Journey to Cosmos DB

Sharing story of a cosmic journey with Cosmos DB

RELENTLESSLY DRIVING INNOVATION

Elkhan Yusubov

T-REX

April 24, 2020

Welcome!

Elkhan Yusubov

Cloud Principal Engineer

T-Rex Solutions

Speaker • Microsoft Certified Trainer • SAFe CSM • HL7

FHIR • EDI X12 • MCSD • Azure • AWS • GCP • OCI

Azure

A cloud computing service created by Microsoft for building, testing, deploying, and managing applications and services through a global network of Microsoft-managed data centers

Azure Cosmos DB

A fully managed database service with turnkey global distribution and transparent multi-master replication & guaranteed 99.999% SLA

@ElYusubov

ElkhanYusubov

ElYusubov

What we will cover today

1. What is Cosmos DB
2. Managed Databases
3. Consistency Models
4. Configuration
5. Development Tools
6. Demos
7. Security Considerations
8. Onboarding Best Practices

1. What is Cosmos DB

- Build planet-scale applications more easily than ever
- Turnkey global distribution
- Single-digit millisecond latency backed by SLA
- Elastic and unlimited scalability
- Multi-model with wire protocol compatible API endpoints

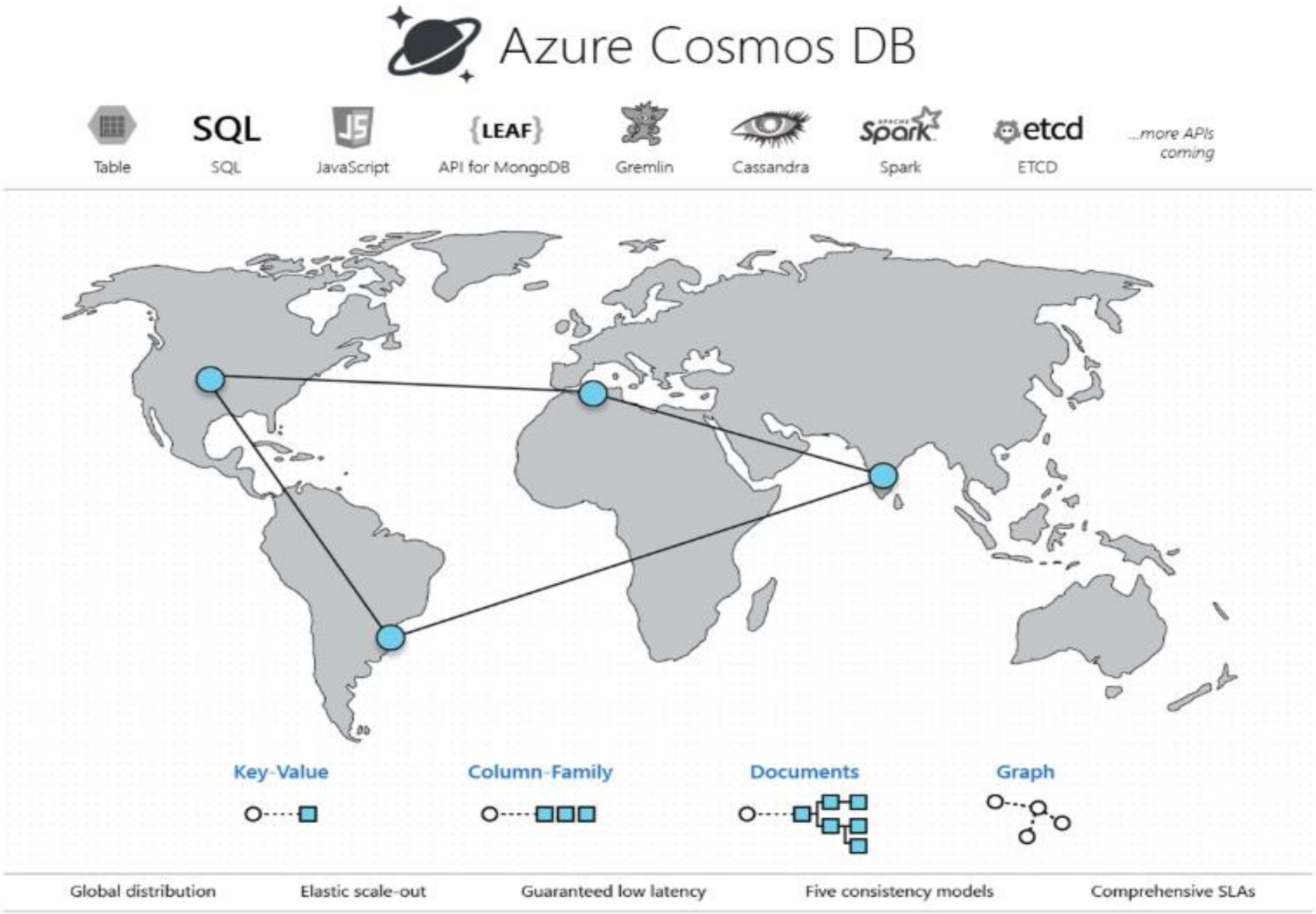
Turnkey global distribution with transparent multi-master replication and five well-defined consistency choices

Single-digit millisecond latency at the 99th percentile and 99.999-percent high availability, for any scale, backed by SLAs

Elastic and unlimited scalability to meet demand with capacity, and payment based on only the throughput and storage you need

Multi-model with wire protocol–compatible API endpoints for Cassandra, MongoDB, SQL, Gremlin, Etcd, and Table along with built-in support for Apache Spark and Jupyter notebooks

2. Managed Databases



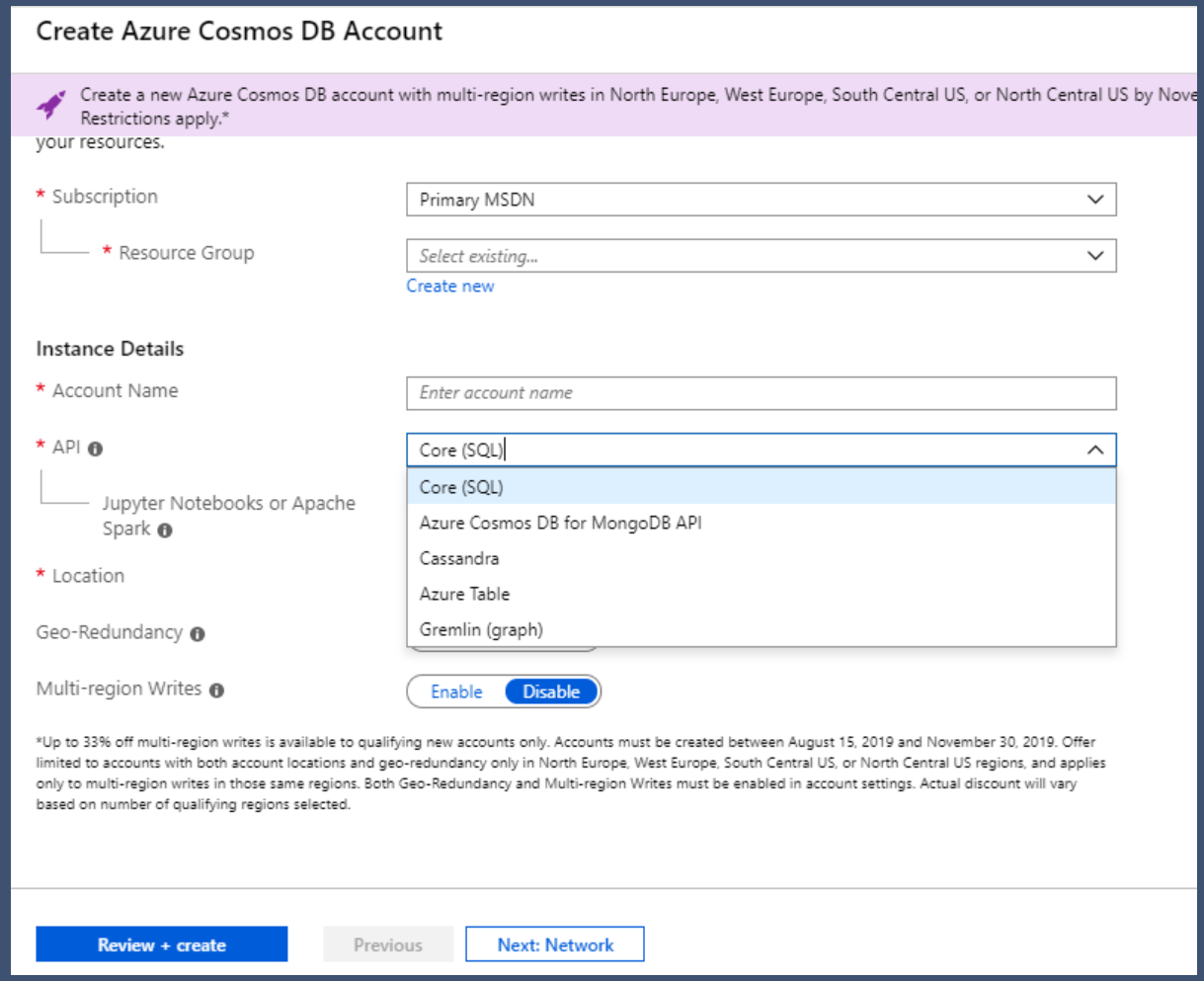
Is there a DB in Cosmos?

3. Consistency Models

- Strong
- Bounded staleness
- Session
- Consistency prefix
- Eventual

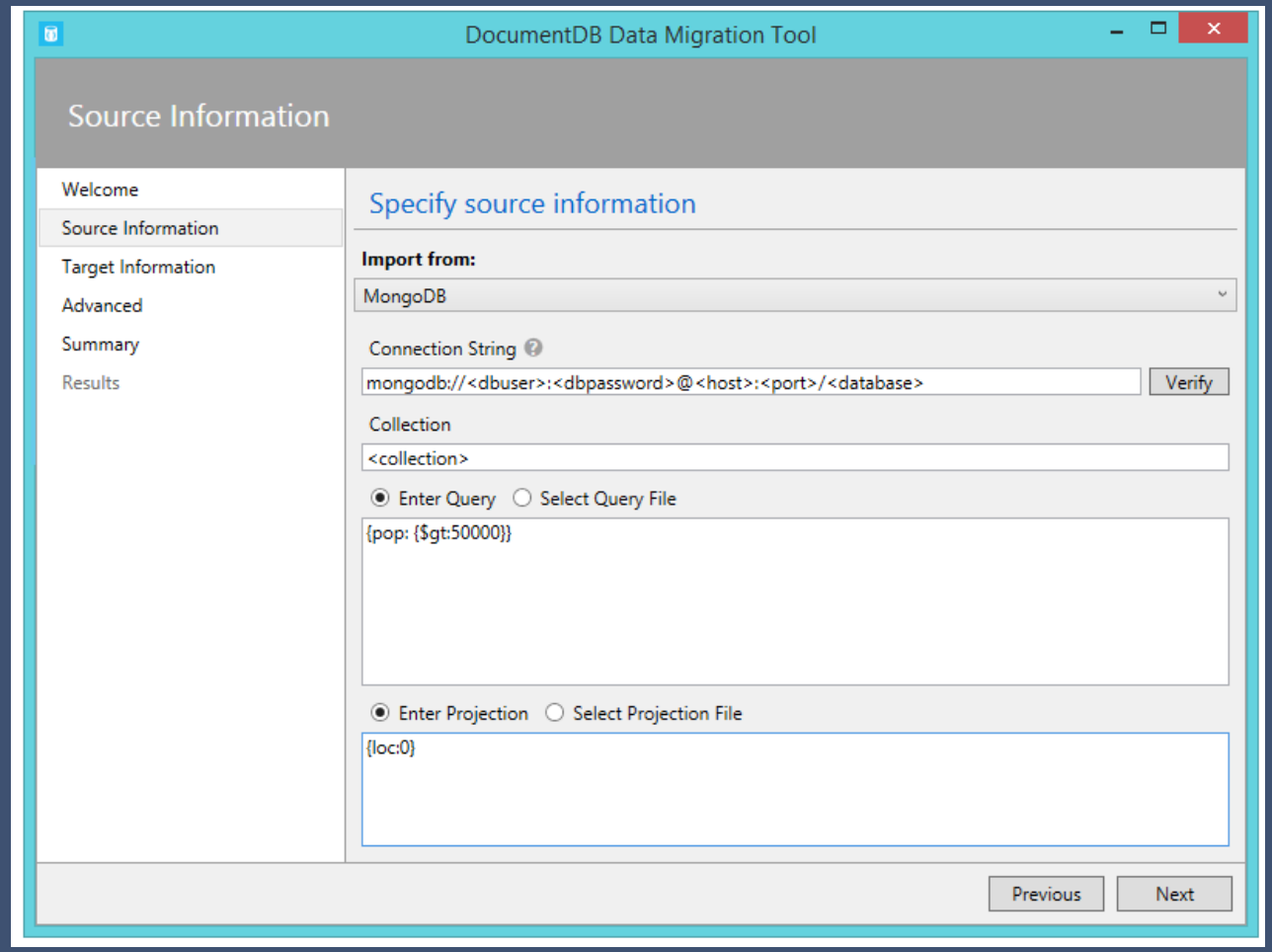
4. Setup & Configuration

- Azure account – provision from portal
- Reserved capacity
- Use budgets and cost alerts
- Create and manage Azure budgets



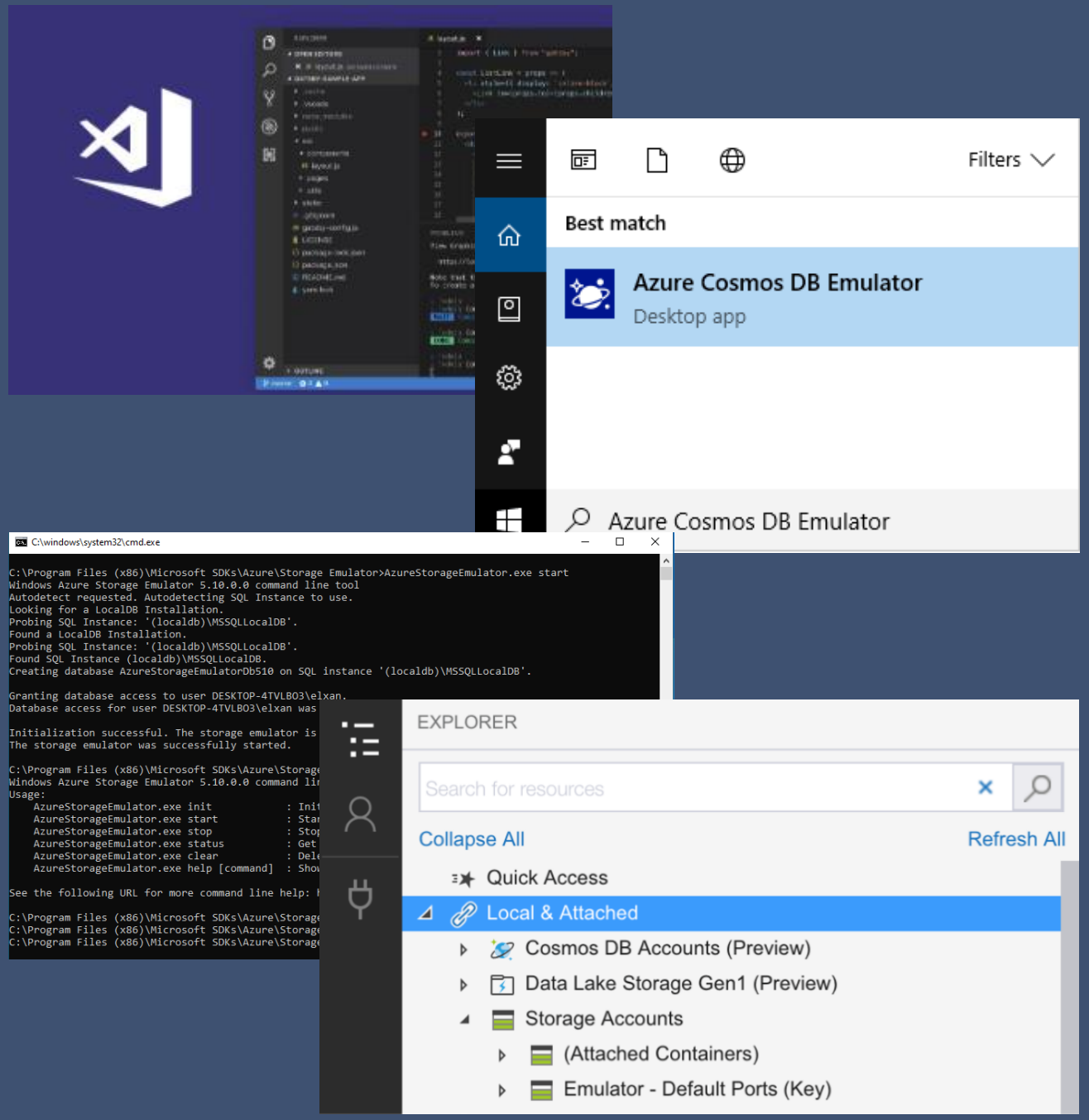
Database Migration Tool

- Install .NET Framework 4.5.2 or later
- Increase throughput
- Create Azure Cosmos DB Resources



5. Development Tools

- VS Code (or IDE of your choice)
- Emulator for Azure Cosmos DB
- Emulator for Azure Storage
- Azure storage explorer



6. Demos

Cosmos DB SQL API on Azure

- **Explore a NodeJS app and its connection**

Query Cosmos DB SQL API on Azure

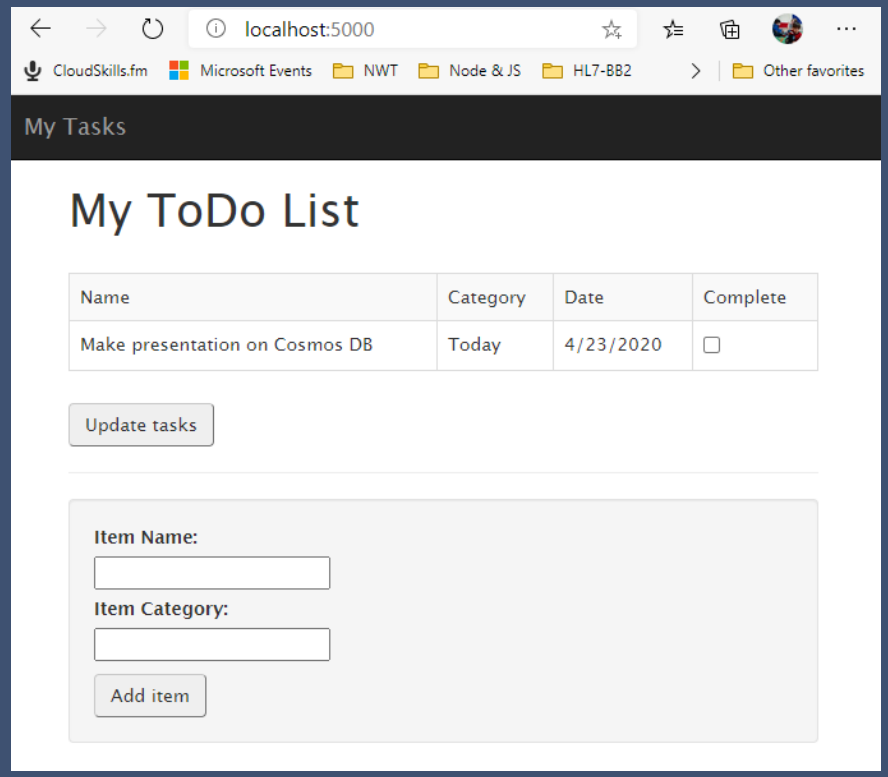
- **Explore query of collections**

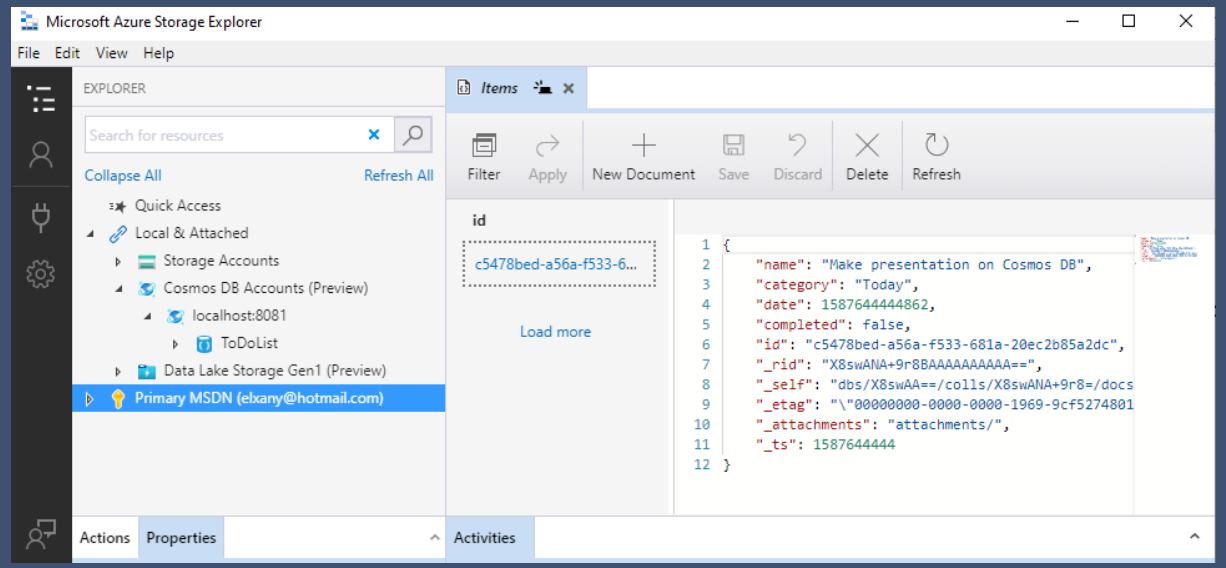
Cosmos DB Mongo API on Azure

- **Use mean stack app**
- **Explore query of collections**

How backups setup

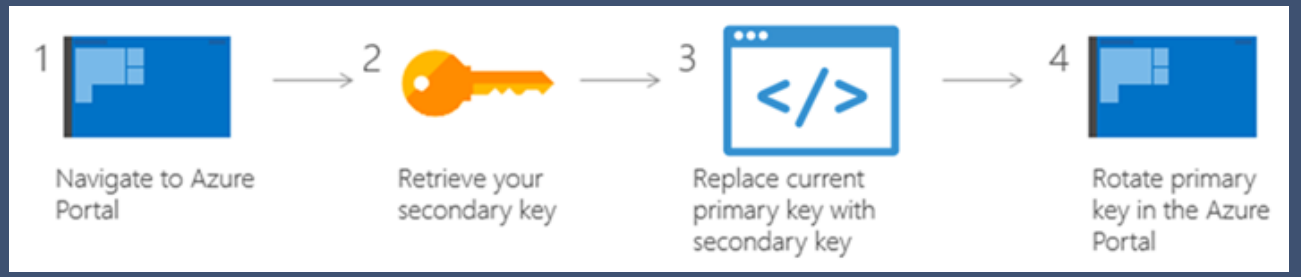
- **Online & on-demand data restore**

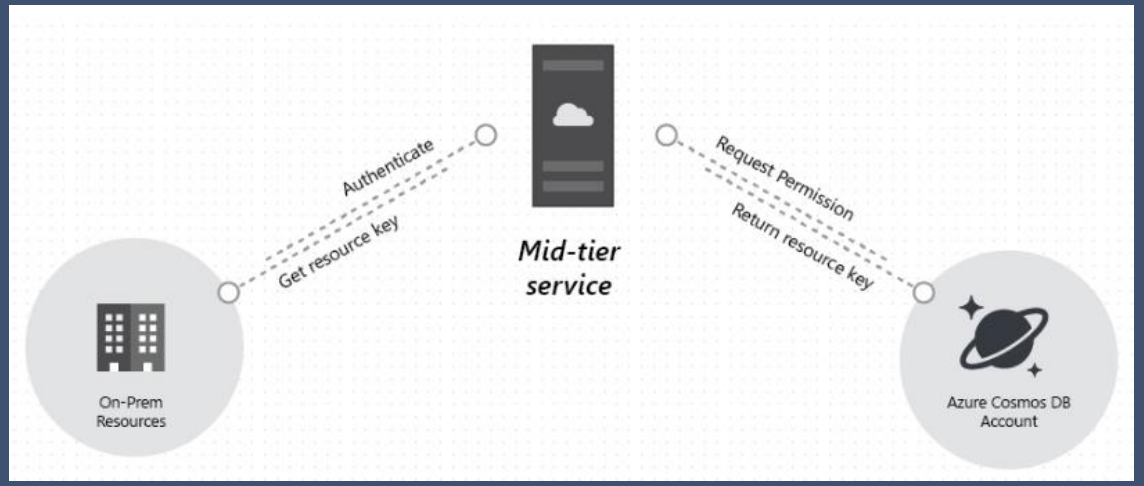




7. Security Considerations

- **Master keys**
- **Resource tokens**
- **Users**
- **Permissions**





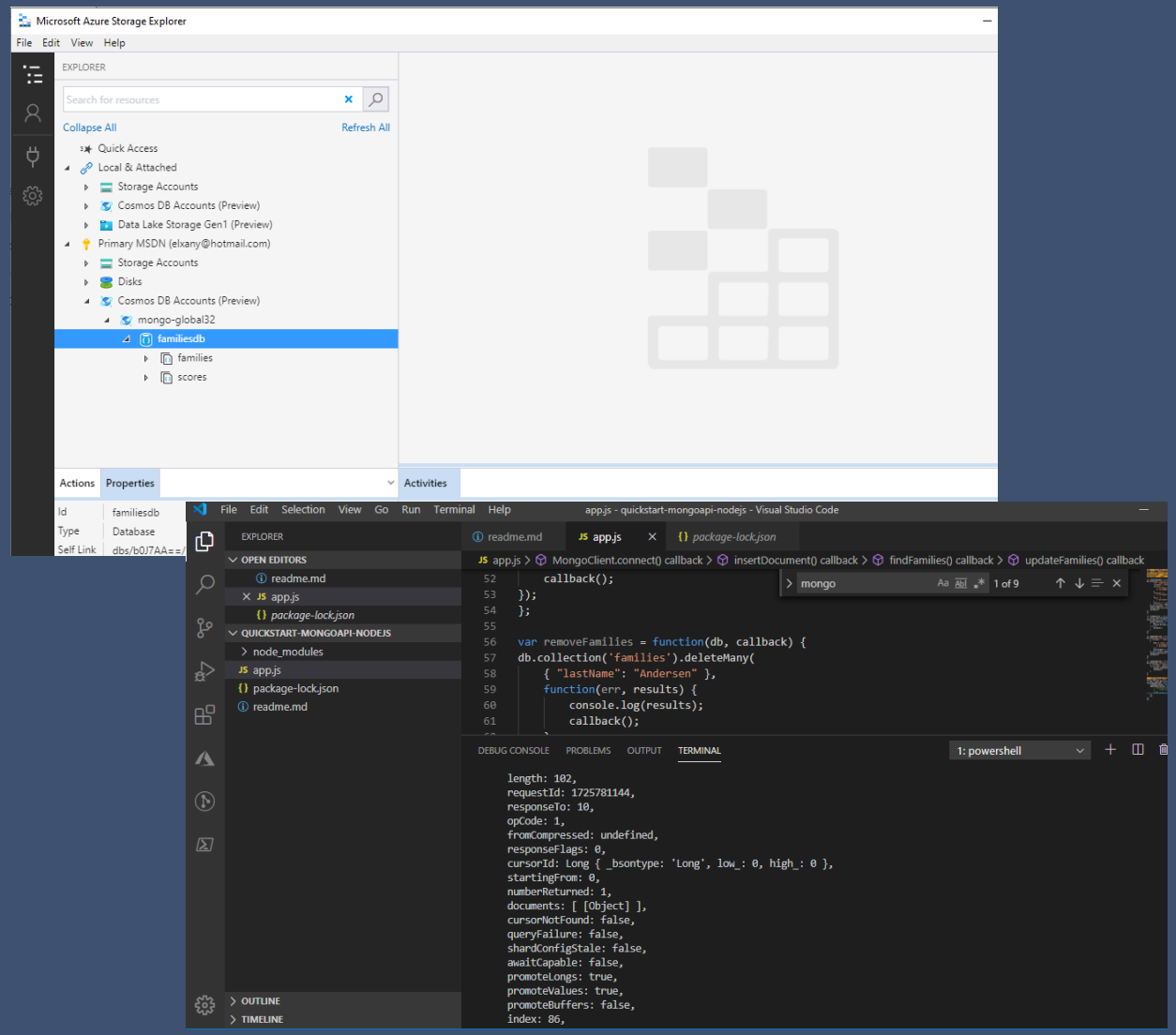
Demo – apps on production?

Cosmos DB SQL API on Emulator

- **Explore a NodeJS app and its connection**
- **Show quickstart-nodejs starter app**

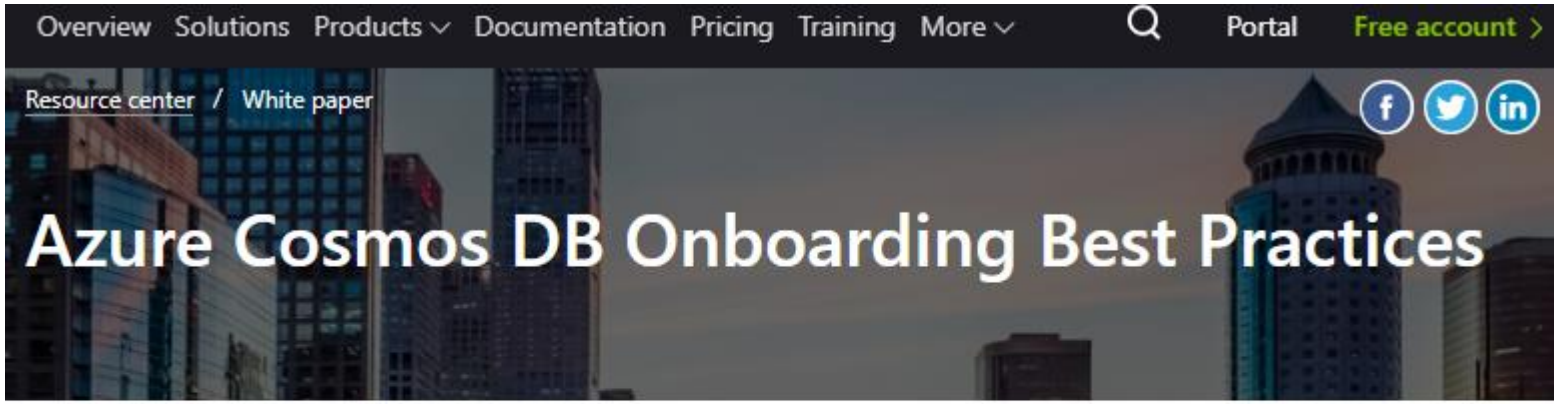
Cosmos DB Emulator details

- **Explore query of collections**



8. Azure Cosmos DB Onboarding Best Practices

- Data Modeling
- Partitioning
- Global distribution
- Performance
- Cost Optimization



Published: 7/15/2019

Optimizing performance and ROI with Azure Cosmos DB

Reference: https://azure.microsoft.com/en-us/resources/azure-cosmos-db-onboarding-best-practices/

Where We've Been

1. What is Cosmos DB
2. Managed Databases
3. Consistency Models
4. Configuration
5. Development Tools
6. Demos
7. Security Considerations
8. Onboarding Best Practices

What does Cosmos have to do with DB anyway?

Elkhan Yusubov

Cloud Principal Engineer

T-Rex Solutions

Speaker • Microsoft Certified Trainer • SAFe CSM • HL7

FHIR • EDI X12 • MCSD • Azure • AWS • GCP • OCI

Thank you for coming!

@ElYusubov

ElkhanYusubov

ElYusubov