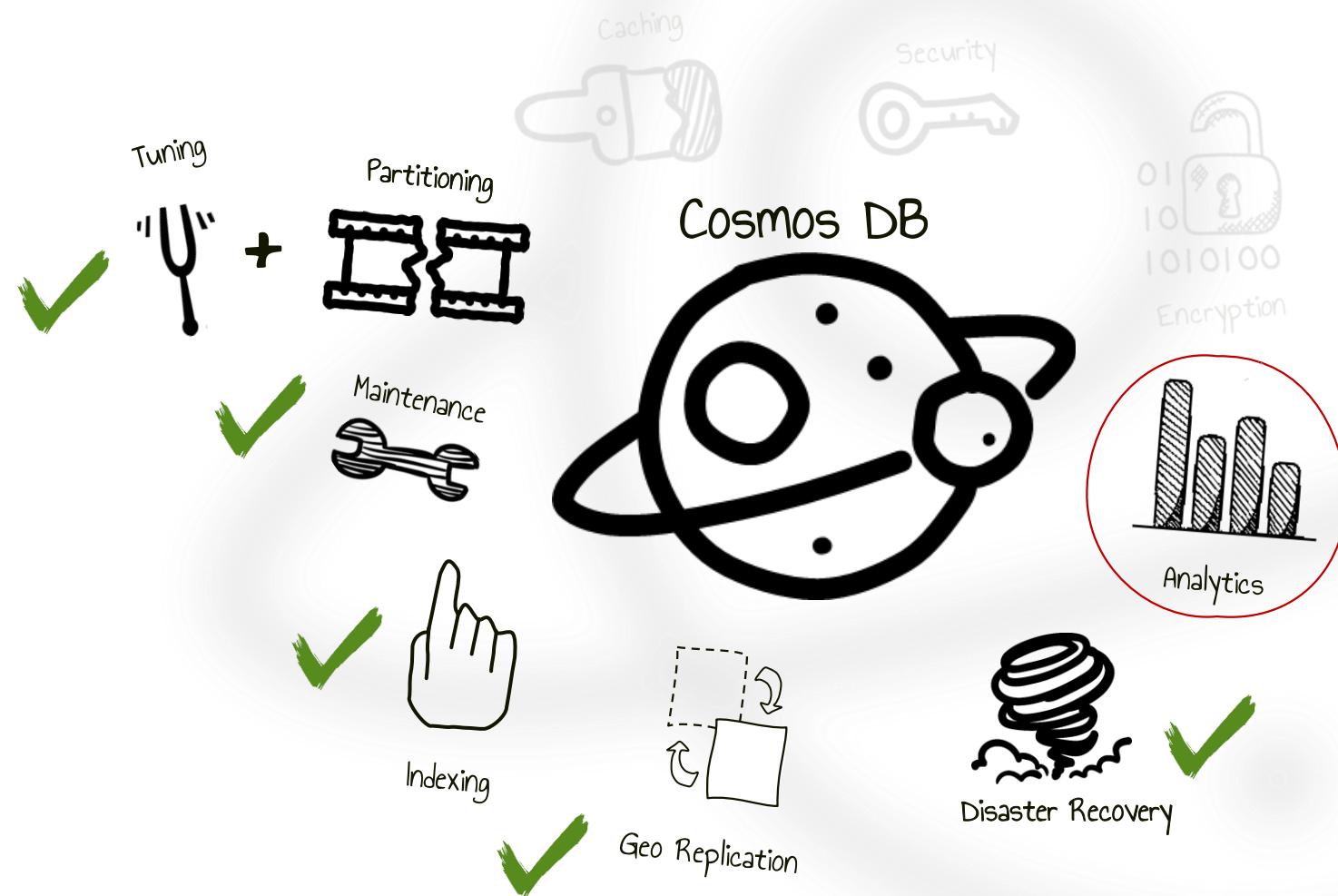
Geo-Replication + Disaster Recovery



1. Strong
2. Bounded Staleness
3. Session
4. Consistent Prefix
5. Eventual

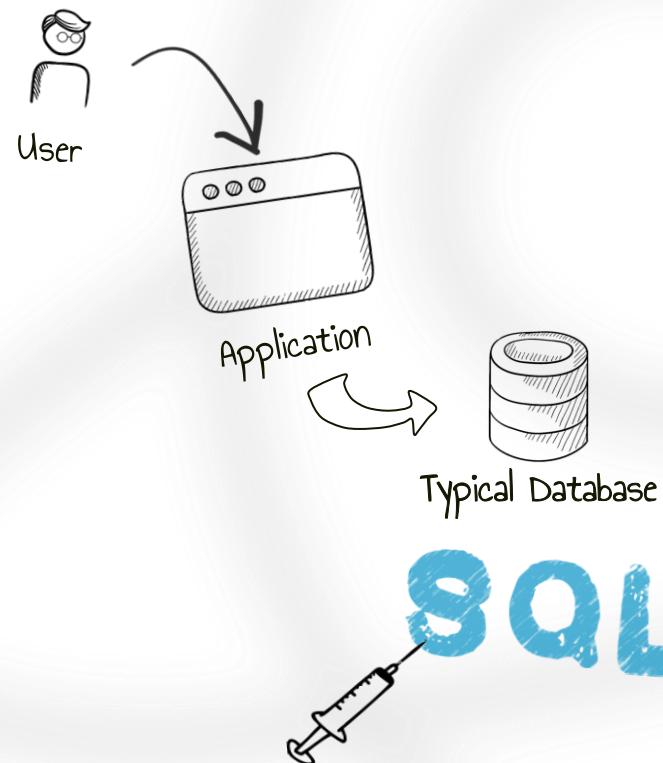
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Azure Cosmos DB



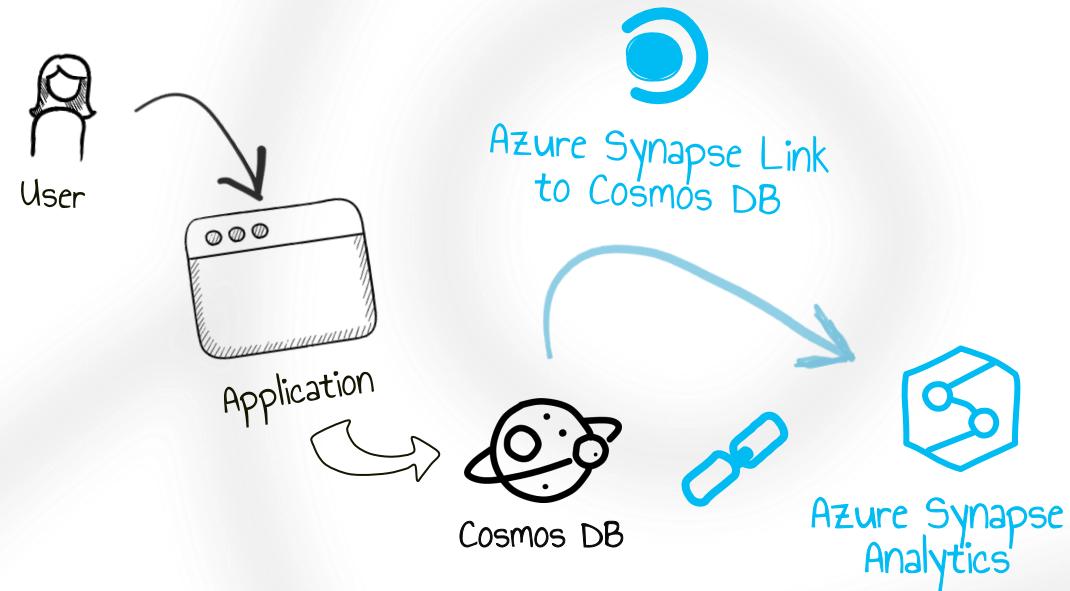
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Analytics



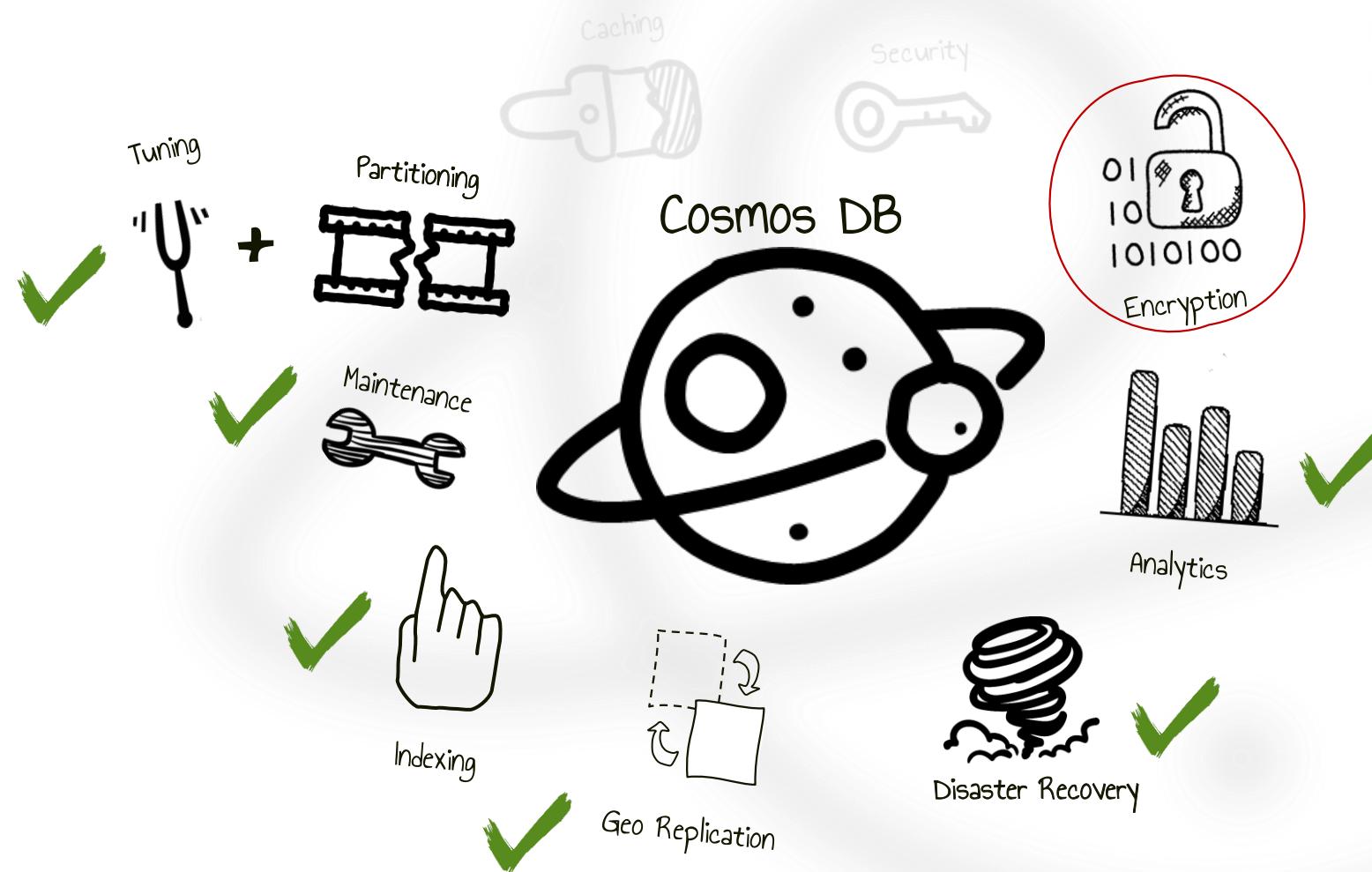
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Analytics



tags: azure, cosmos db, capability, database, application

Azure Cosmos DB



tags: database, security

Encryption versus Masking

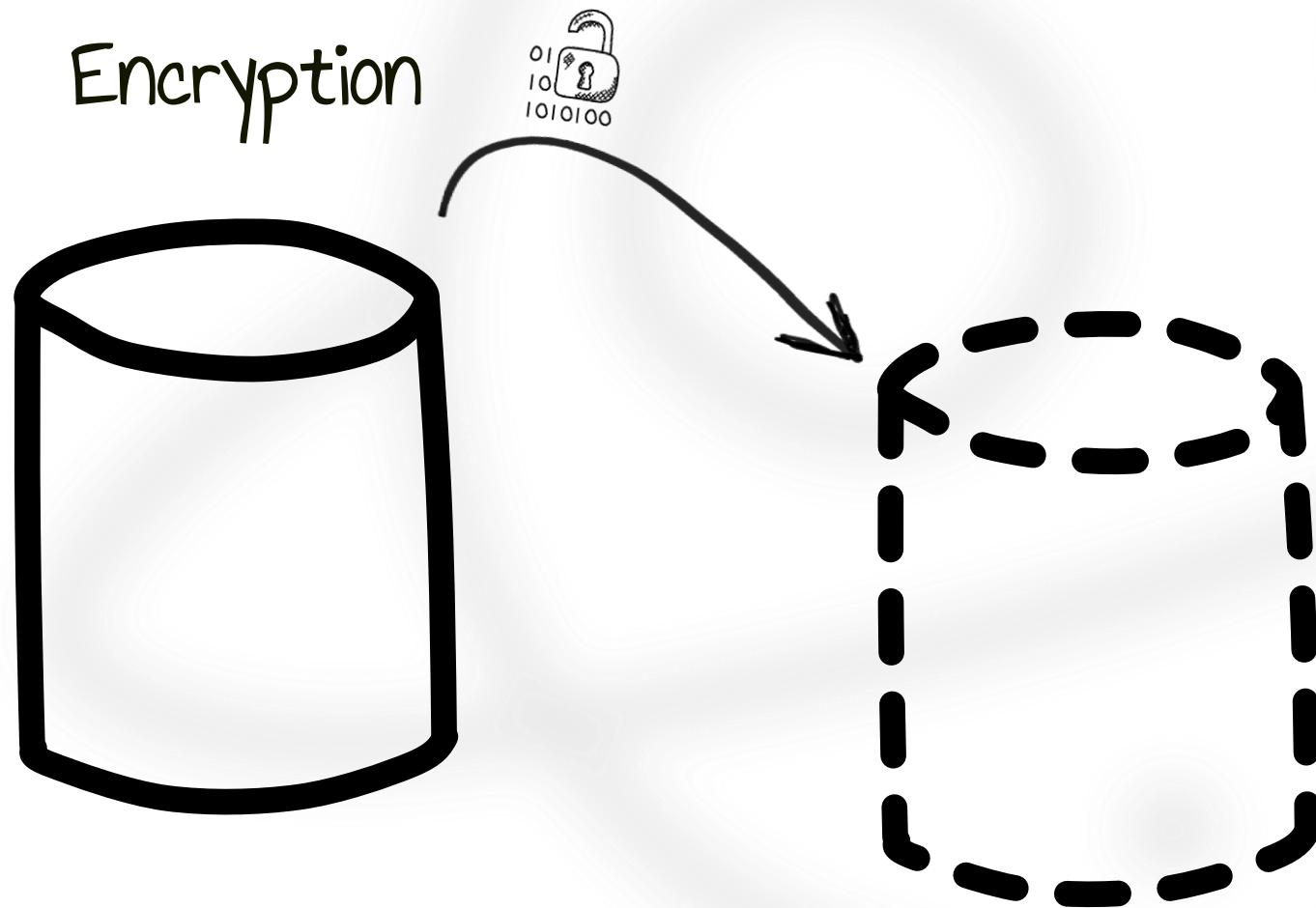
Encryption



Masking

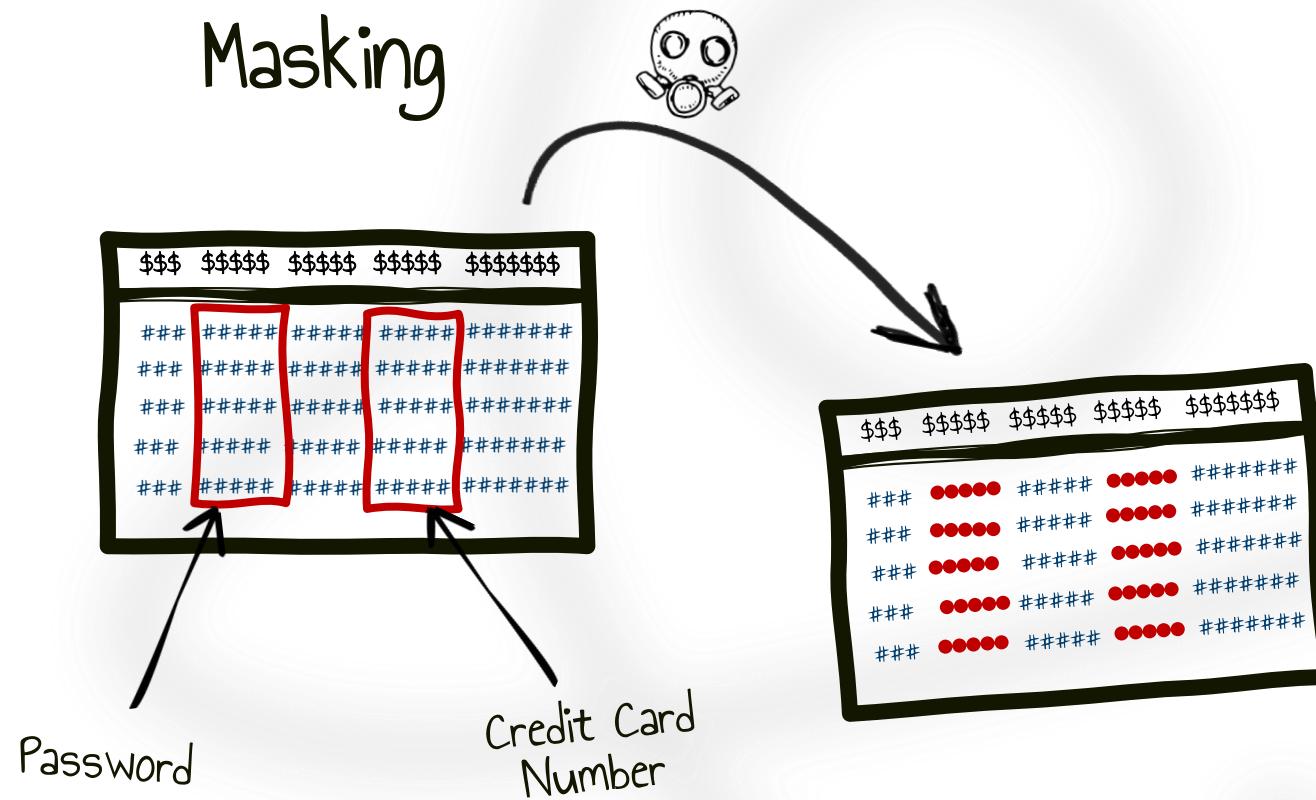
tags: database, security

Encryption versus Masking



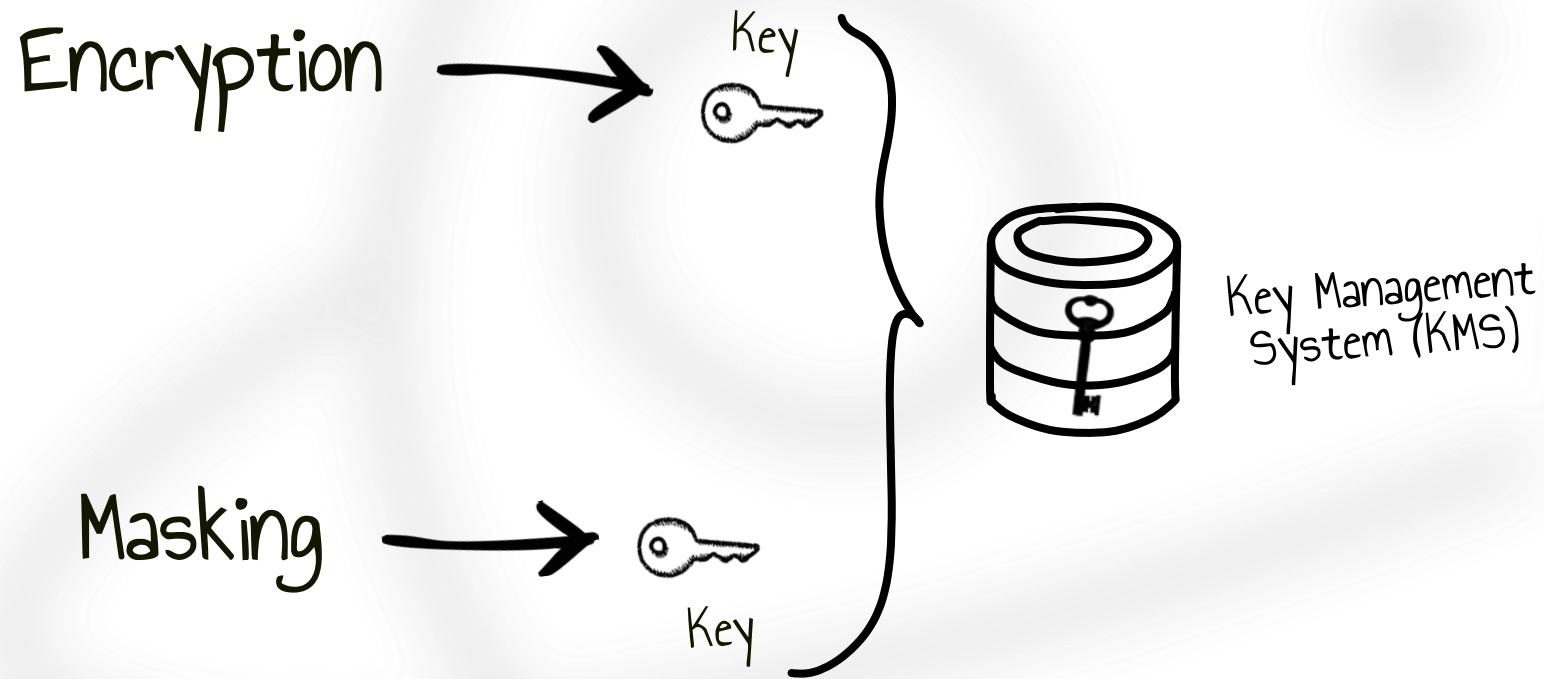
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Encryption versus Masking



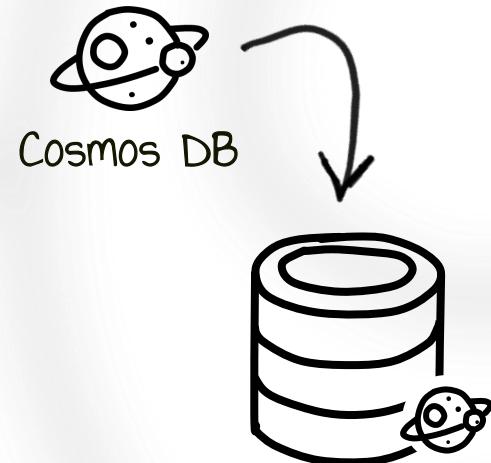
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Encryption versus Masking



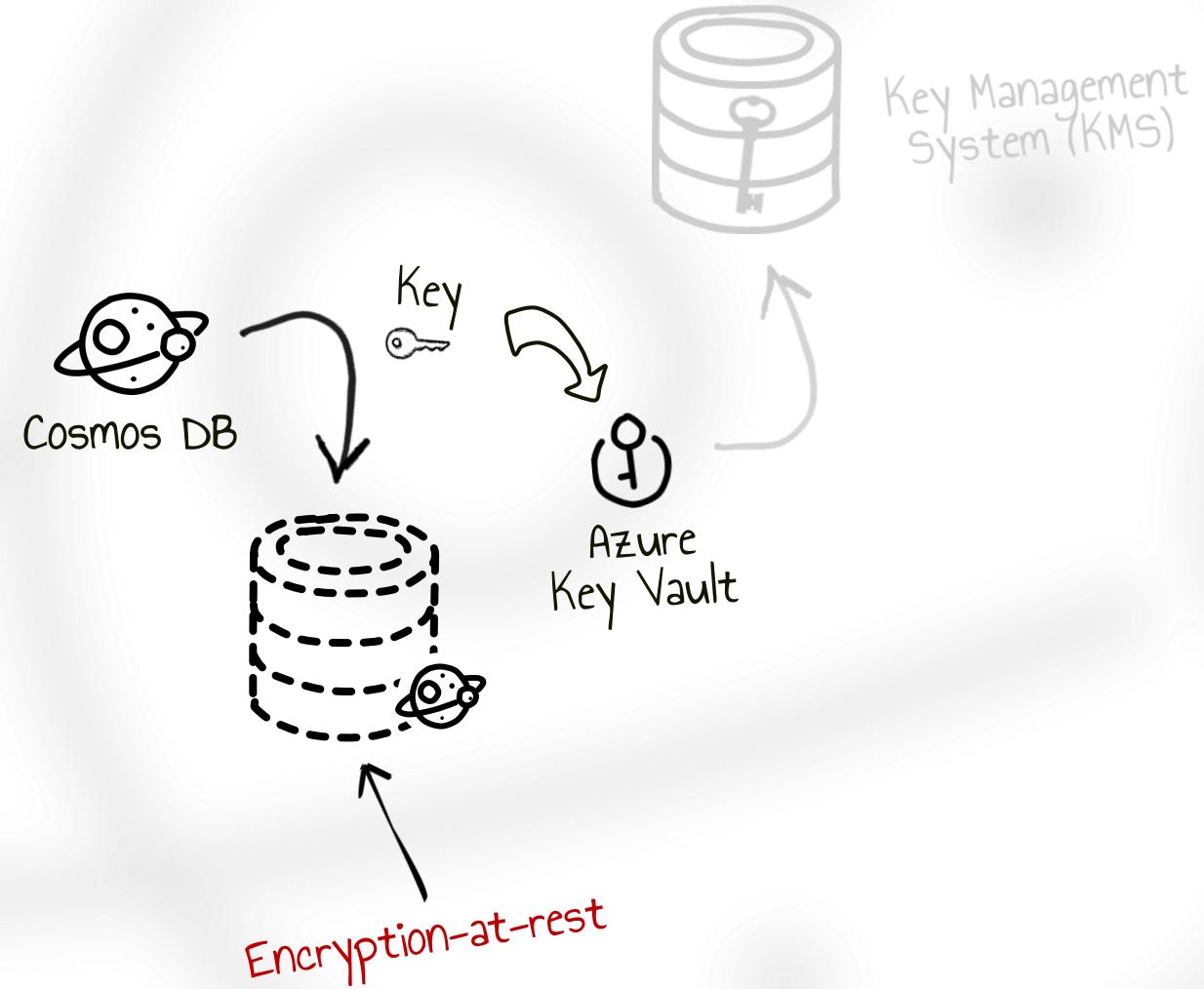
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Encryption



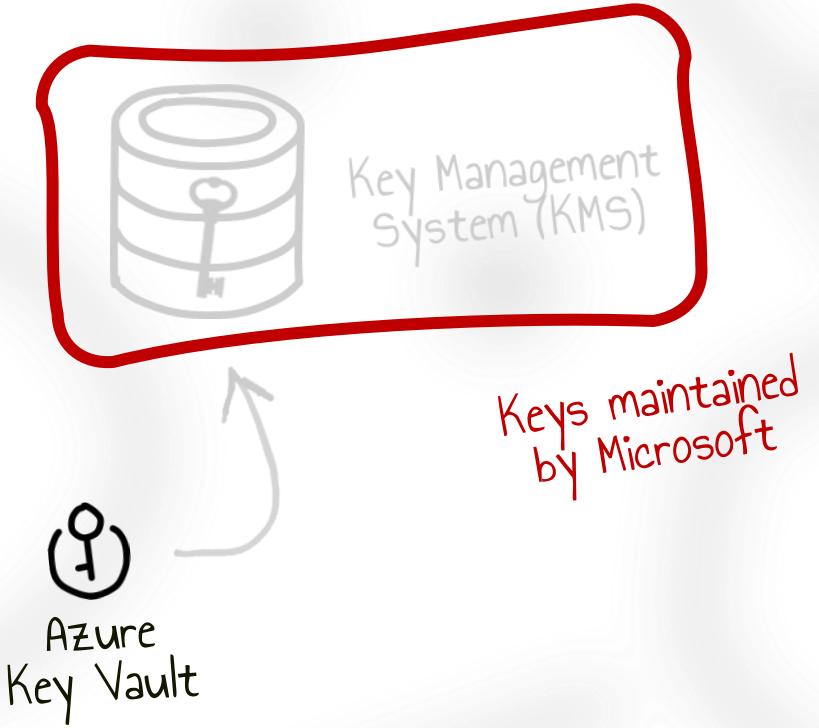
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Encryption



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Encryption



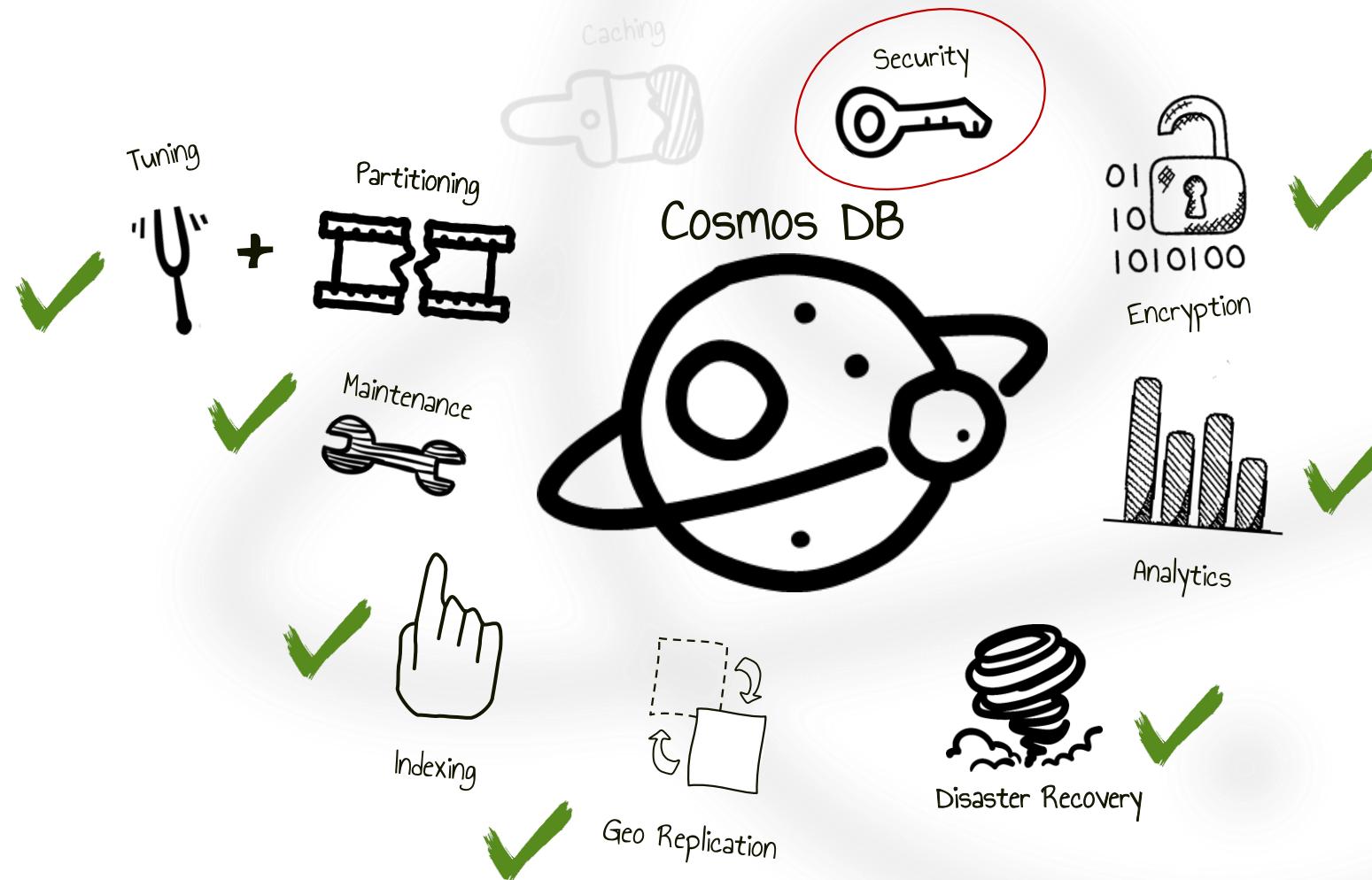
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Encryption



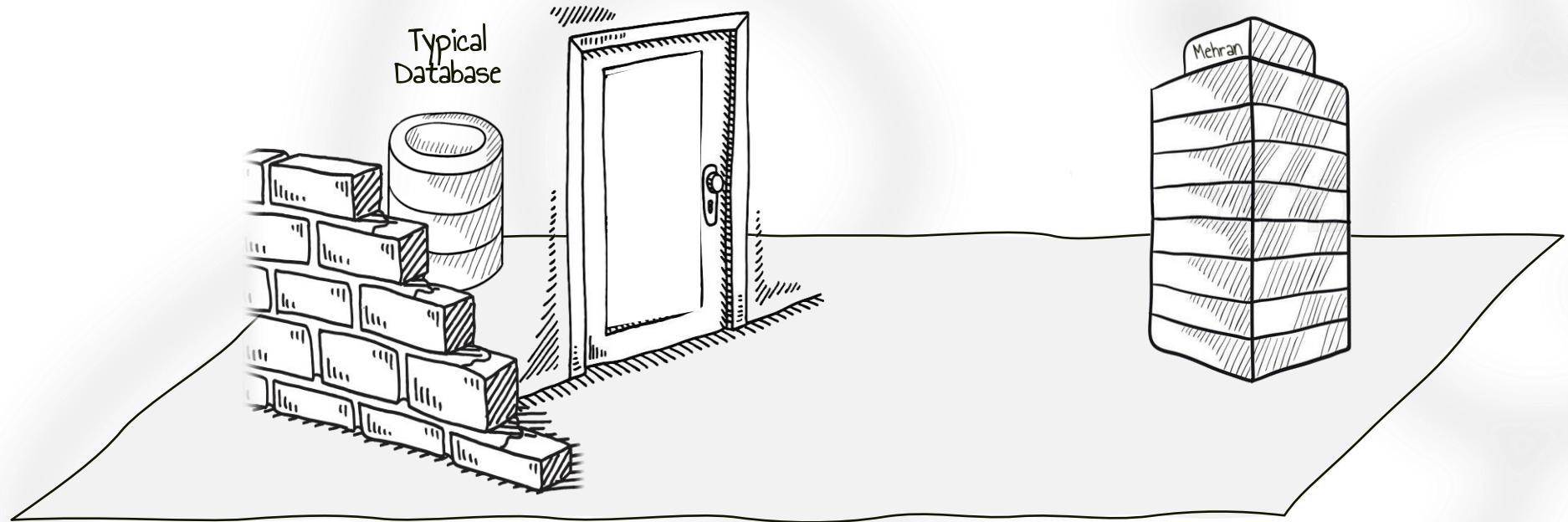
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Azure Cosmos DB



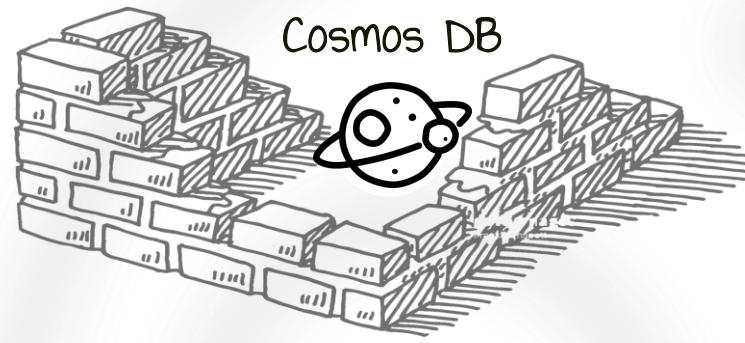
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Security

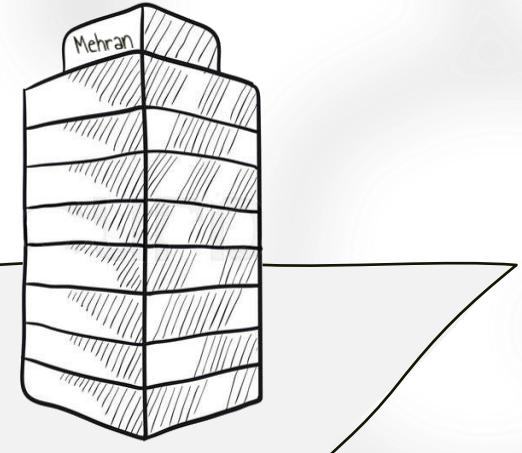


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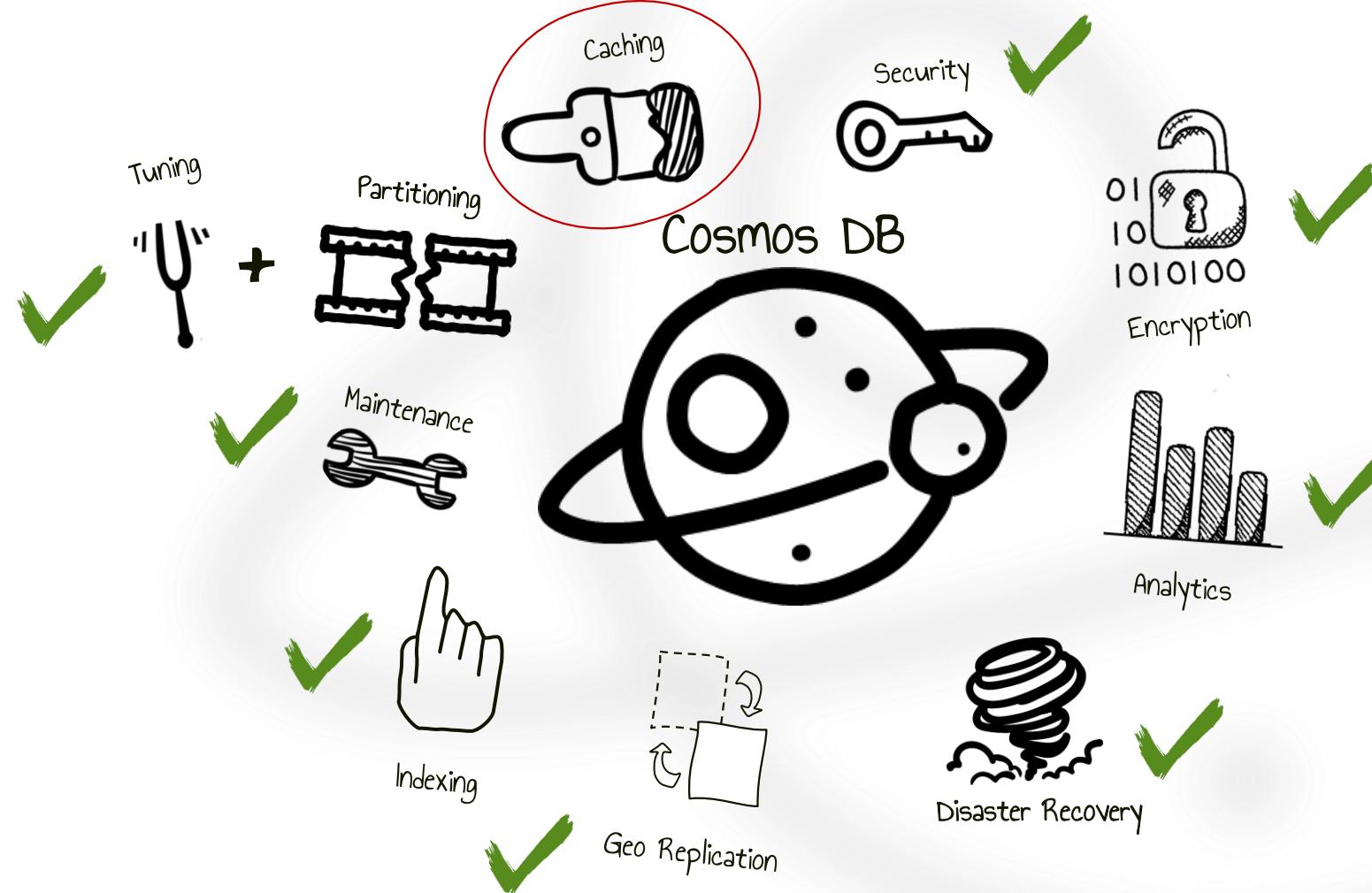


IP Filtering



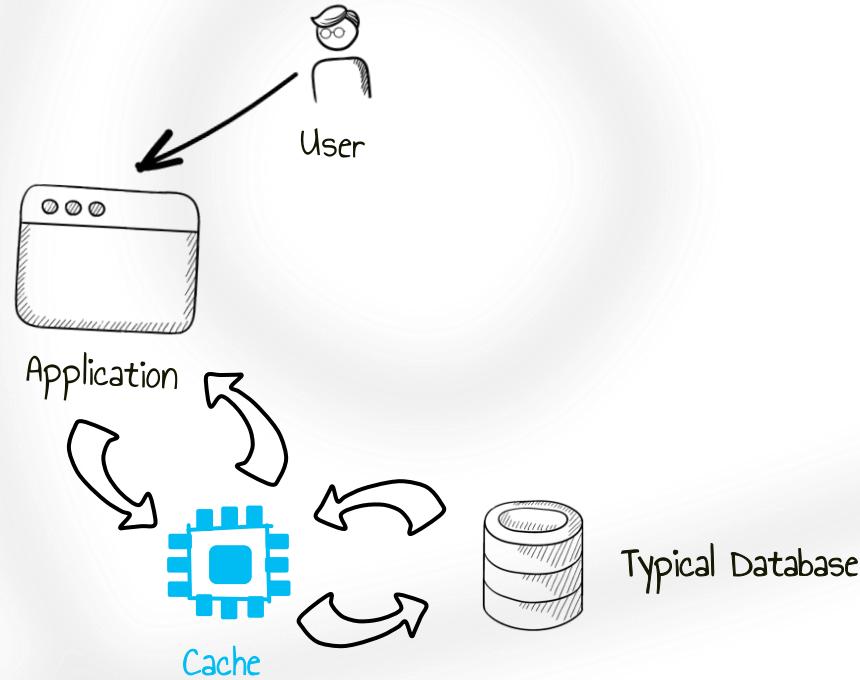
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Azure Cosmos DB



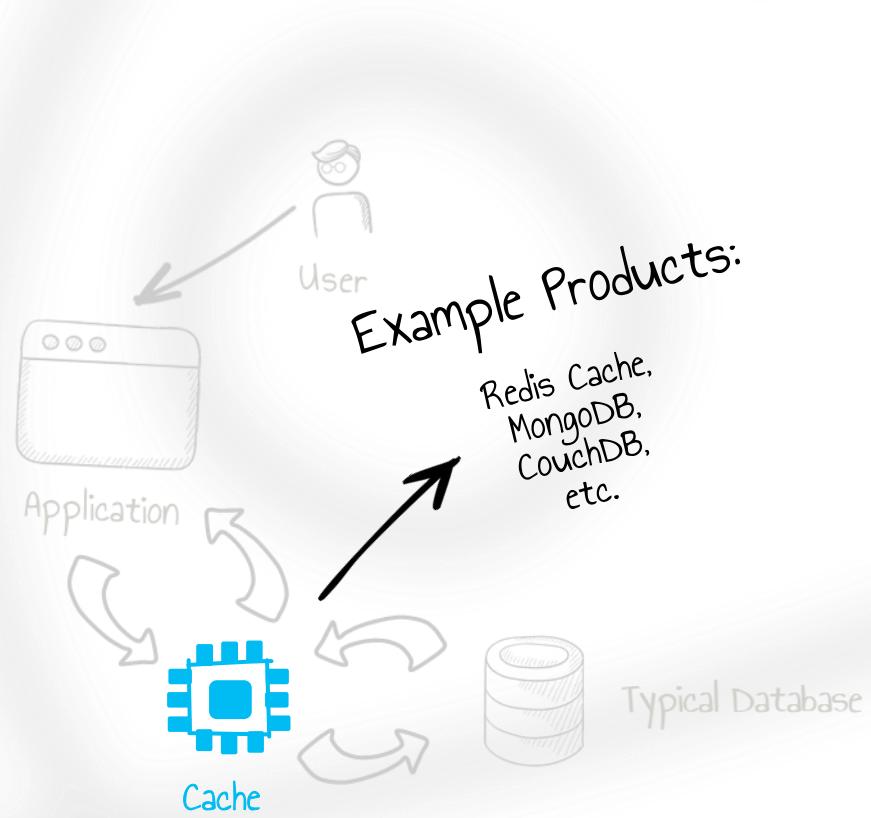
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Caching



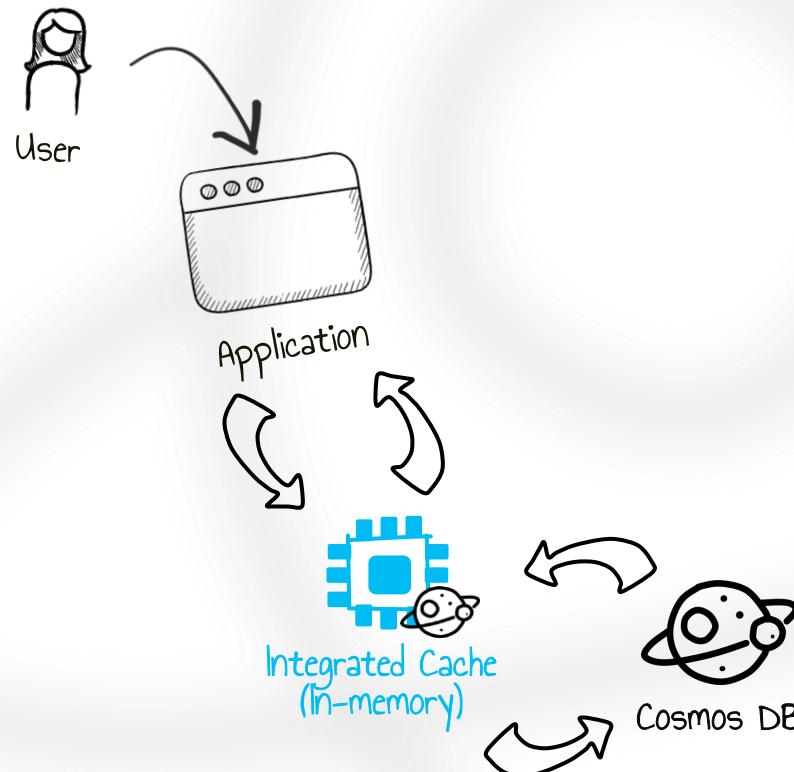
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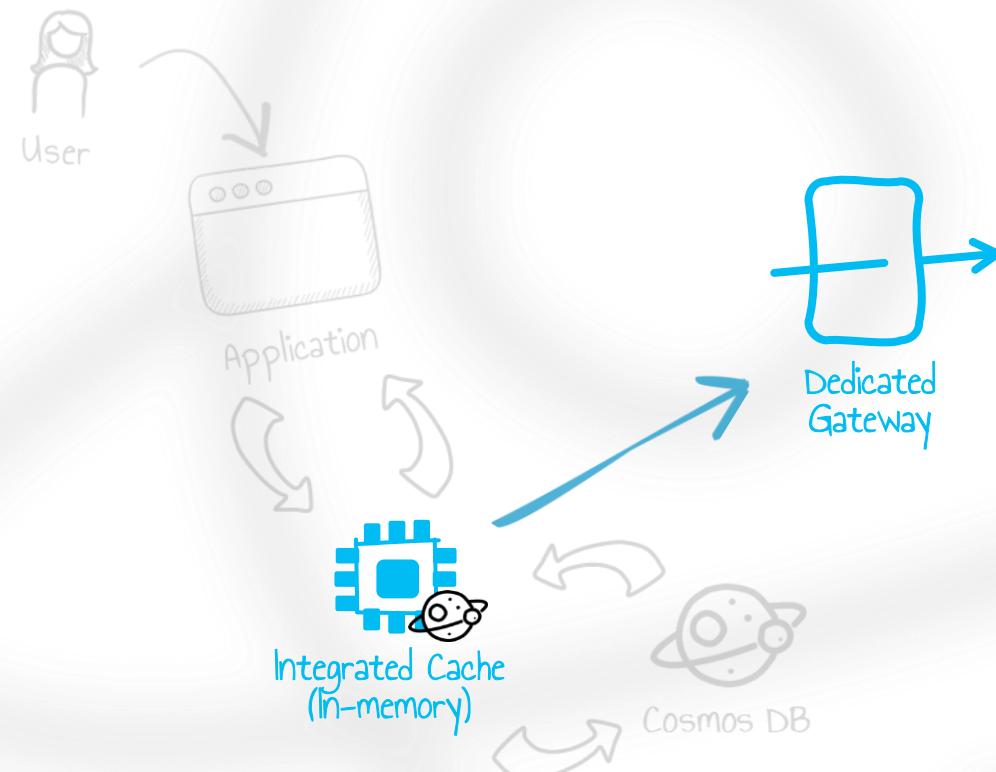
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Caching



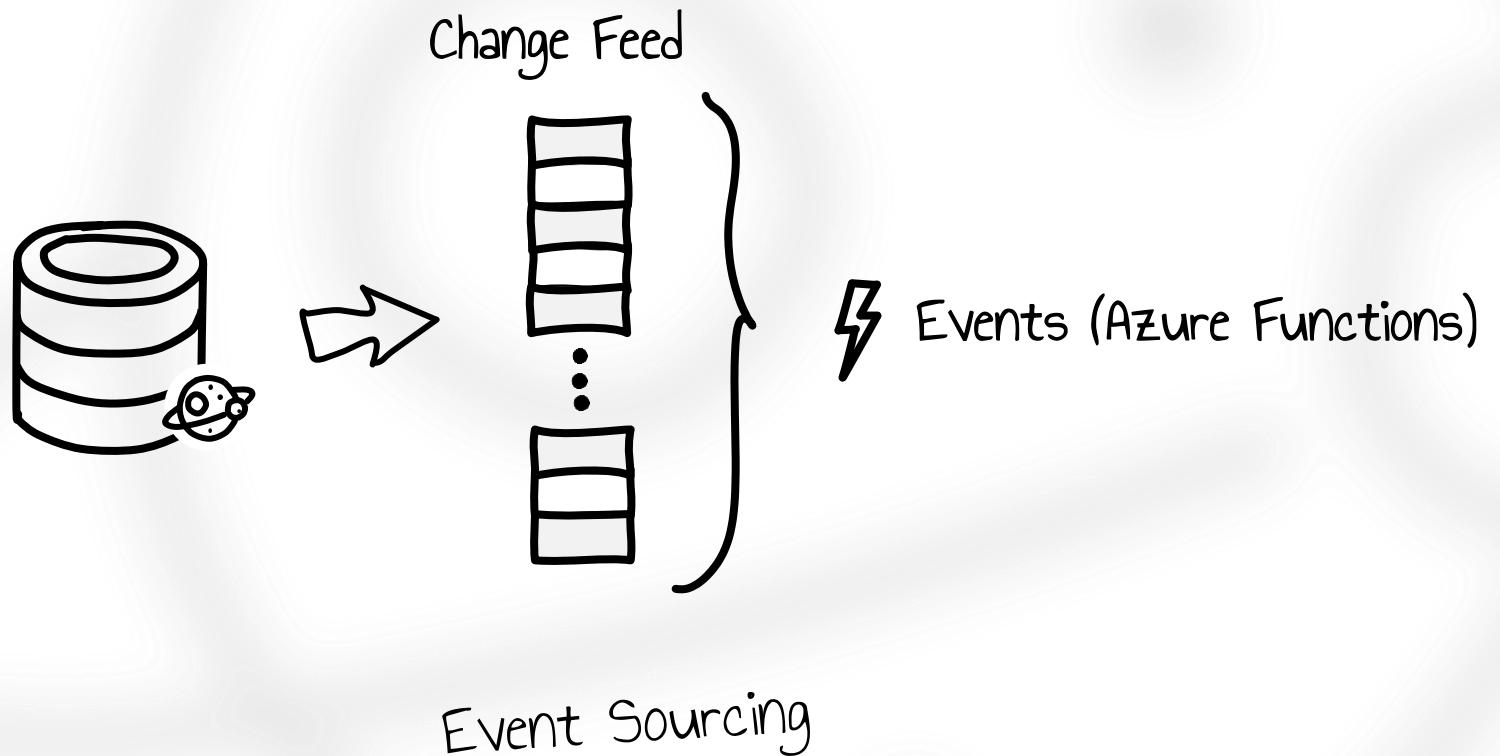
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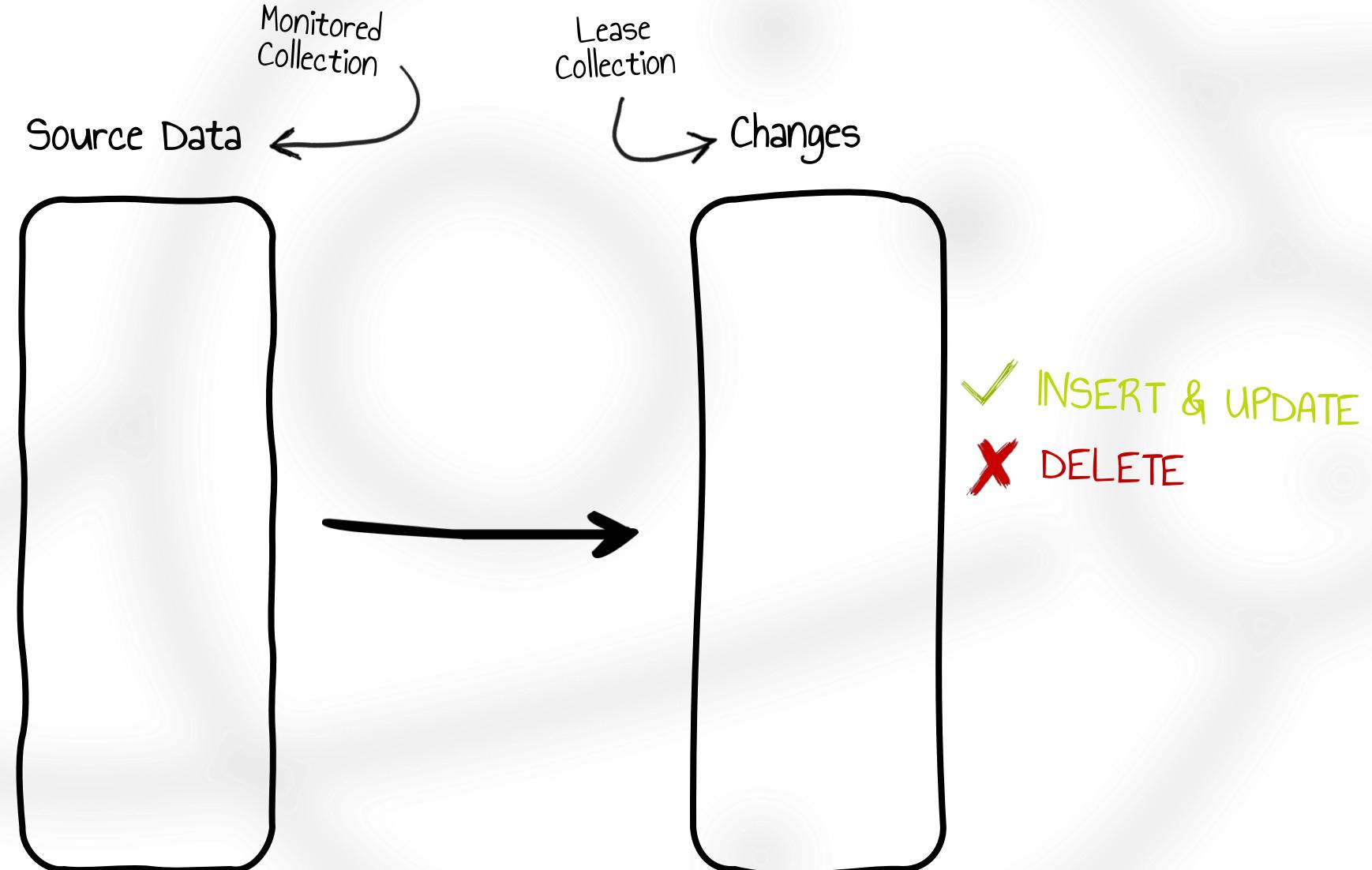
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Change Feed

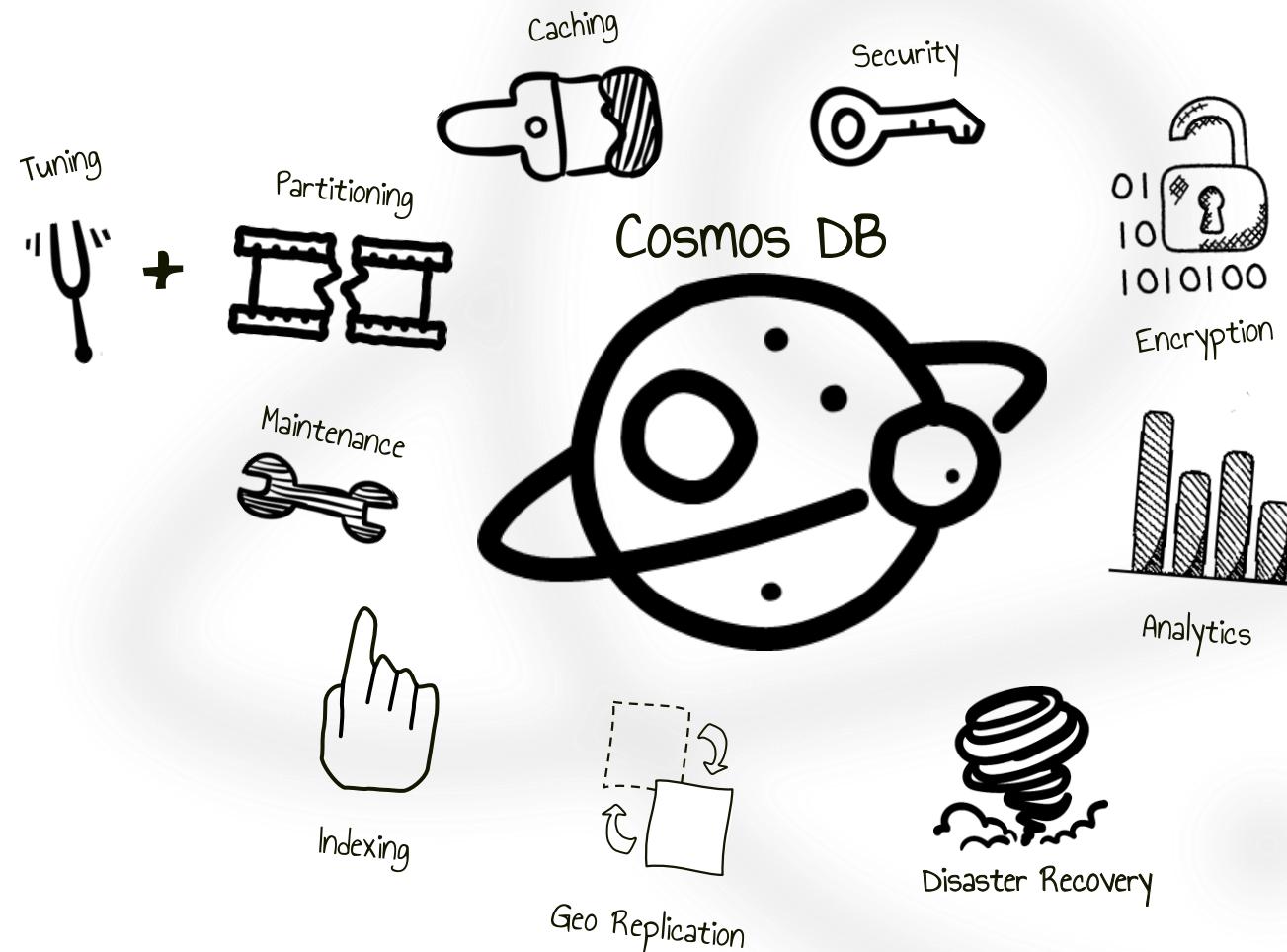


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Change Feed



Section Recap



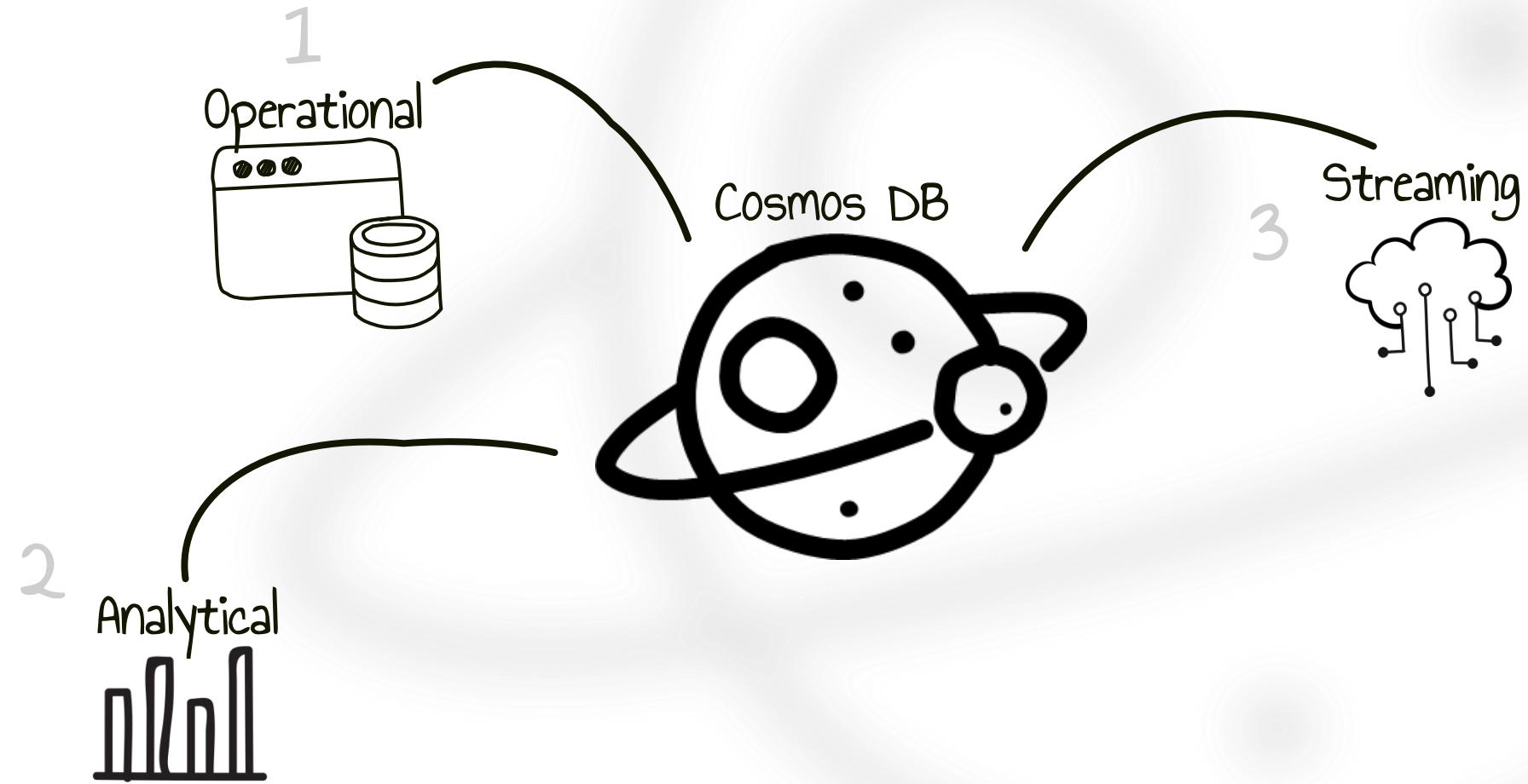
Workloads

Scenarios for using Azure Cosmos DB



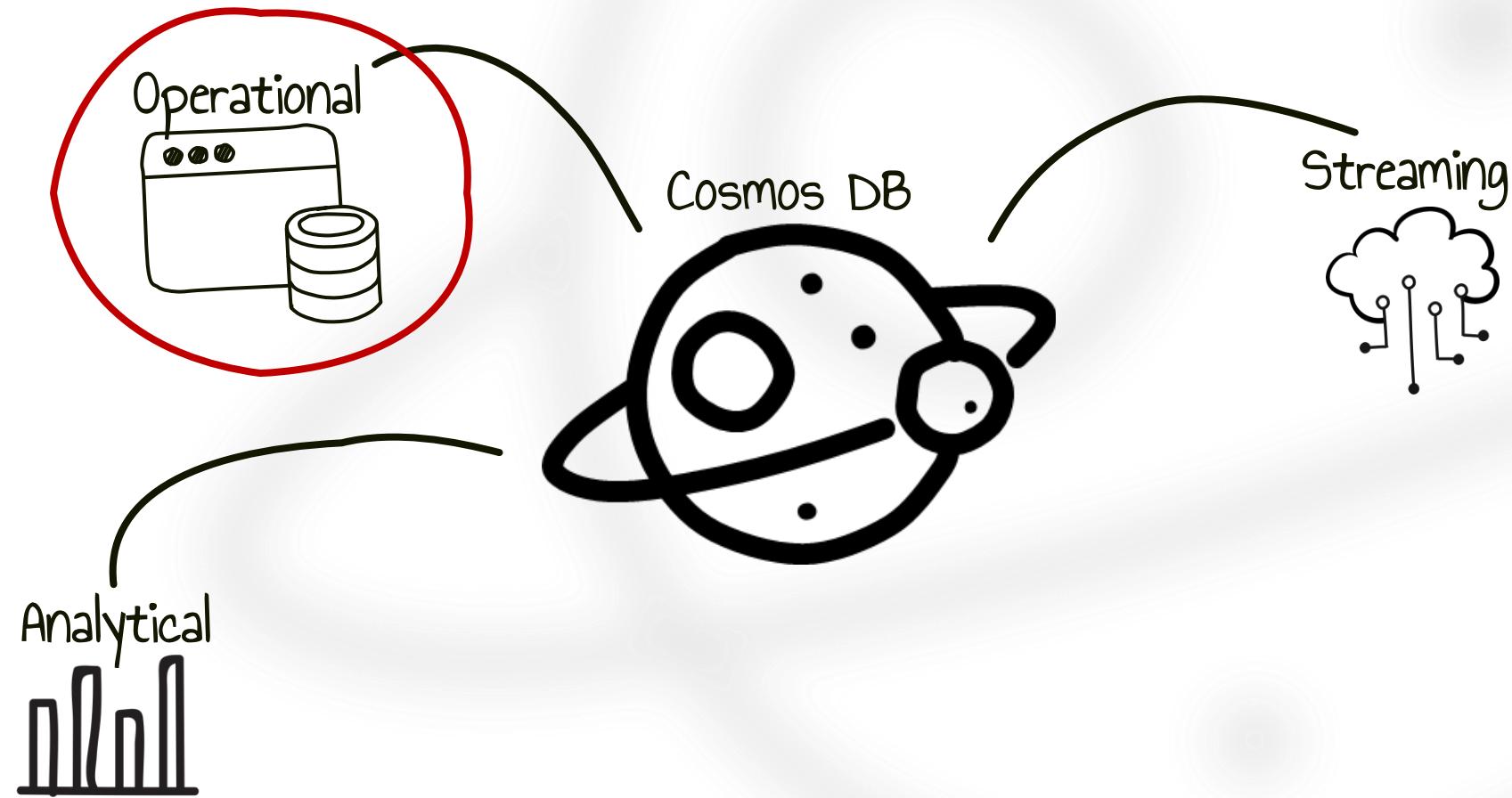
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Workloads



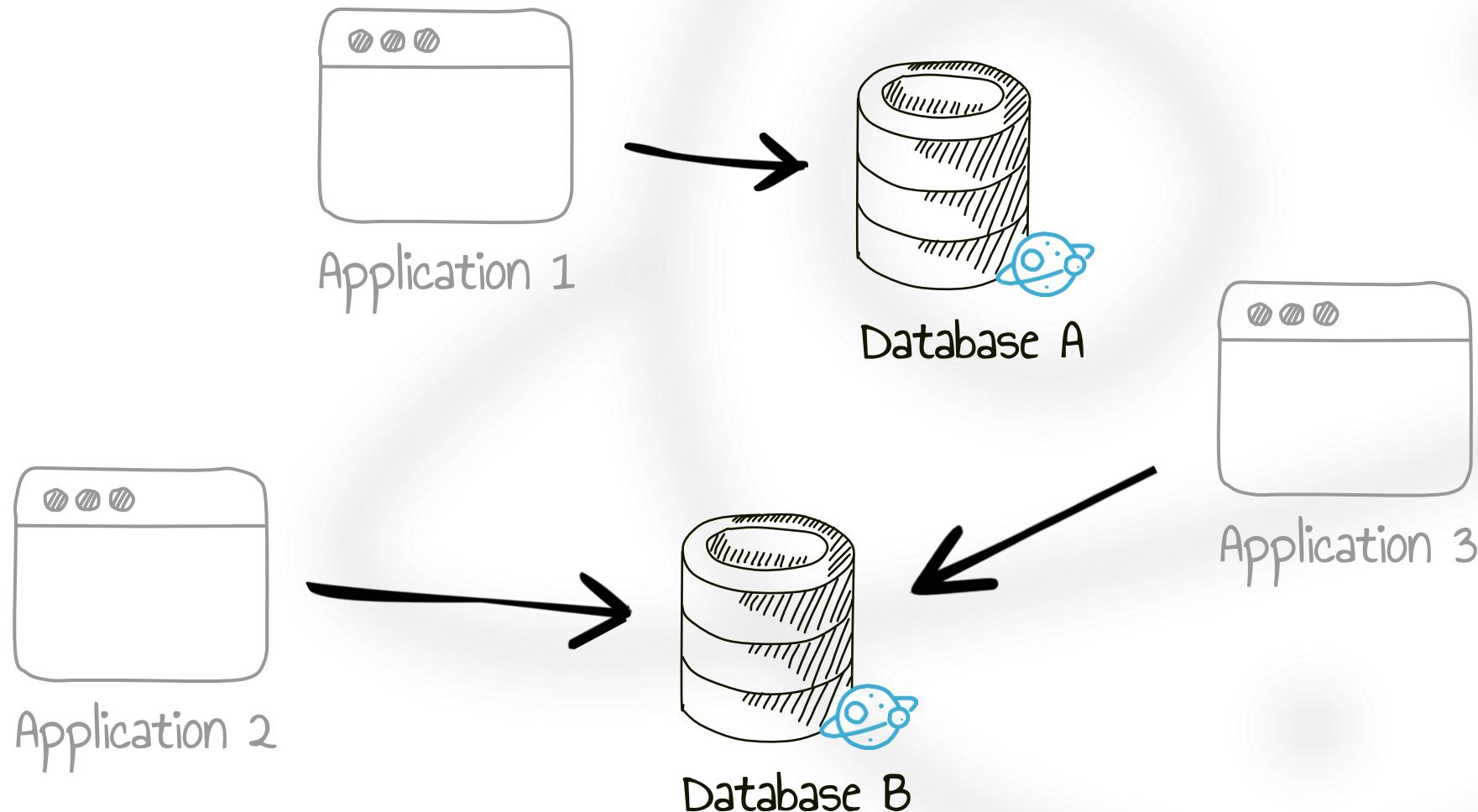
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Workloads



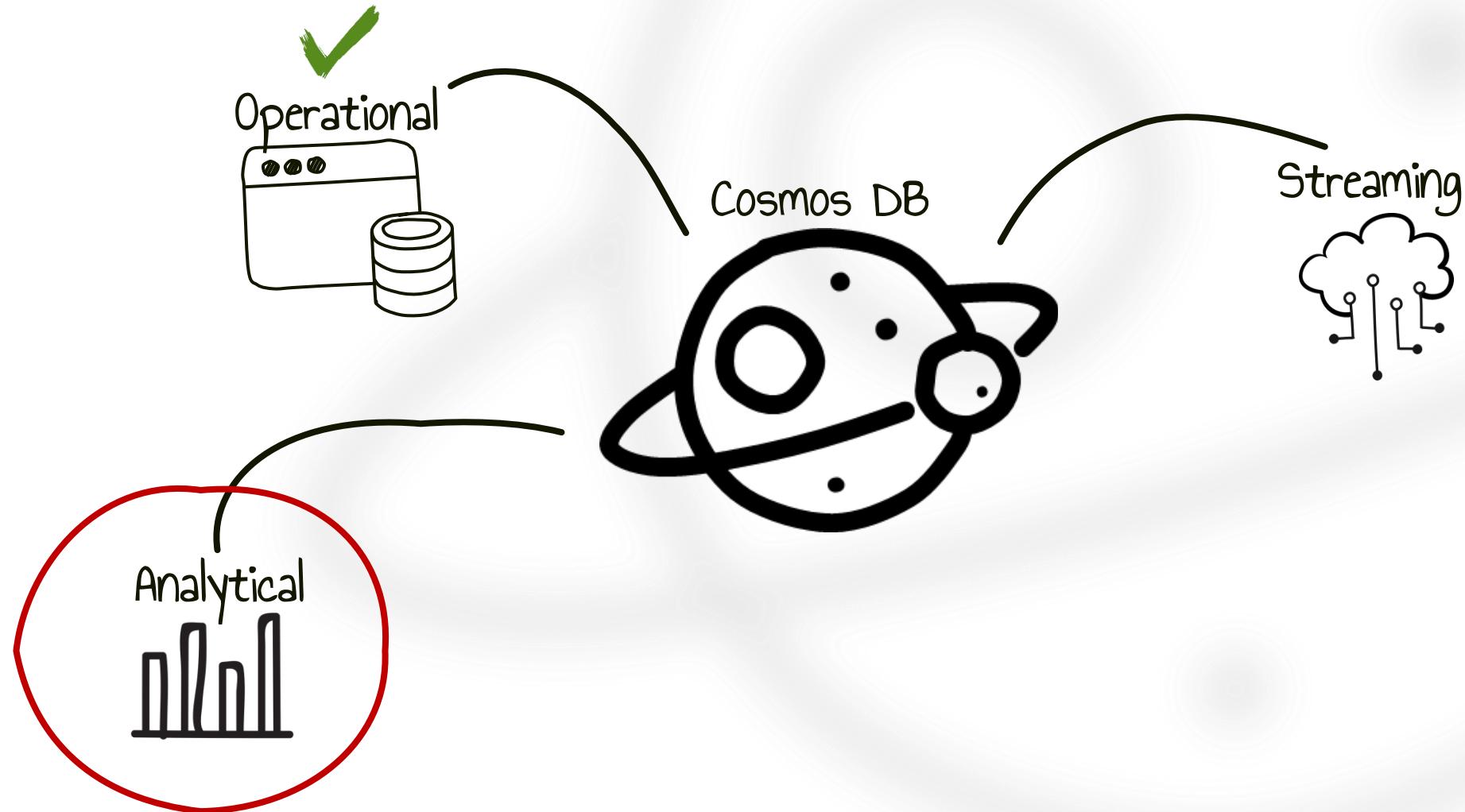
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Operational Workloads



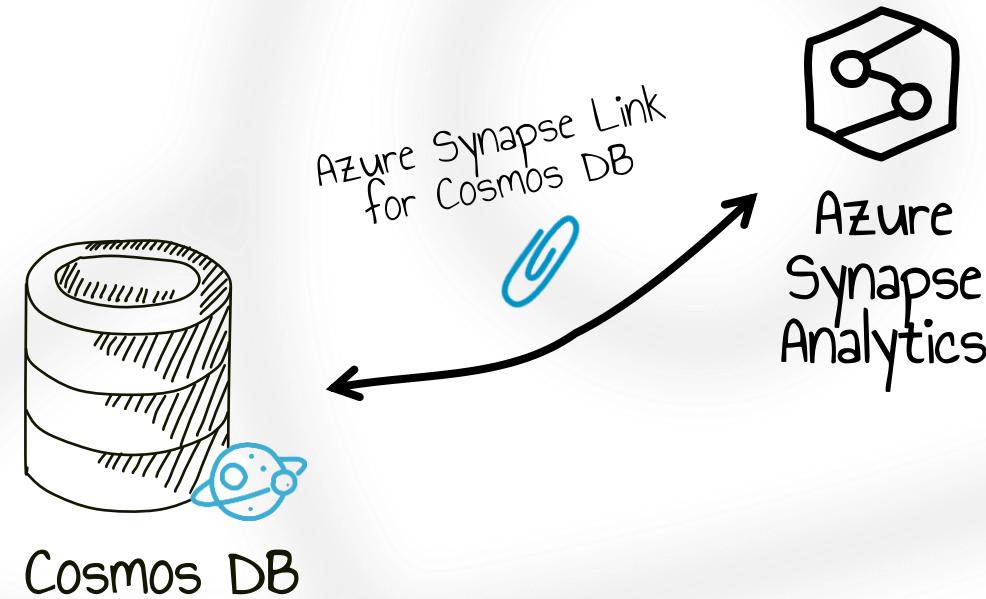
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Workloads



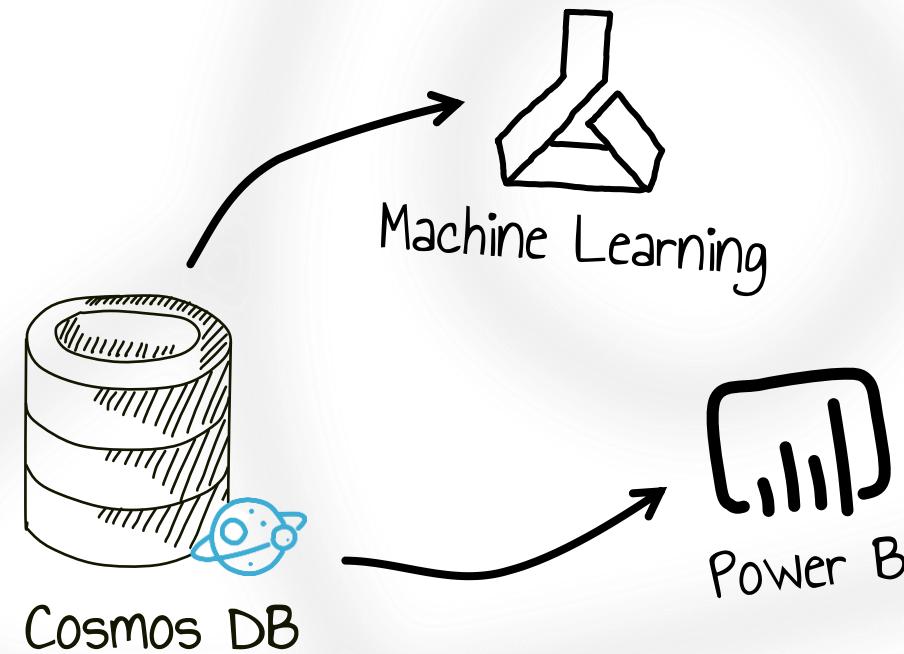
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Analytical Workloads



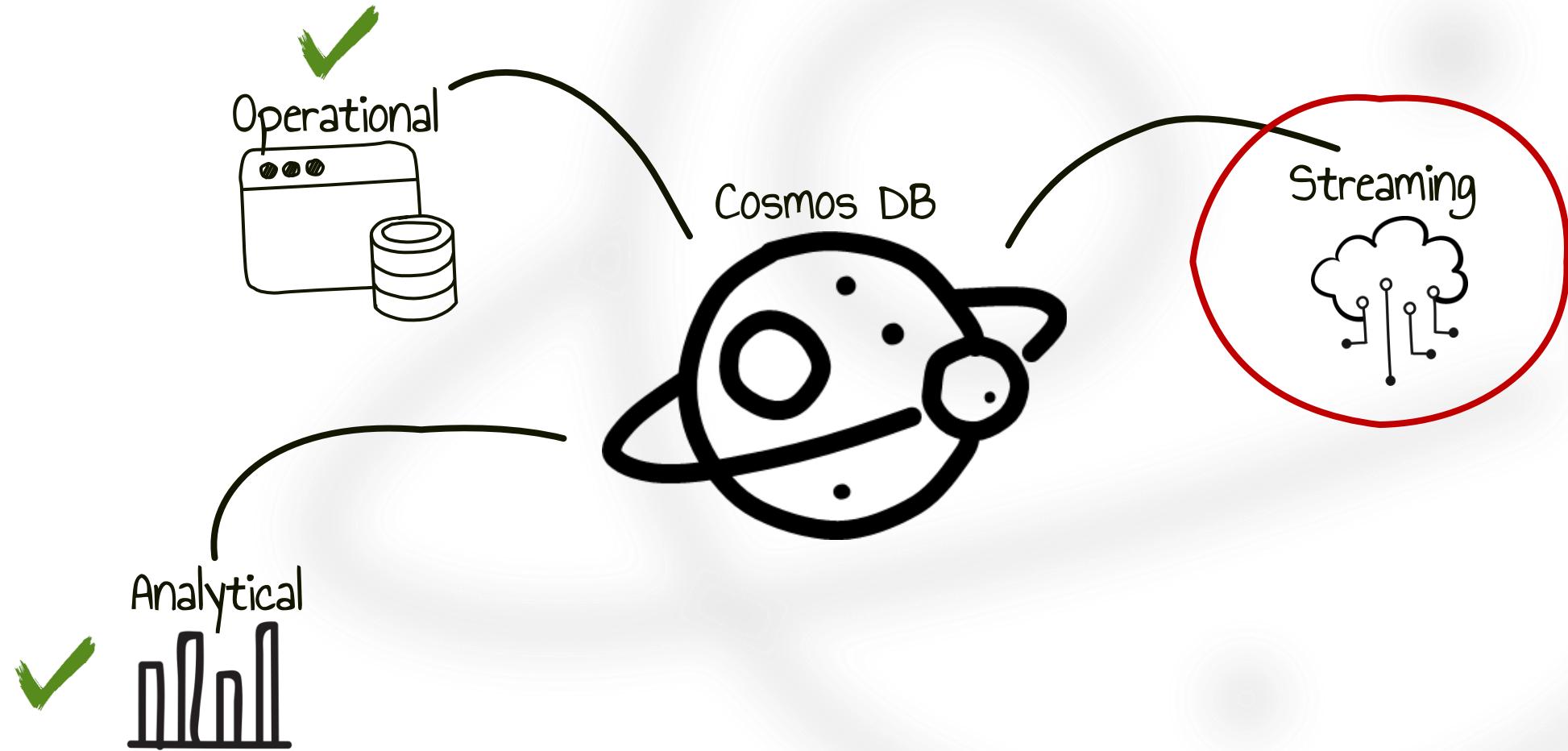
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Analytical Workloads



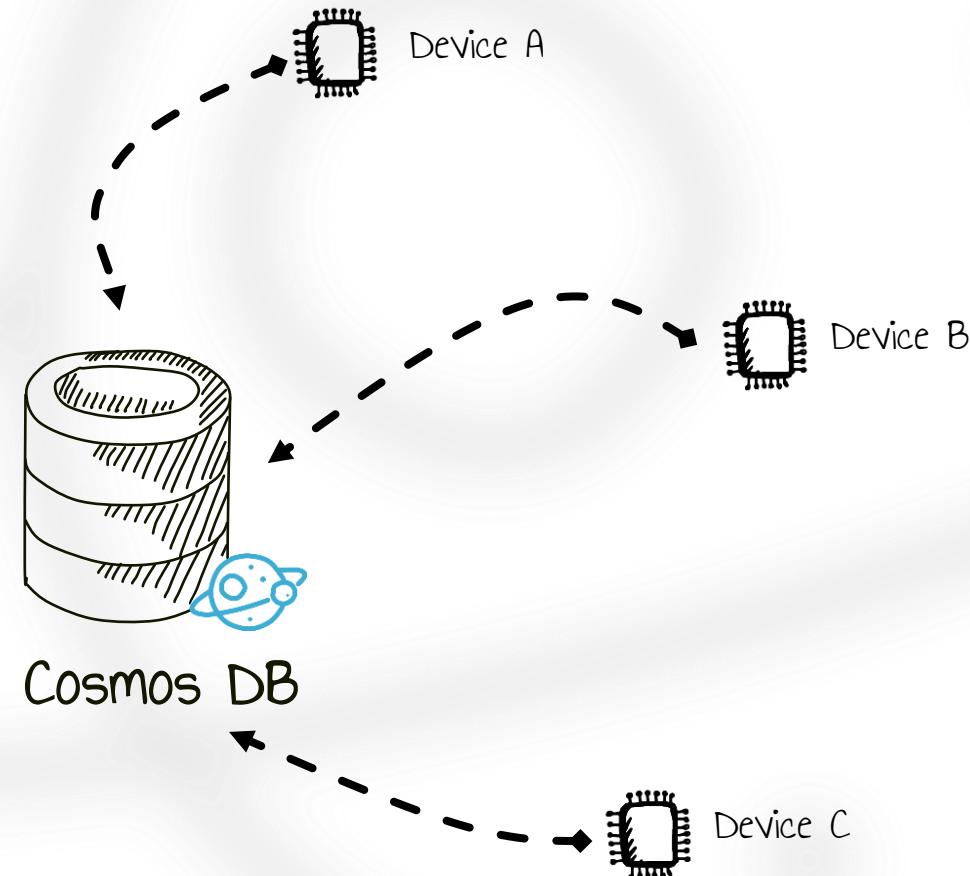
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Workloads



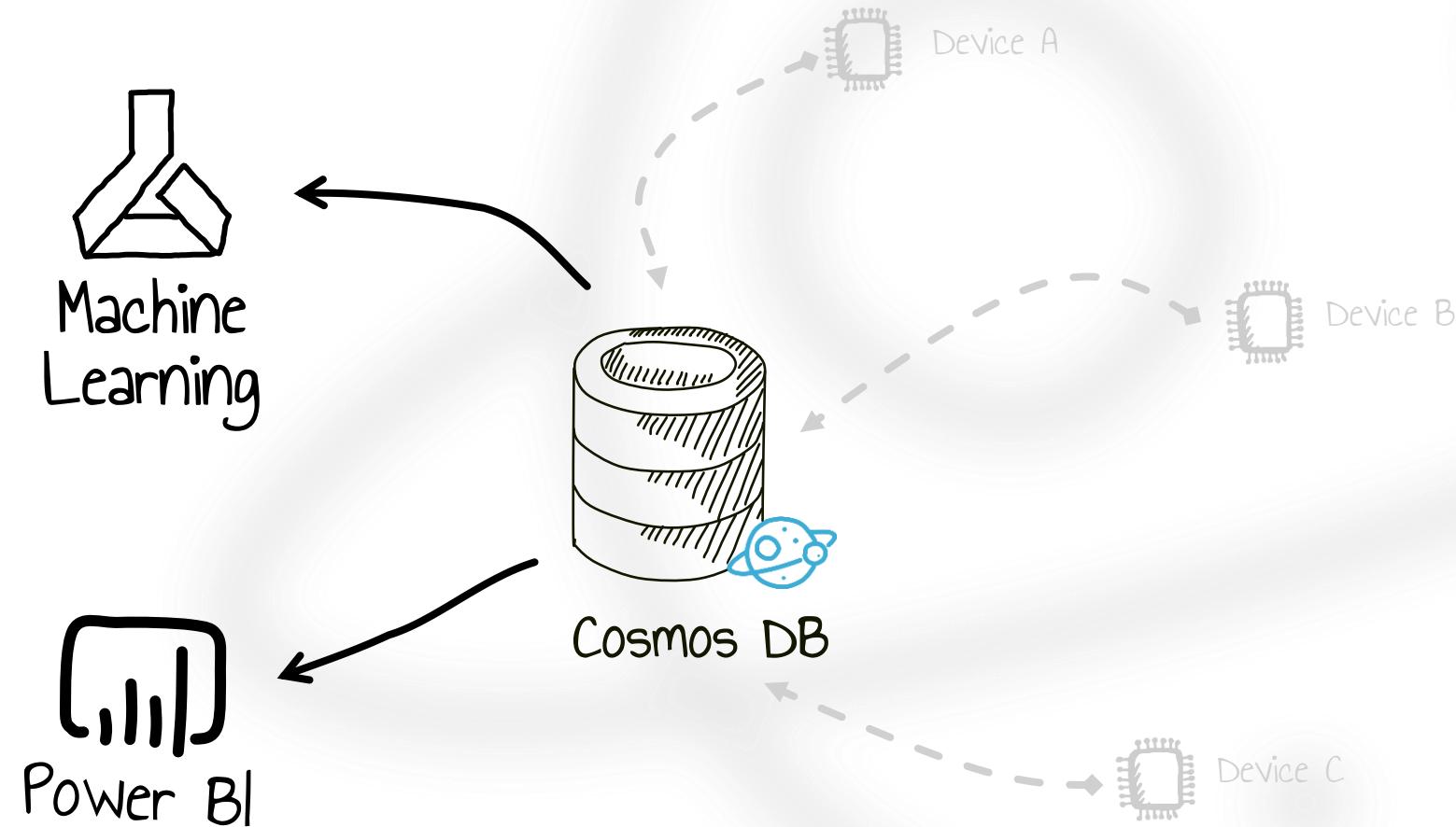
tags: azure, cosmos db, iot

Data Streaming Workloads



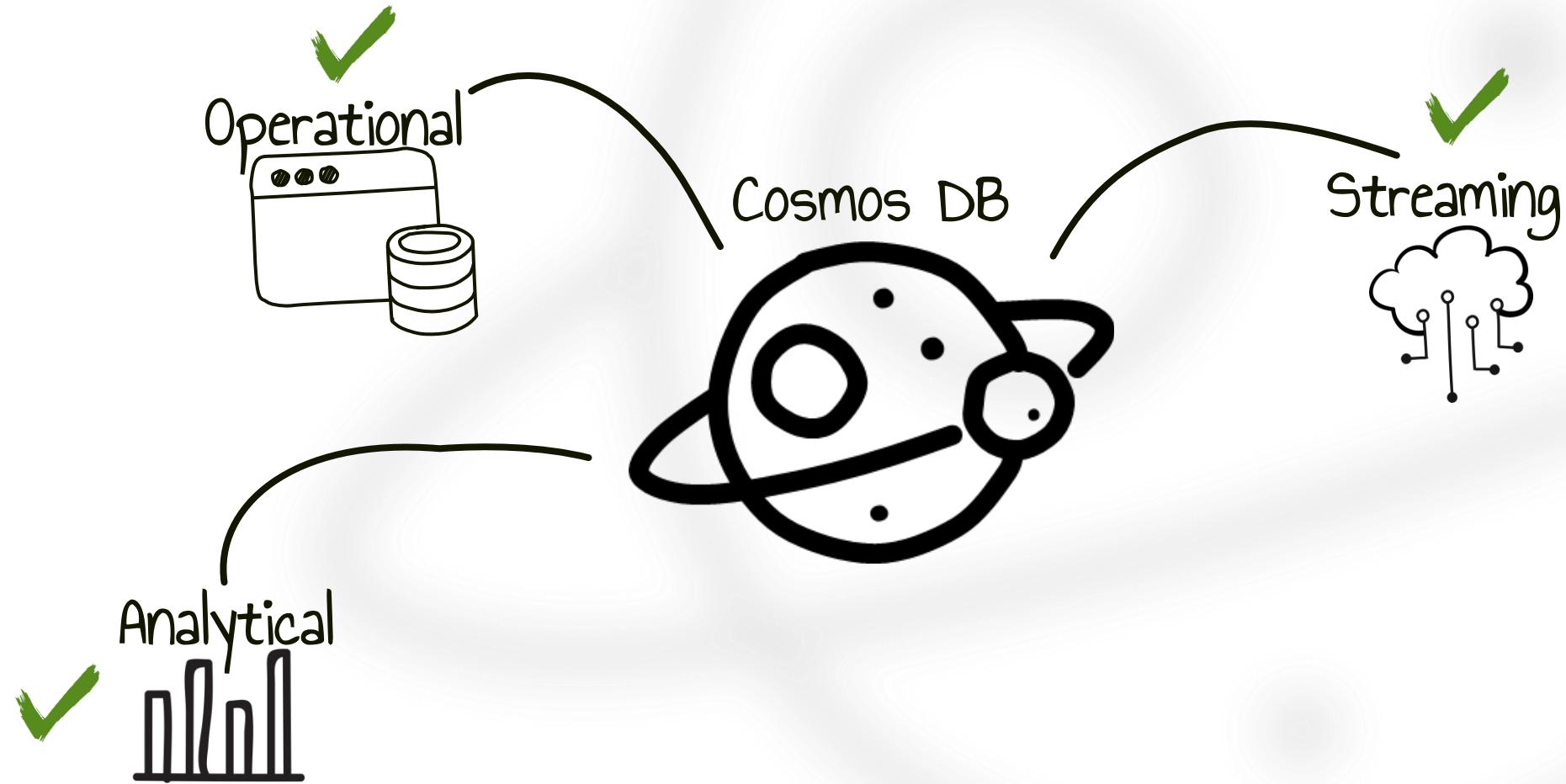
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Data Streaming Workloads



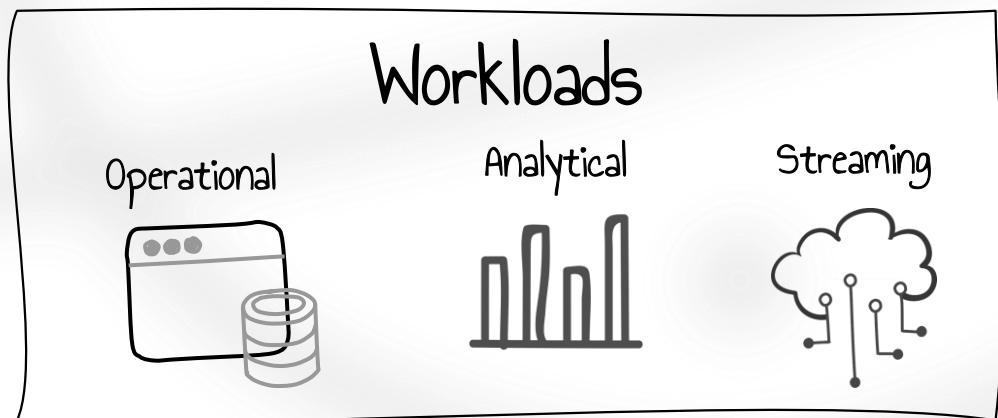
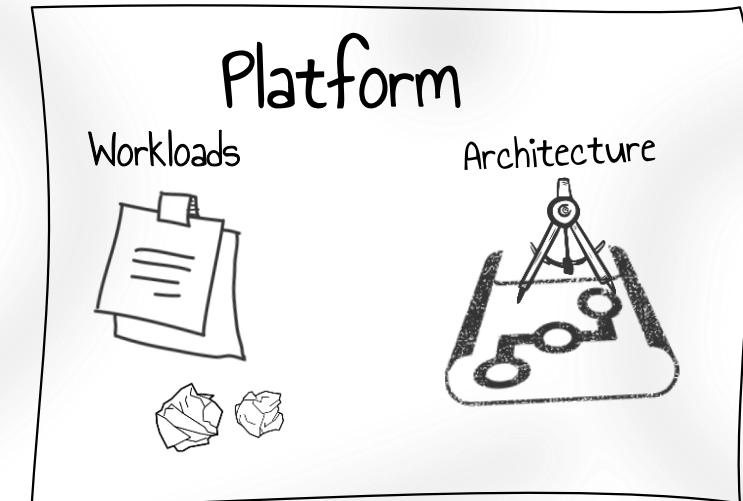
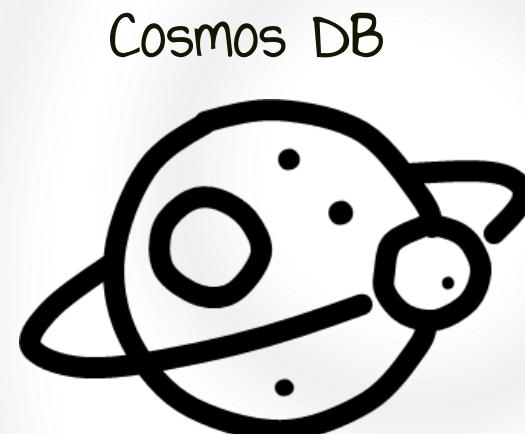
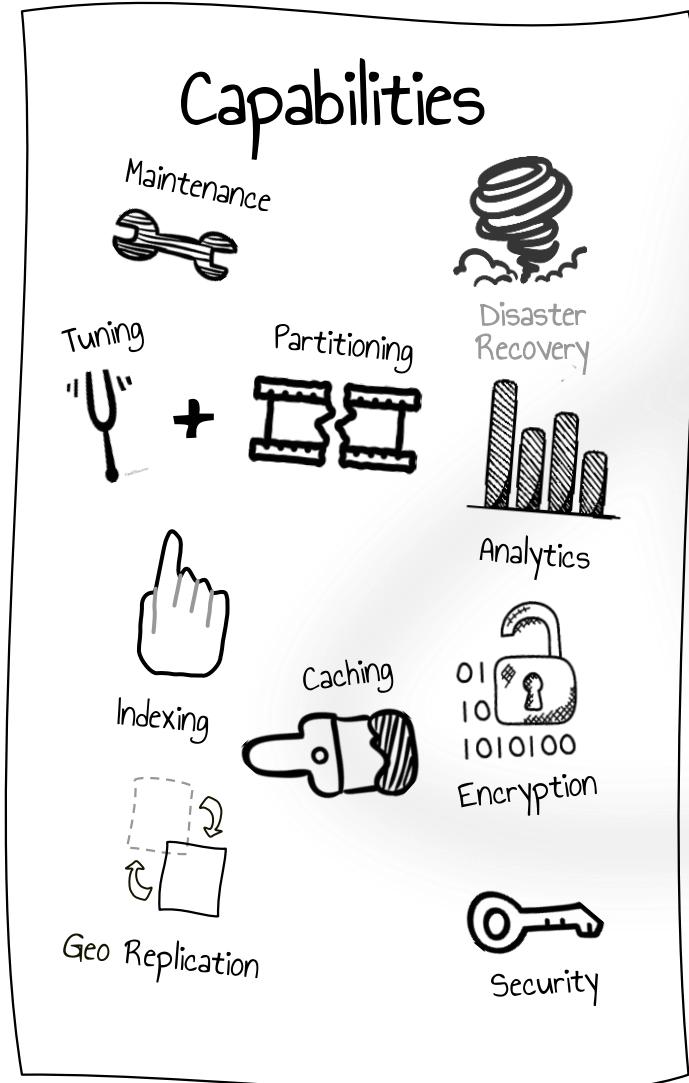
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Workloads



tags: azure, cosmos db, platform, capability, workload

Recap



Thank You!



LIKE

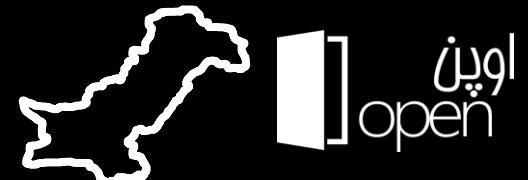


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