Azure Architect: Data Platforms

Aligned with Microsoft Certification Exam AZ-303

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Course Topics

Azure SQL Databases
NoSQL Databases

AZ-303 Objective Domains

- Implement and monitor an Azure infrastructure (50-55%)
- Implement management and security solutions (25-30%)
- Implement solutions for apps (10-15%)
- **Implement and manage data platforms (10-15%)**

Exam AZ-303: Microsoft Azure Architect Technologies

- Implement NoSQL databases
  - + configure storage account tables
  - + select appropriate CosmosDB APIs
  - + set up replicas in CosmosDB
- Implement Azure SQL databases
  - + configure Azure SQL database settings
  - + implement Azure SQL Database managed instances
  - + configure HA for an Azure SQL database
  - + publish an Azure SQL database

Pre-requisites

- **Azure Administrator Associate**

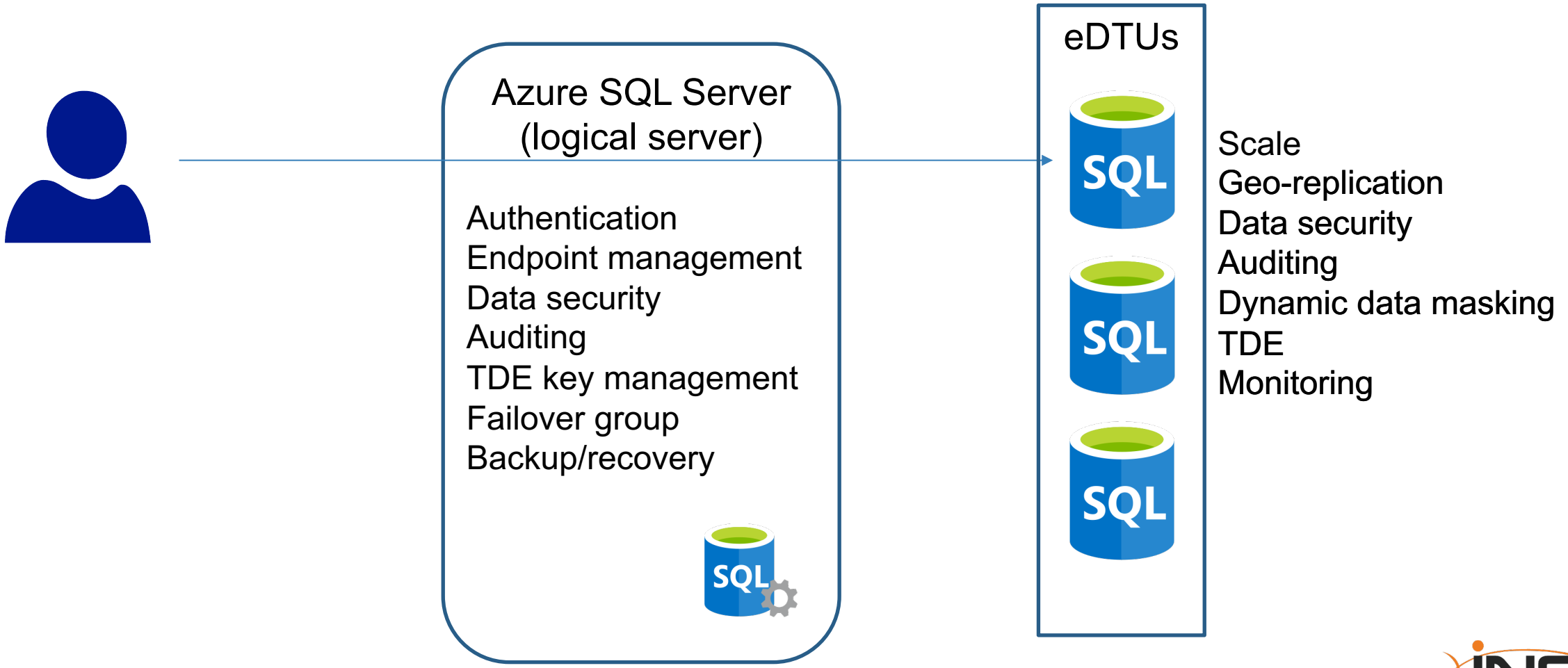
Azure SQL Databases

Azure SQL Databases

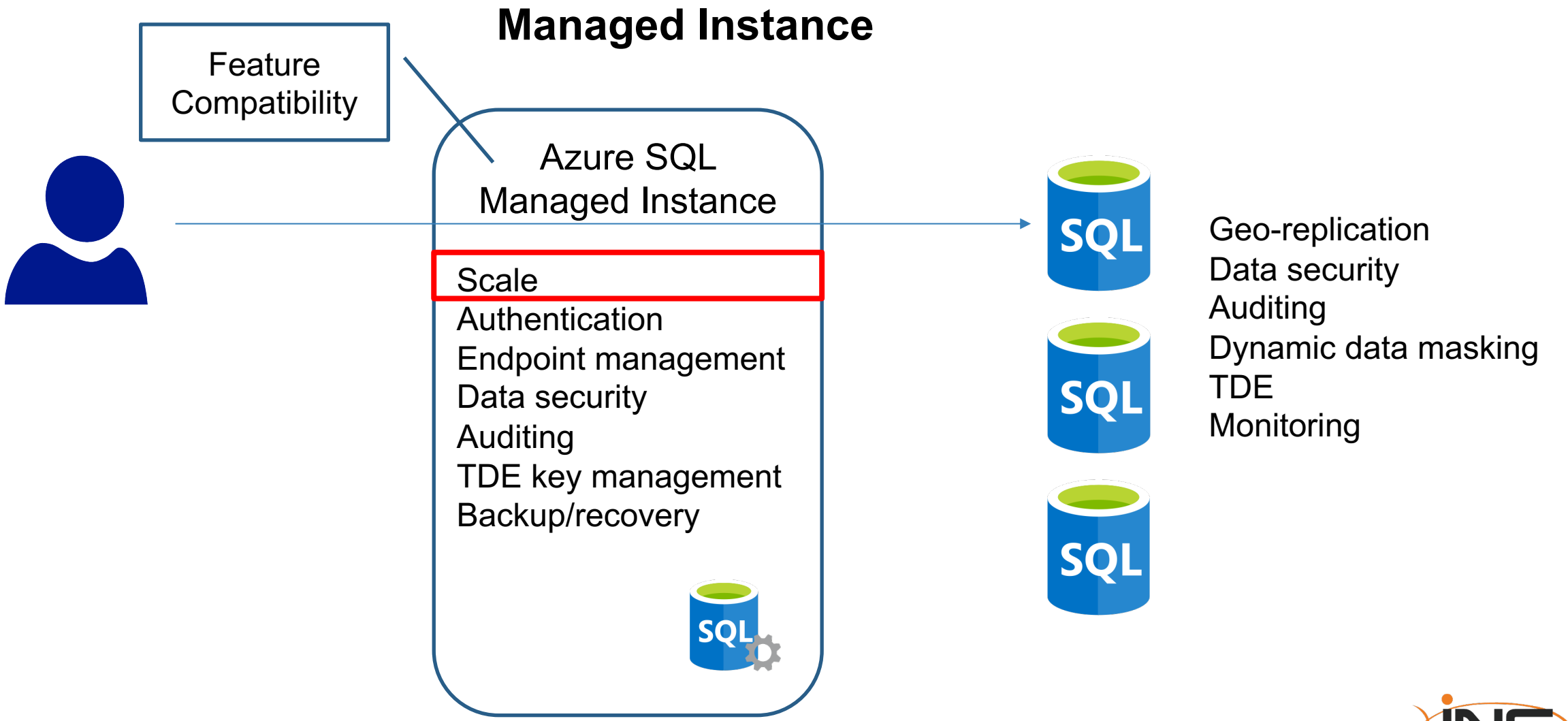
- Azure SQL Options
- Compatibility
- Demo: Provisioning Azure SQL
- Demo: Configure Azure SQL

Azure SQL Options

Original DTU / eDTU Model



Azure SQL Options



Compatibility

Feature	SQL Database	SQL Managed Instance
Encryption	Yes	Yes
Availability – no AOAG	99.99-99.995%	99.99%
User initiated backup	No	Copy-only
Change Data Capture (CDC)	No	Yes
System procedures, DBCC, system triggers, events	Many	Most
Multi-database operations	Elastic queries	Many
Server configuration	No	Yes

https://docs.microsoft.com/en-us/azure/sql-database/sql-database-features

Demo: Provisioning Azure SQL

Demo: Configure Azure SQL

Scale an Azure SQL Database

Scale an Azure SQL Database

- Horizontal Data Partitioning
- SQL Server Stretch Database
- Demonstration: Configuring an Elastic Database Solution

Horizontal Data Partitioning

SQL Server Stretch Database

Azure SQL In Action

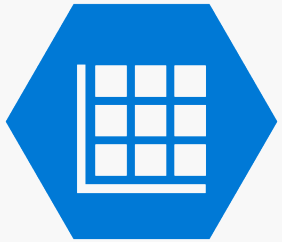
Azure SQL In Action

- Demo: Azure Portal
- Demo: SSMS
- Demo: Database Publishing

Demo: Azure Portal

Demo: SSMS

Demo: Database Publishing



Working With Tabular Data in Azure

Working With Tabular Data in Azure

- Tabular Data Options in Azure
- Demonstration: Using Table Storage
- Demonstration: Using the Cosmos DB Tabular API

Tabular Data Options in Azure

- Storage Account
  - Simple
  - Read-available geo-redundant copy
  - Cheap – Storage ($.045 - $.075 GB/month)
- Cosmos DB
  - Same API as Table Storage
  - More features - fully indexed, 5 consistency models, multi-master
  - Global
  - Higher performance
  - Performance and availability SLAs (up to 99.999% read)
  - More expensive – Throughput (~$5.84 100 RU/s / month) + storage ($.25 GB/month)

Develop Solutions that use Cosmos DB Storage

Develop Solutions that use Cosmos DB Storage

- Cosmos DB Concepts
- Cosmos DB APIs

Cosmos DB Concepts

- Global replication
- Partitioning
- Provisioned throughput
- Change feed
- Built-in Analytics
- Server-side programming
- Pricing model

Cosmos DB APIs

- SQL
- MongoDB
- Gremlin
- Cassandra
- Table
- Etdc
- More coming

Implement a Cosmos DB SQL Database

Implement a Cosmos DB SQL Database

- Demonstration: Implement a Cosmos DB SQL Database

Cosmos DB Throughput and Performance

Cosmos DB Throughput and Performance

- Factors Impacting Cosmos DB Performance
- Demonstration: Cosmos DB Performance

Performance

- Provisioned throughput
  - RU = the cost to read one KB item
  - RU charges for other operations are higher
- Partition key
- Indexes

Understand Cosmos DB Consistency

Understand Cosmos DB Consistency

- Cosmos DB Consistency Options
- Demonstration: Setting Cosmos DB Consistency

Cosmos DB Consistency Options