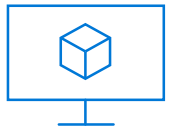
MICROSOFT AZURE DATABASE SERVICES



SQL Server on Azure Virtual Machines

SQL Server installed and hosted in the cloud

Azure SQL Database

Intelligent relational cloud database service

Azure Cosmos DB

Globally distributed, multi-model database service

Azure SQL Data Warehouse

Elastic, enterprise-class data warehouse as a service

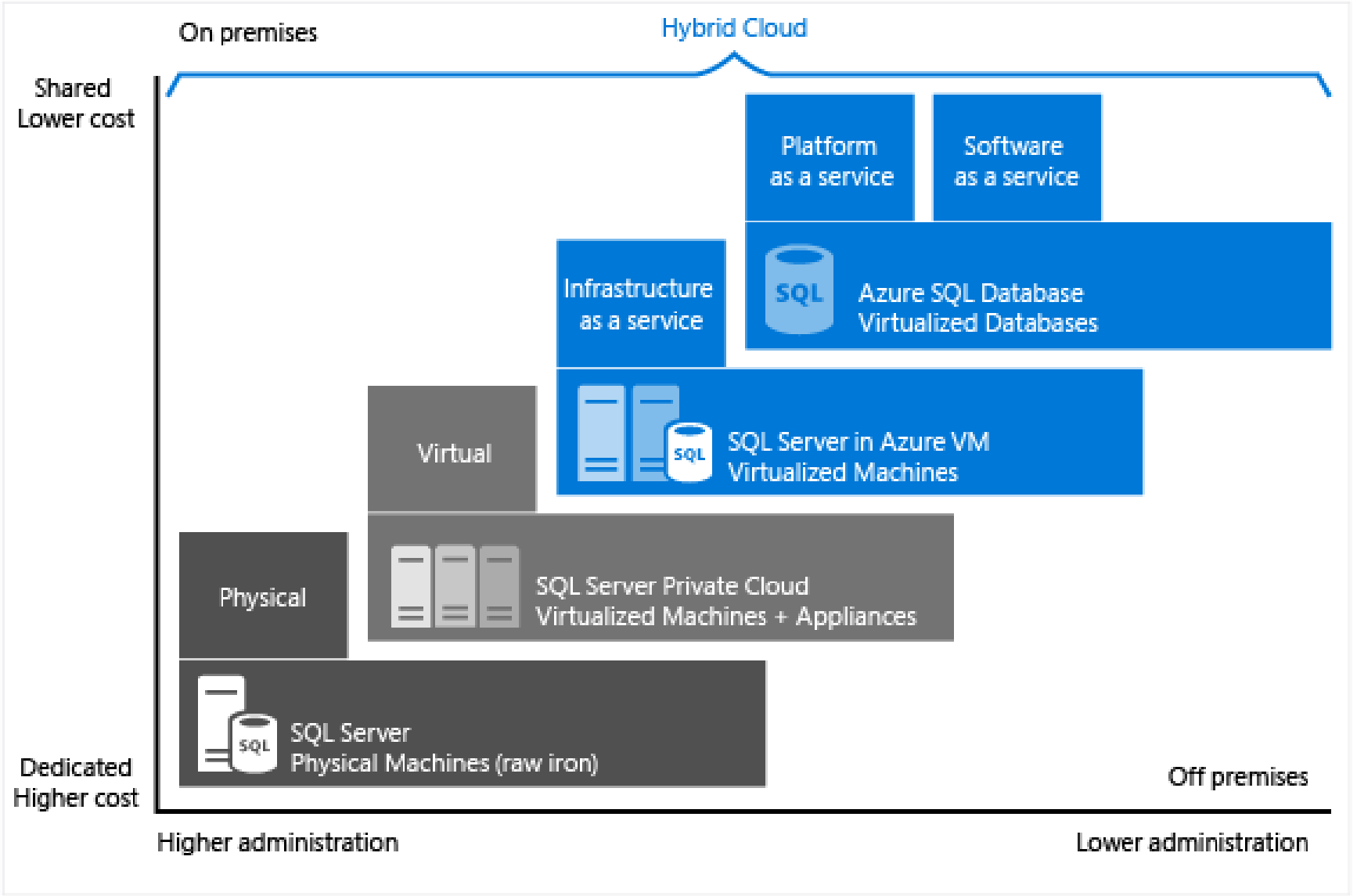
Azure Database for MySQL

Managed MySQL database service for app devs

Azure Database for PostgreSQL

Managed PostgreSQL database service for app devs

SQL Server


On premises
Hybrid Cloud
Shared
Lower cost
Platform
as a service
Software
as a service
Infrastructure
as a service
SQL
Azure SQL Database
Virtualized Databases
Virtual
SQL
SQL Server in Azure VM
Virtualized Machines
Physical
SQL Server Private Cloud
Virtualized Machines + Appliances
SQL
SQL Server
Physical Machines (raw iron)
Dedicated
Higher cost
Off premises
Higher administration
Lower administration

Azure SQL Database

Azure SQL Database

Single

Database-scoped deployment option with predictable workload performance

Best for apps that require resource guarantee at database level

Elastic Pool

Shared resource model optimized for greater efficiency of multi-tenant applications

Best for SaaS apps with multiple databases that can share resources at database level, achieving better cost efficiency

Managed Instance

Instance-scoped deployment option with high compatibility with SQL Server and full PaaS benefits

Best for modernization at scale with low friction and effort

General Purpose

Business Critical

Hyperscale

DTU vs vCore

Database Transaction Unit (DTU) model

Pre-packaged, bundled unit that represents the database power

Designed for predictable performance, but somewhat inflexible and limited in options

DTU sizing offers simplicity of choice

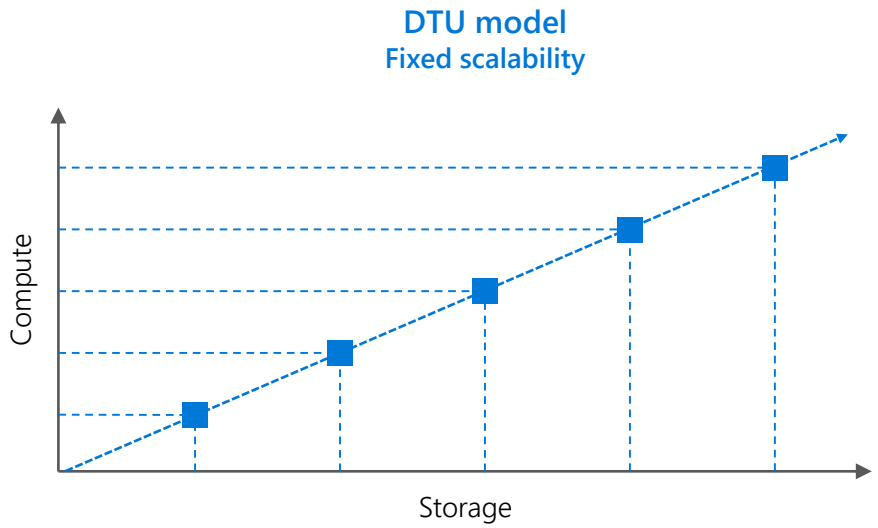
vCore model

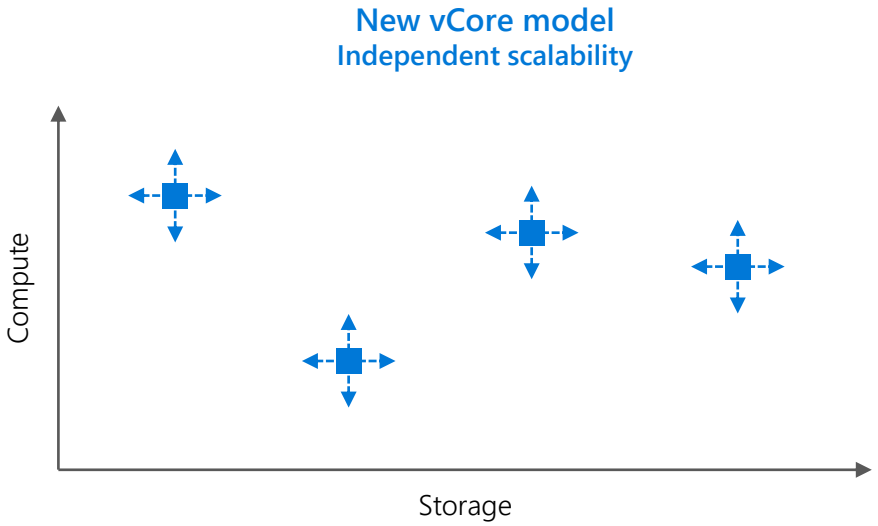
À la carte approach deconstructs the DTU model into separate parts

Customers can select compute and storage independently

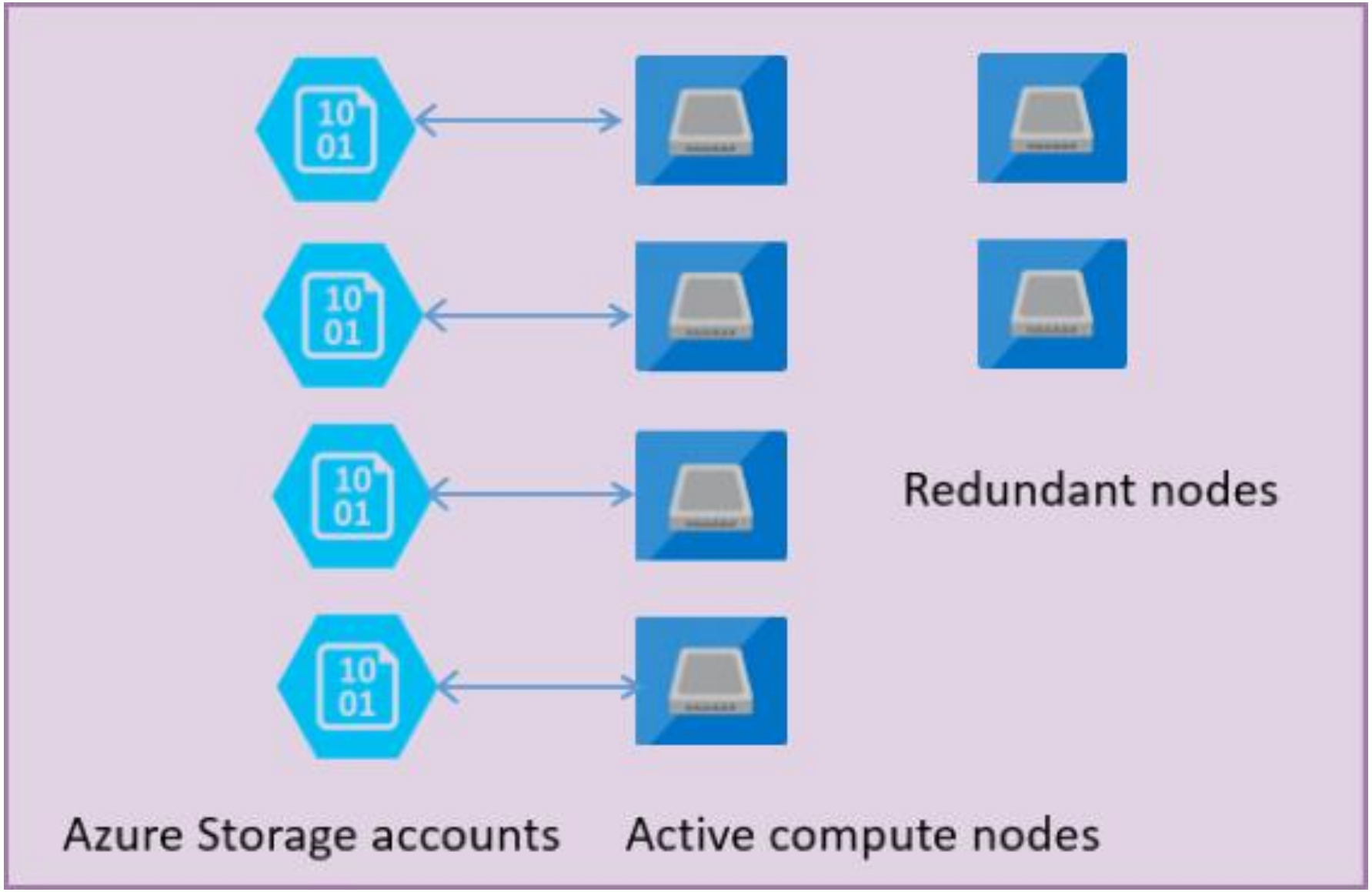
Allows customers to right-size their compute requirements in the cloud

vCore sizing offers flexibility of choice

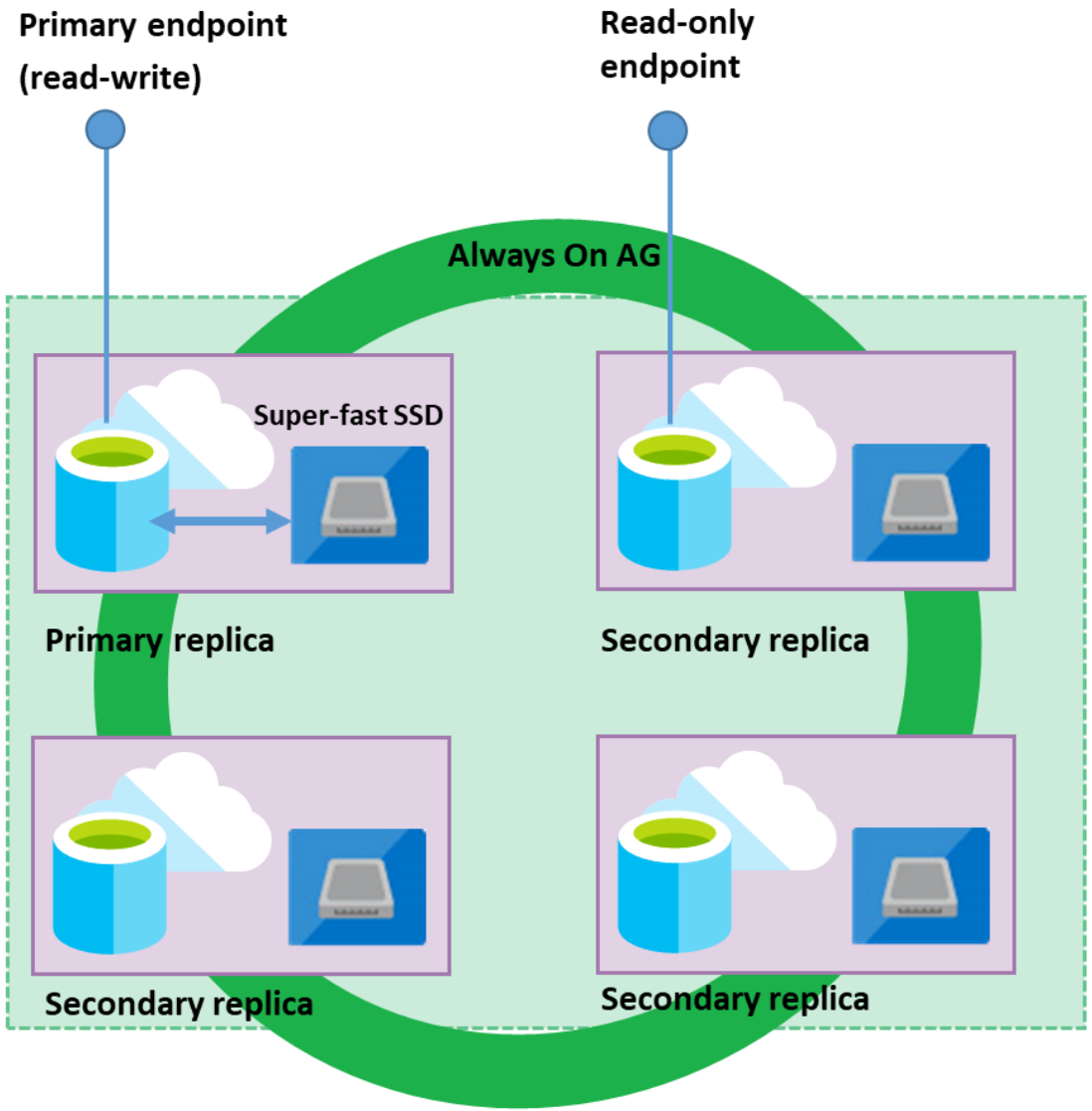




General Purpose

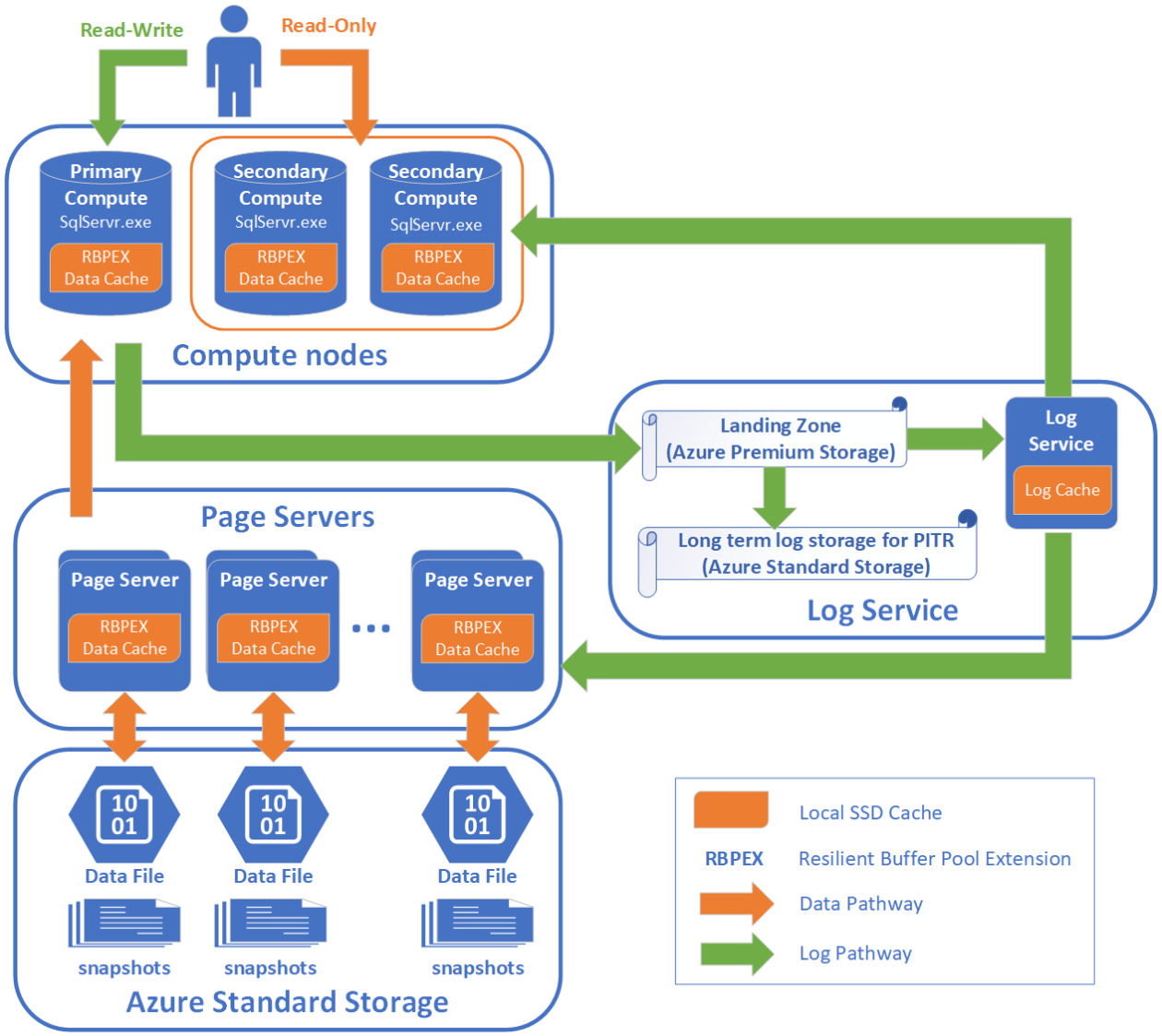


Business critical

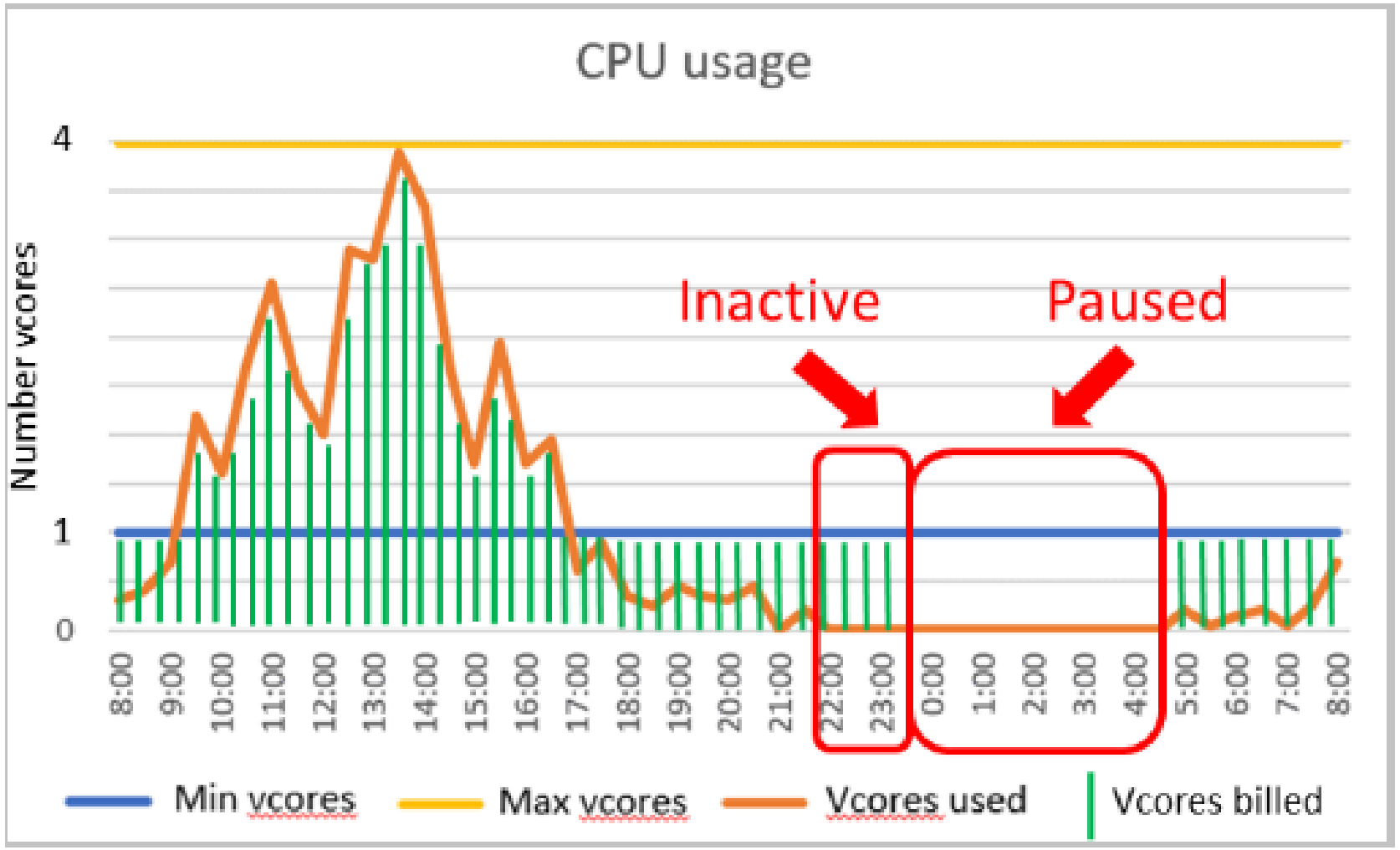


Business Critical service tier: collocated compute and storage

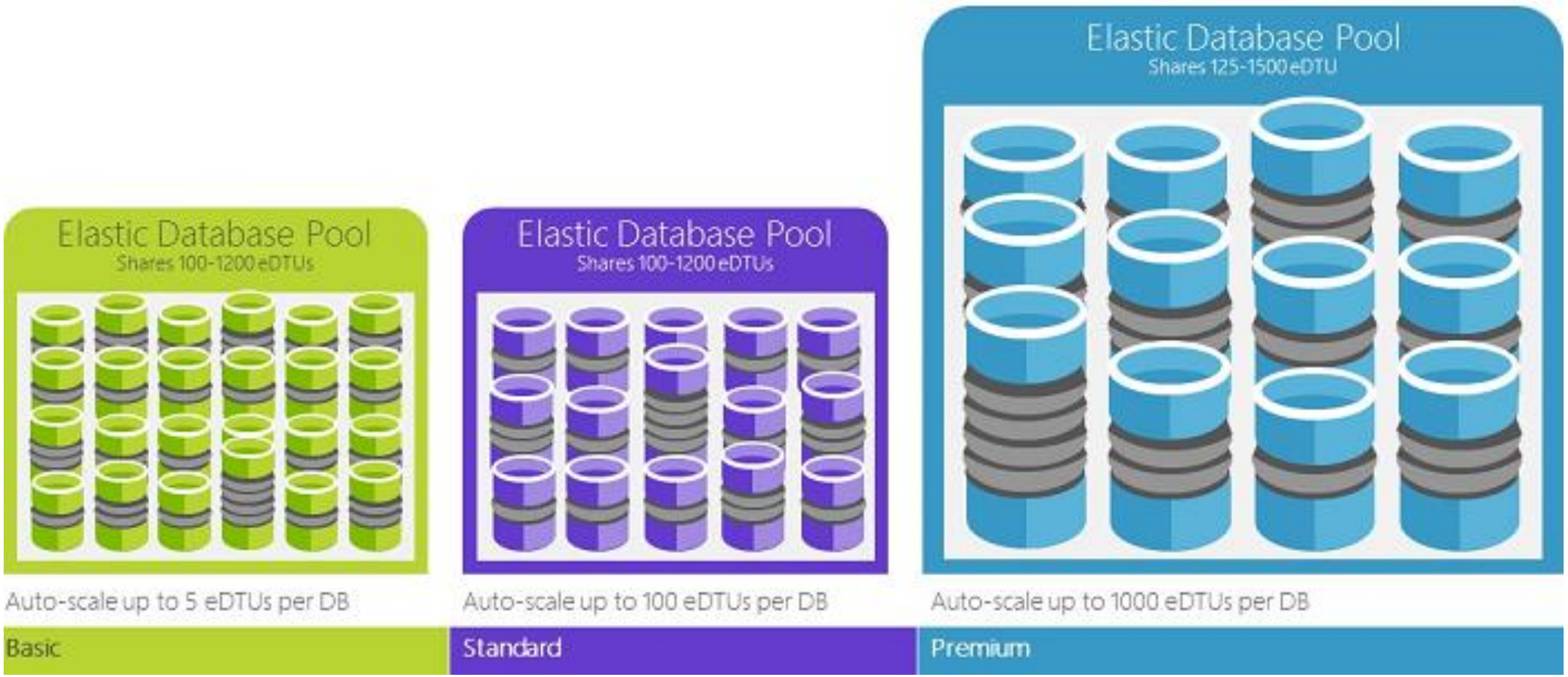
Hyperscale


Read-Write
Read-Only
Primary
Compute
SqlServr.exe
RBPEX
Data Cache
Secondary
Compute
SqlServr.exe
RBPEX
Data Cache
Secondary
Compute
SqlServr.exe
RBPEX
Data Cache
Compute nodes
Landing Zone
(Azure Premium Storage)
Log
Service
Log Cache
Long term log storage for PITR
(Azure Standard Storage)
Log Service
Page Servers
Page Server
RBPEX
Data Cache
Page Server
RBPEX
Data Cache
Page Server
RBPEX
Data Cache
10
01
Data File
10
01
Data File
10
01
Data File
snapshots
snapshots
snapshots
Azure Standard Storage
Local SSD Cache
RBPEX
Resilient Buffer Pool Extension
Data Pathway
Log Pathway

Serverless


CPU usage
Number vcores
4
1
0
Inactive
Paused
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
Min vcores
Max vcores
Vcores used
Vcores billed

Elastic Pools



Azure SQL Database Managed Instance

Combining the best of SQL Server with the benefits of a fully-managed, intelligent service

Easy migration: nearly 100% like SQL Server

Data migration

- Native backup/restore
- Configurable DB file layout
- DMS (migrations at scale)

Security

- Integrated Auth (Azure AD)
- Encryption (TDE, AE)
- SQL Audit
- Row-Level Security
- Dynamic Data Masking

Programmability

- Global temp tables
- Cross-database queries and transactions
- Linked servers
- CLR modules

Operational

- DMVs & XEvents
- Query Store
- SQL Agent
- DB Mail (external SMTP)

Scenario enablers

- Service Broker
- Change Data Capture
- Transactional Replication

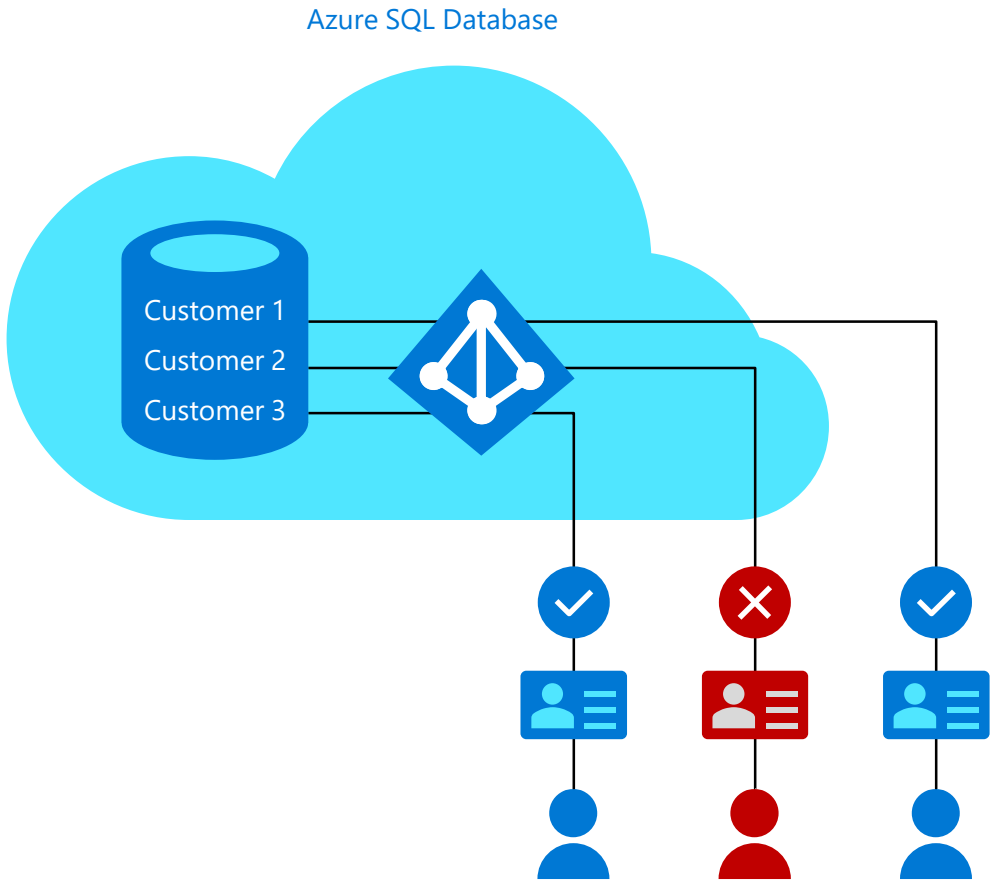
Azure Active Directory and multifactor authentication

Overview

- Manage user identities in one location
- Enable access to Azure SQL Database and other Microsoft services with Azure Active Directory user identities and groups

Benefits

- Alternative to SQL Server authentication
- Limits proliferation of user identities across databases
- Allows password rotation in a single place
- Enables management of database permissions by using external Azure Active Directory groups
- Eliminates the need to store passwords



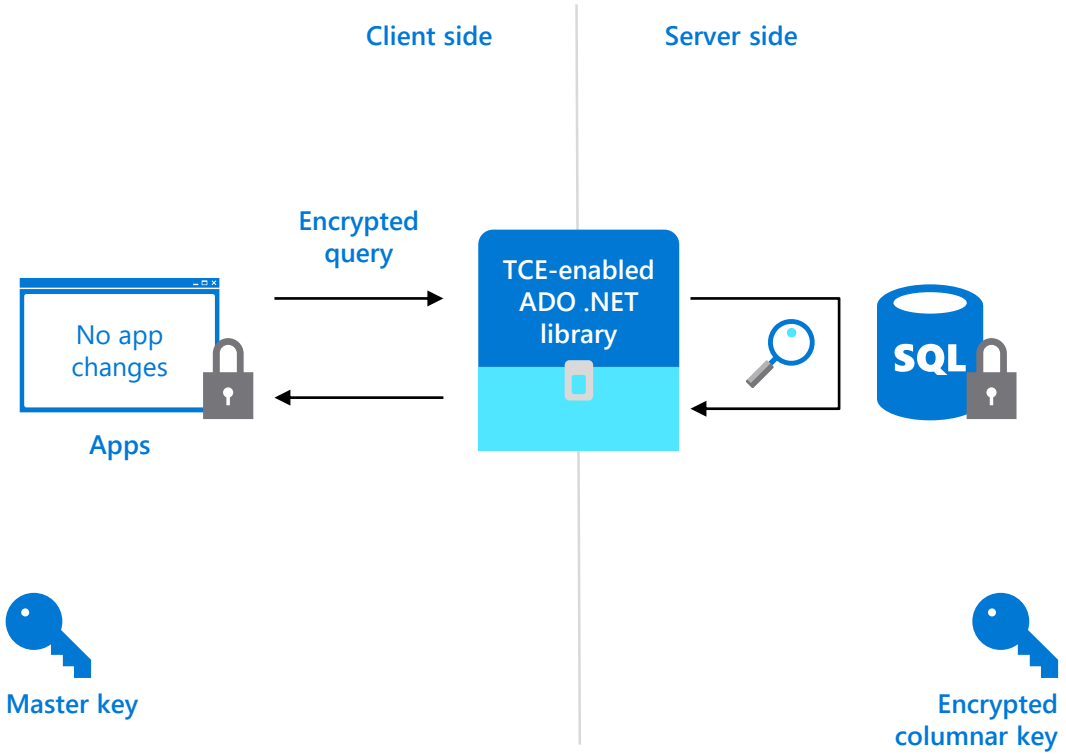
Always Encrypted

Overview

- Protect data at rest and in motion, on premises and in the cloud
- Transparent client-side encryption, while SQL Server executes T-SQL queries on encrypted data

Benefits

- Sensitive data remains encrypted and queryable at all times on-premises and in the cloud
- Unauthorized users never have access to data or keys
- No application changes



Dynamic data masking

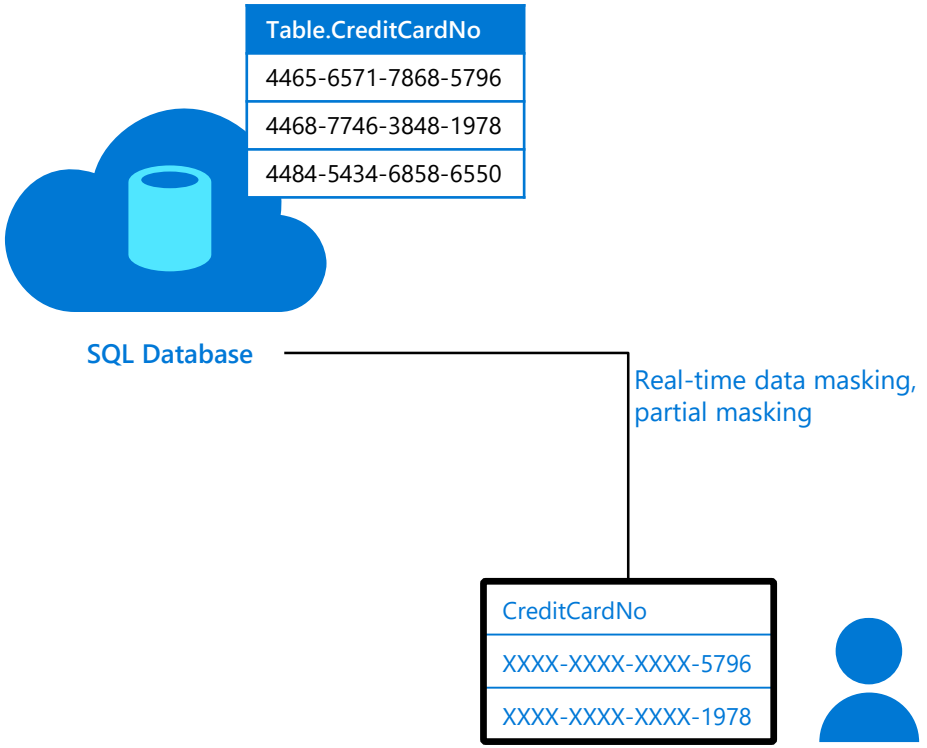
Prevent abuse of sensitive data by hiding it from users

Easy configuration in new Azure Portal

Policy-driven at table and column level, for a defined set of users

Data masking applied in real-time to query results based on policy

Multiple masking functions available, such as full or partial, for various sensitive data categories (credit card numbers, SSN, etc.)



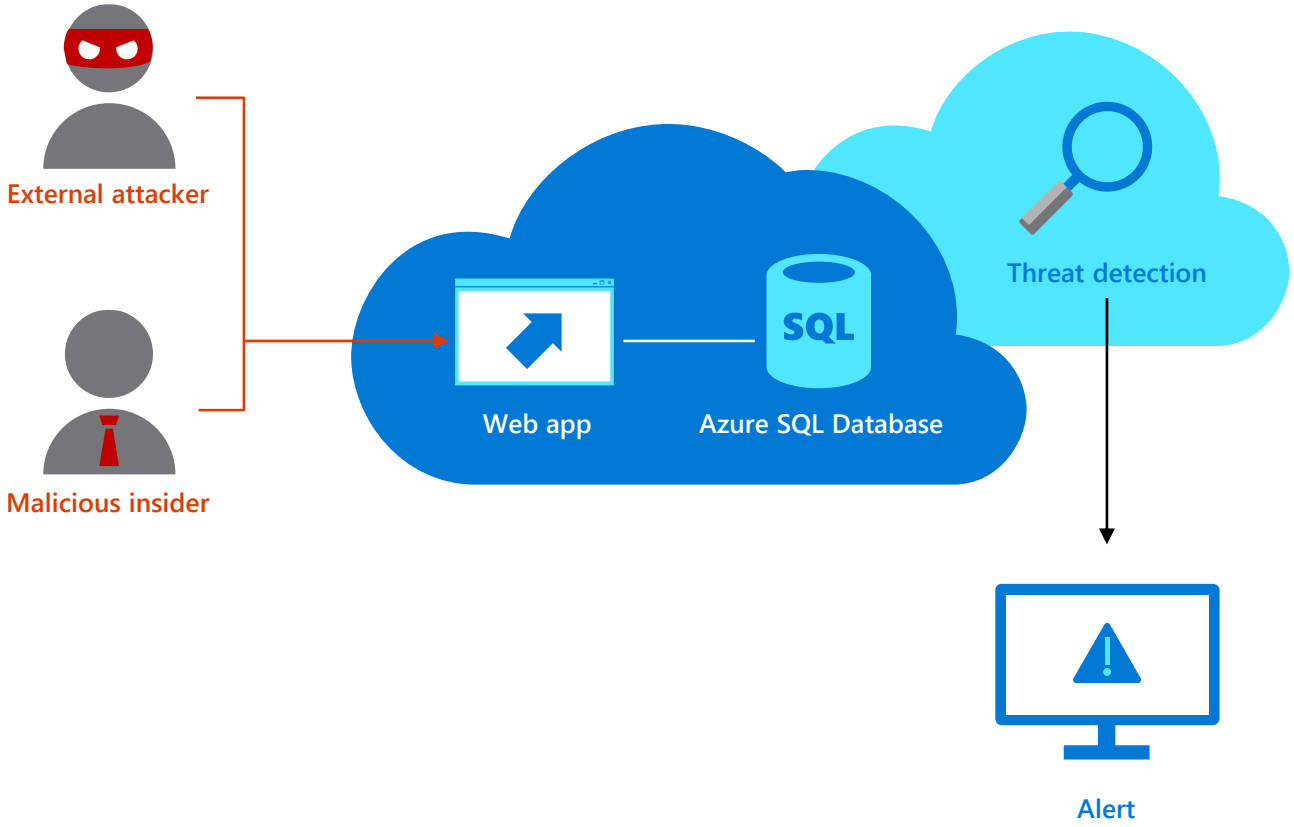
Threat detection

Detect anomalous database activities that could indicate a potential threat

Configure threat detection policy in Azure Portal

Receive alerts from multiple database threat detectors that identify anomalous activities

Explore audit log around the time of an event



Vulnerability Assessment

Get visibility

Discover sensitive data and potential security holes

Remediate

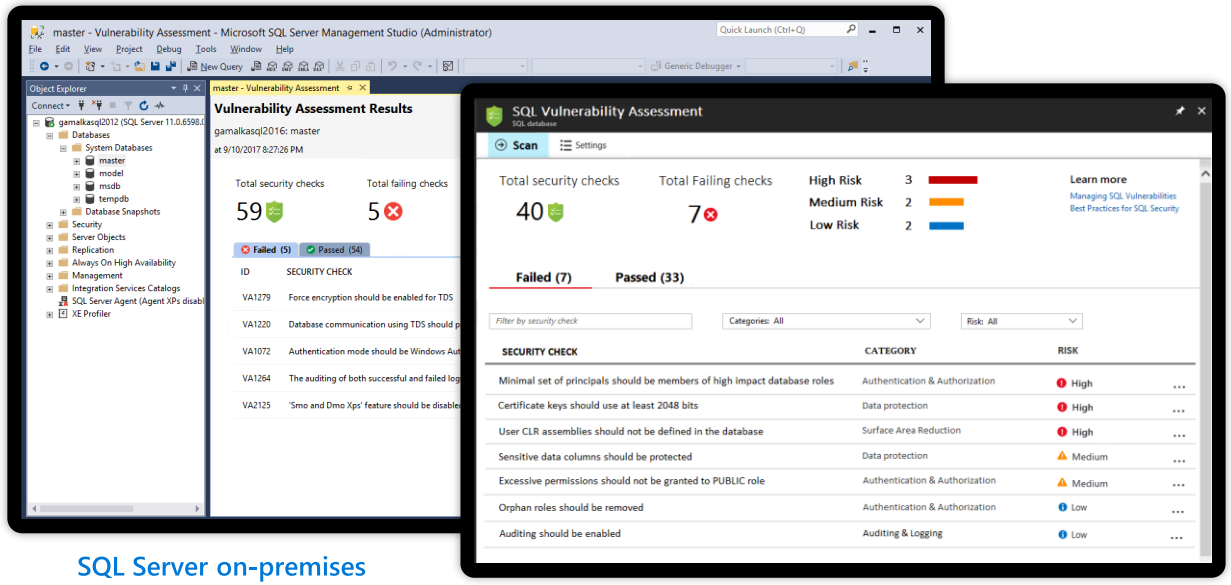
Actionable remediation and security hardening steps

Customize

Baseline policy tuned to your environment, allowing you to focus on deviations

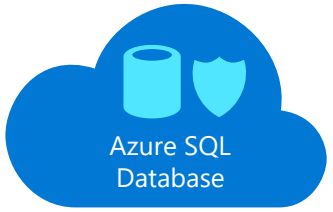
Report

Pass internal or external audits to facilitate compliance



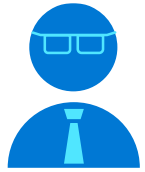
SQL Server on-premises

Azure SQL Database



Vulnerability Assessment

Identifies, tracks, and resolves SQL security vulnerabilities



Developer/DBA

Information Protection

Discover, classify and protect sensitive data

Protect the data, not just the database

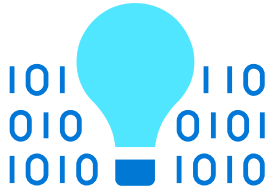
Gain visibility to sensitive data located in servers, databases and table columns

Promote compliance and adherence to GDPR

Enable persistent labeling with metadata that flows with data outside the database boundaries

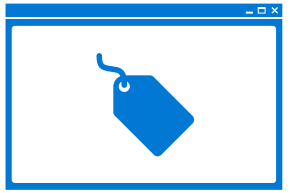
Classify sensitive data through multiple approaches: manual, recommended, automatic classification, E2E with MIP

Audit access to sensitive data



Discover

Classify

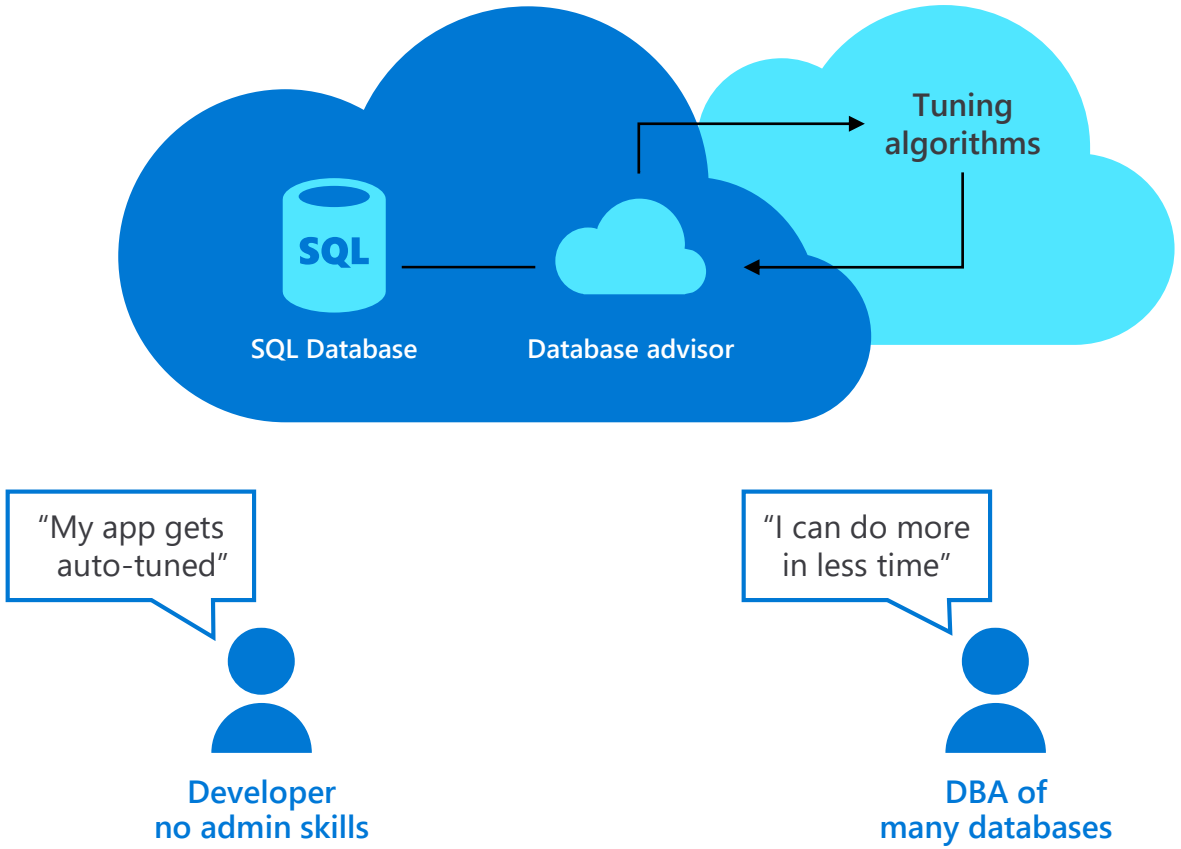


Label

Built-in intelligence to protect and optimize

Intelligent Performance learns unique database patterns and automatically tunes for improved performance

Intelligent Protection powers advanced data security features that monitor, detect, and alert on malicious activities and discover, track and remediate potential database vulnerabilities



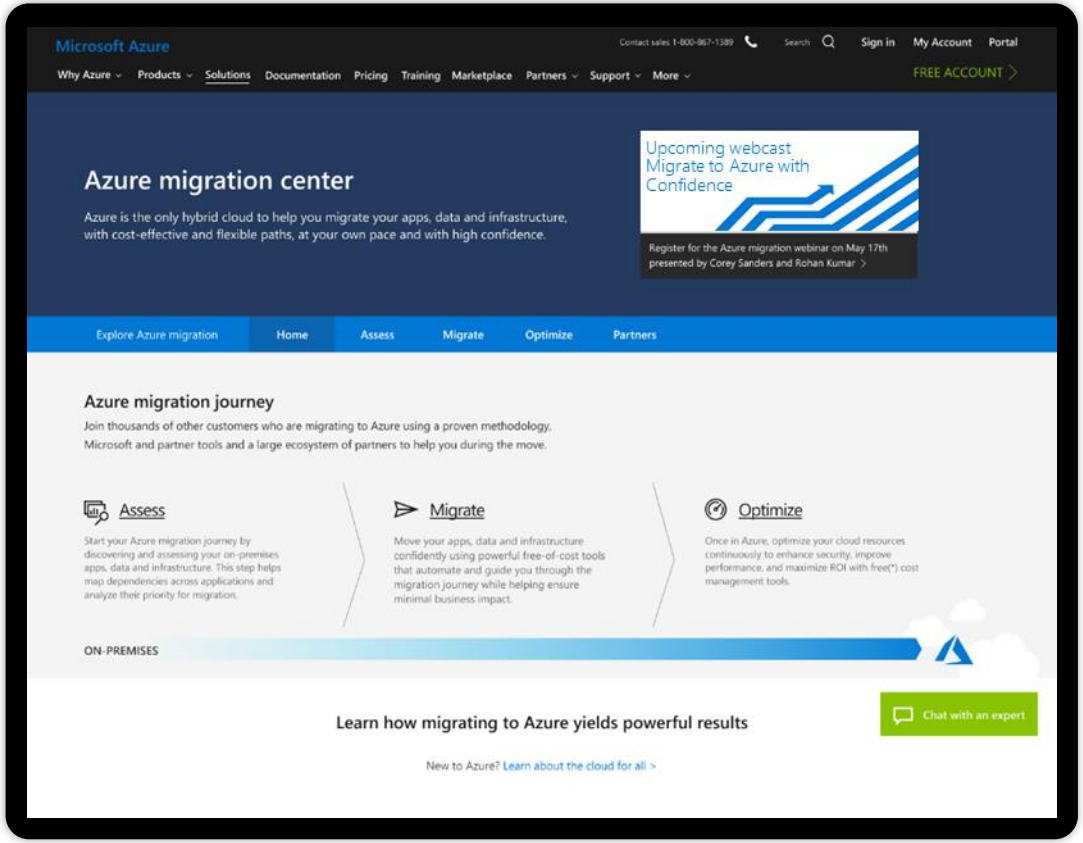
Your single destination for all things migration

Provides guidance, tools, and partners in context of your migration scenario

Enables you to:

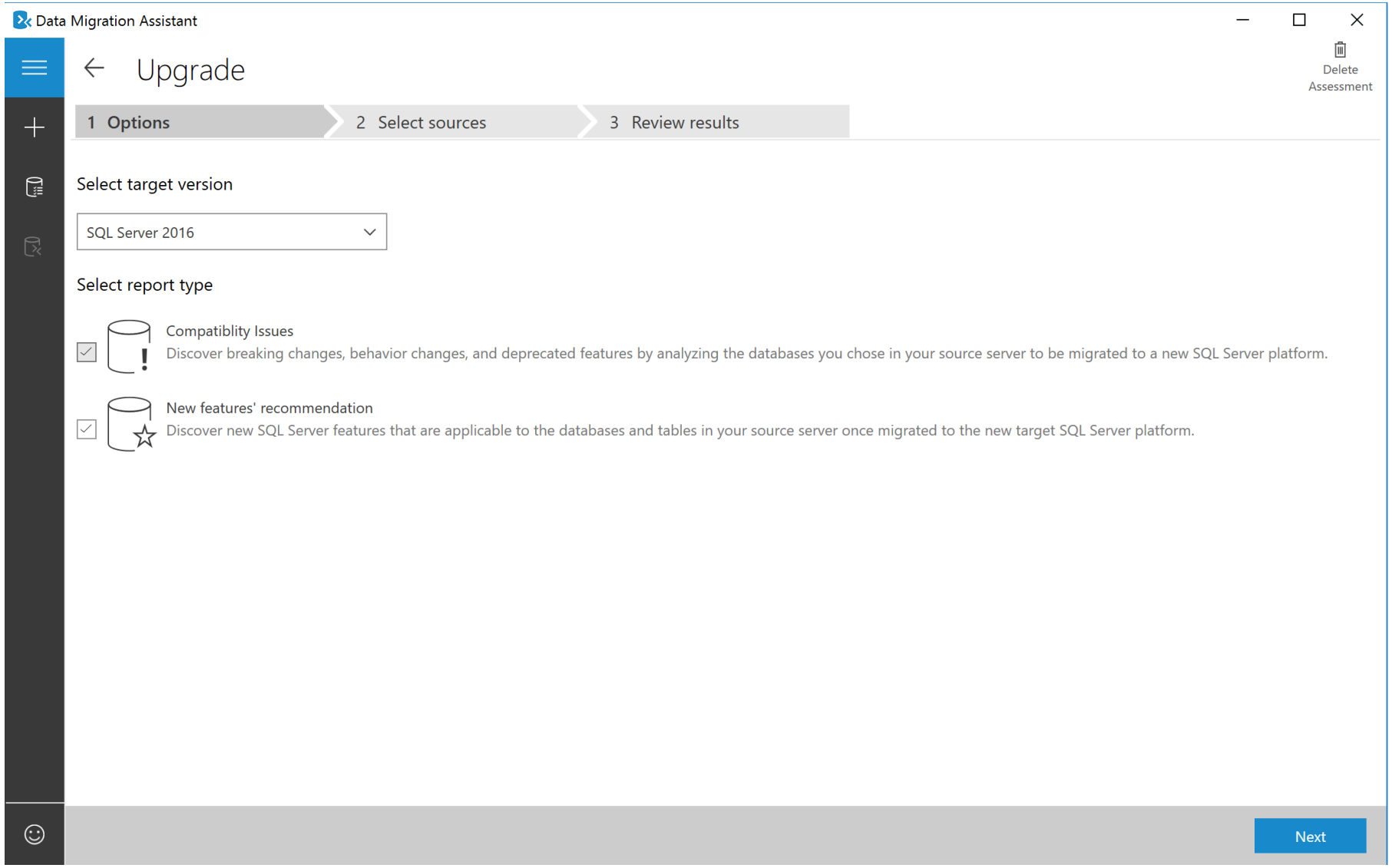
- Build your case, find others like you
- Assess your environment
- Identify the right migration strategies
- Optimize your cloud resources
- Connects you to a migration expert
  - Chat enabled, backed by engineering resources
  - Guides you to FastTrack, partner, seller, or DIY outcomes

Azure migration center

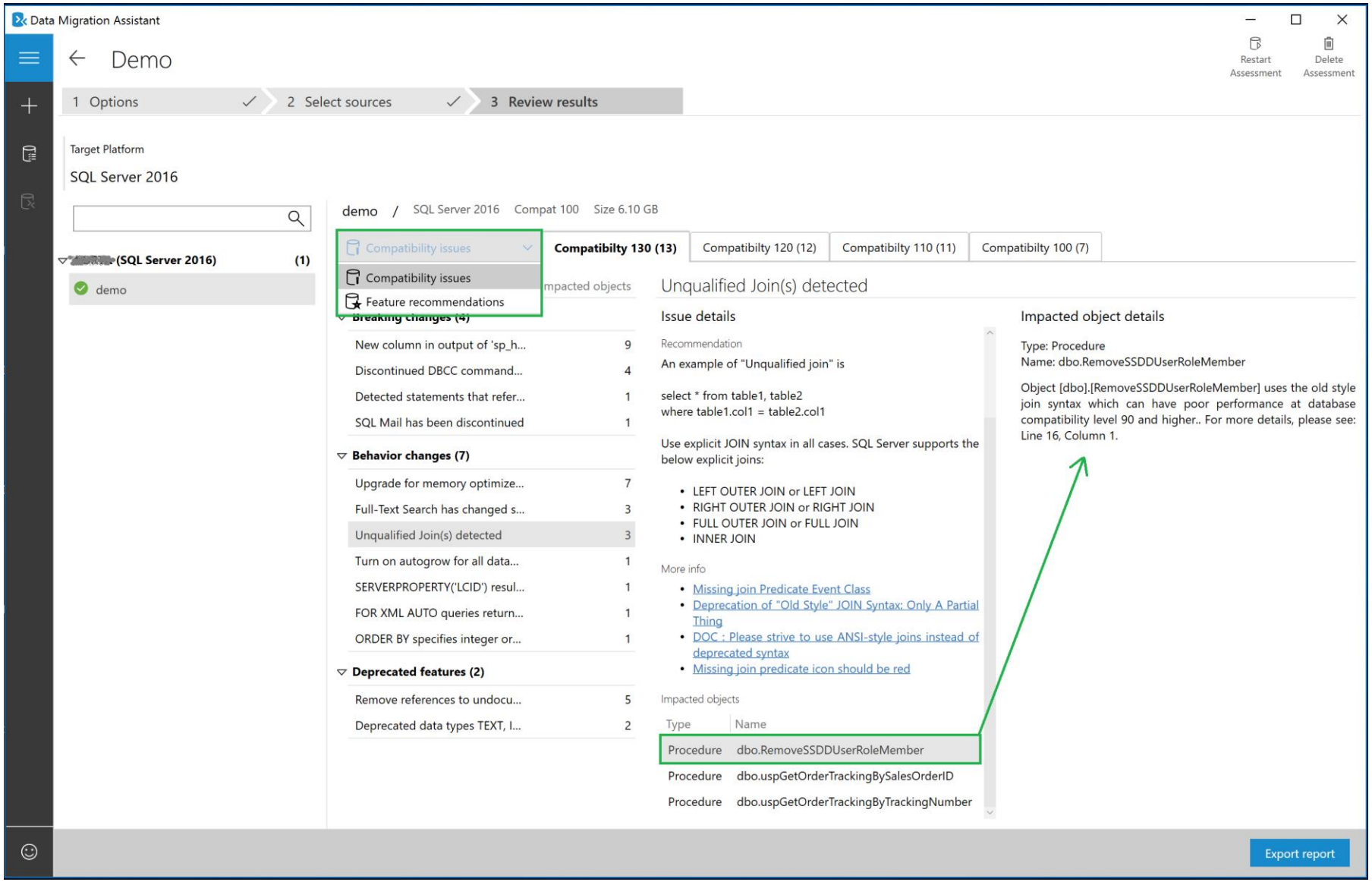


Azure.com/Migration

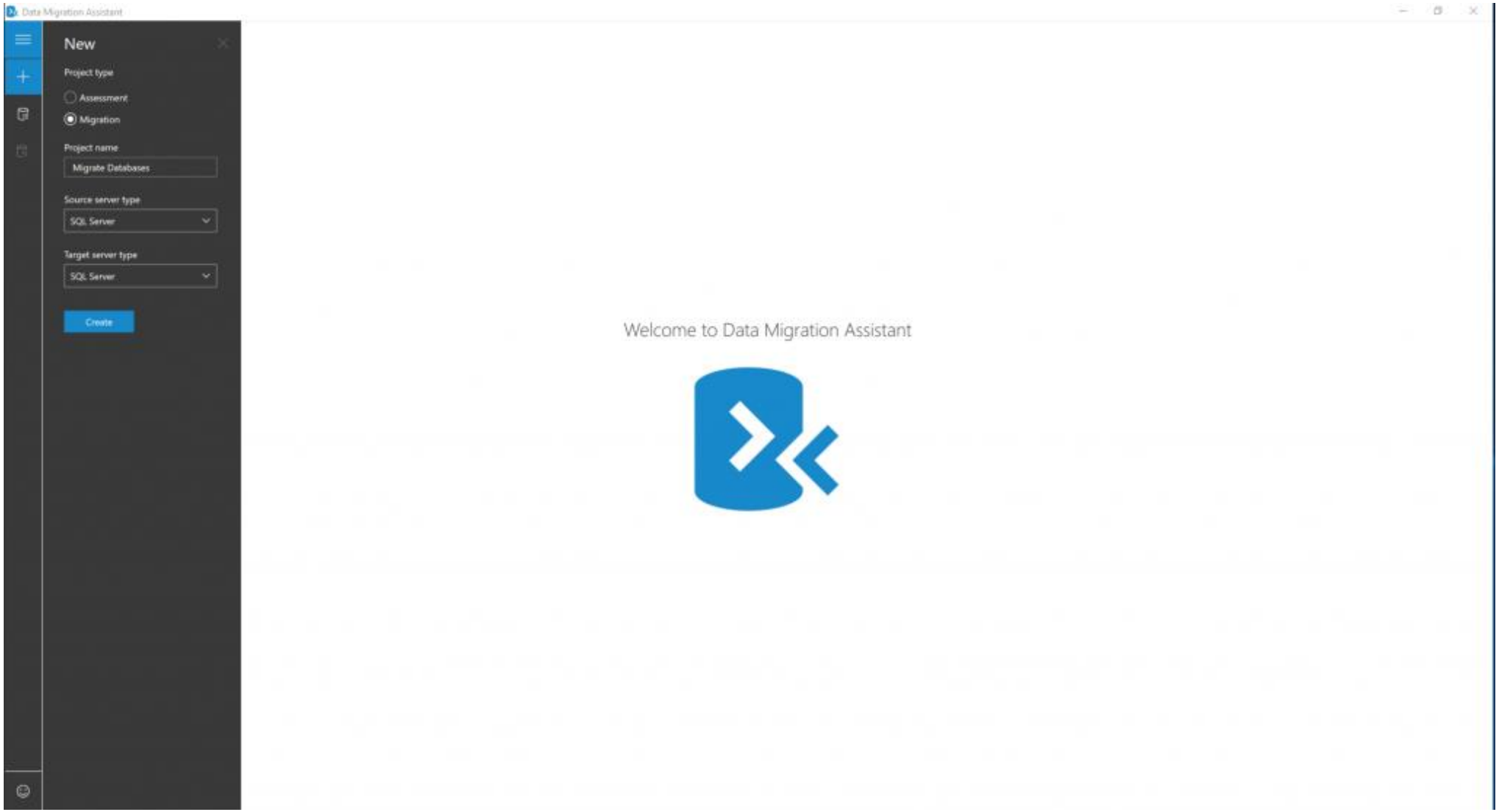
Assess: Data Migration Assistant



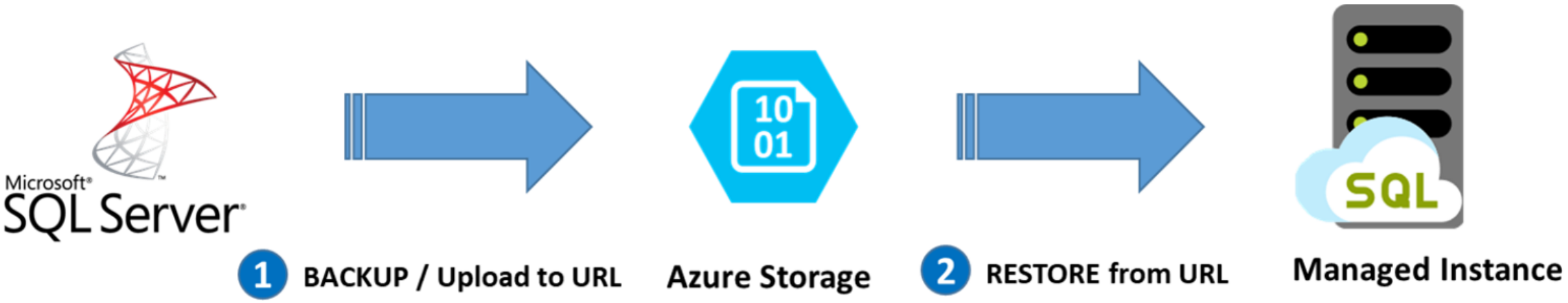
Assess: Data Migration Assistant



Migrate: Data Migration Assistant



Migrate: BACKUP / RESTORE



Migrate: Azure Database Migration Service