



# Ready for Take-Off

## How to get your Databases into the Cloud

# Agenda

Cloud, but why?

Microsoft's Cloud for Databases

Cloud, got it - but how?

The Database Migration Journey





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Andre advises customers in topics all around the Microsoft Data Platform. Since version 7.0, Andre gathering experience with the SQL Server product family. Today Andre concentrates on working with data in the cloud, like Modern Data Warehouse architectures, Artificial Intelligence and new scalable database systems like Azure Cosmos DB.

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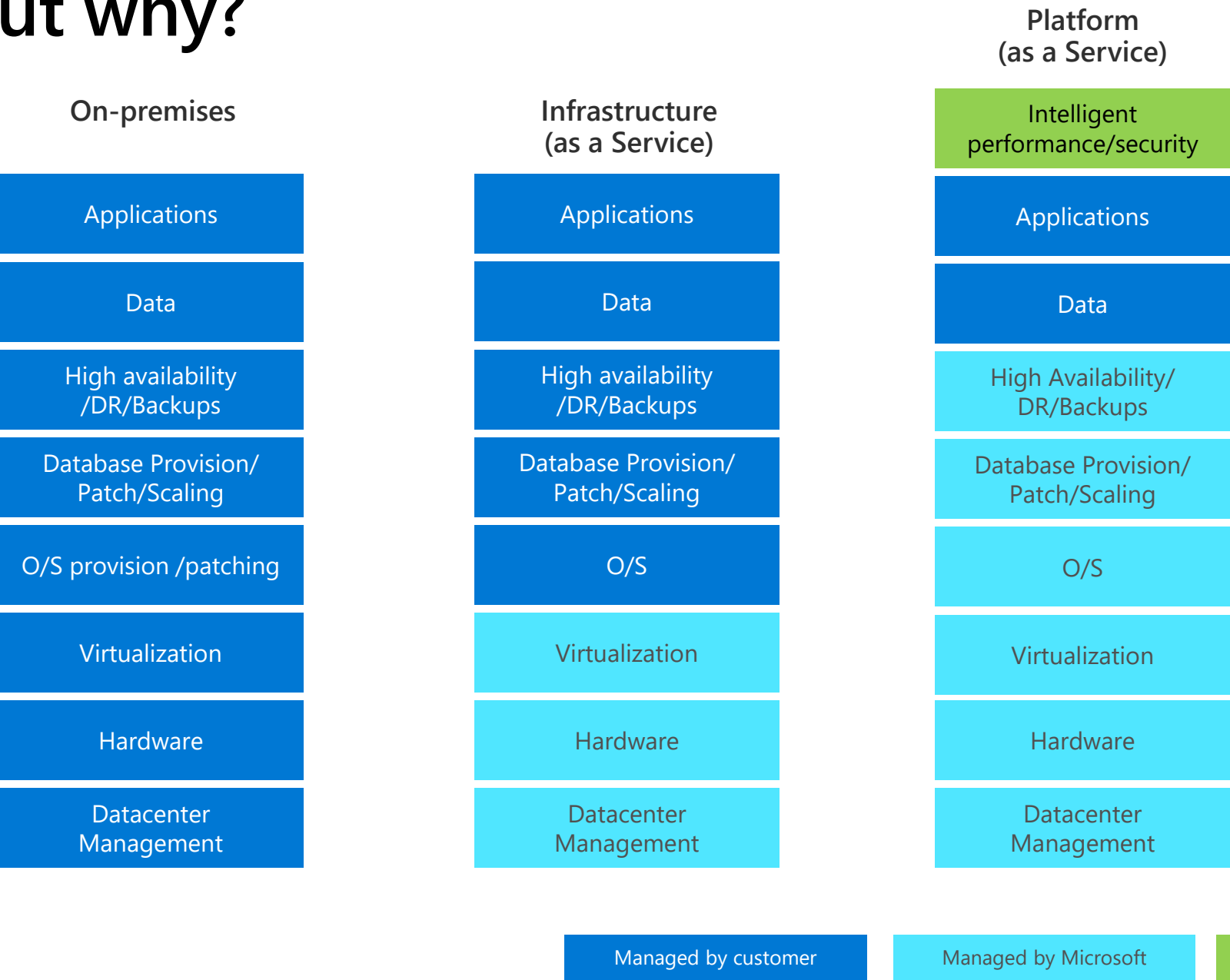
 [aessing](https://github.com/aessing)



Cloud, but why?

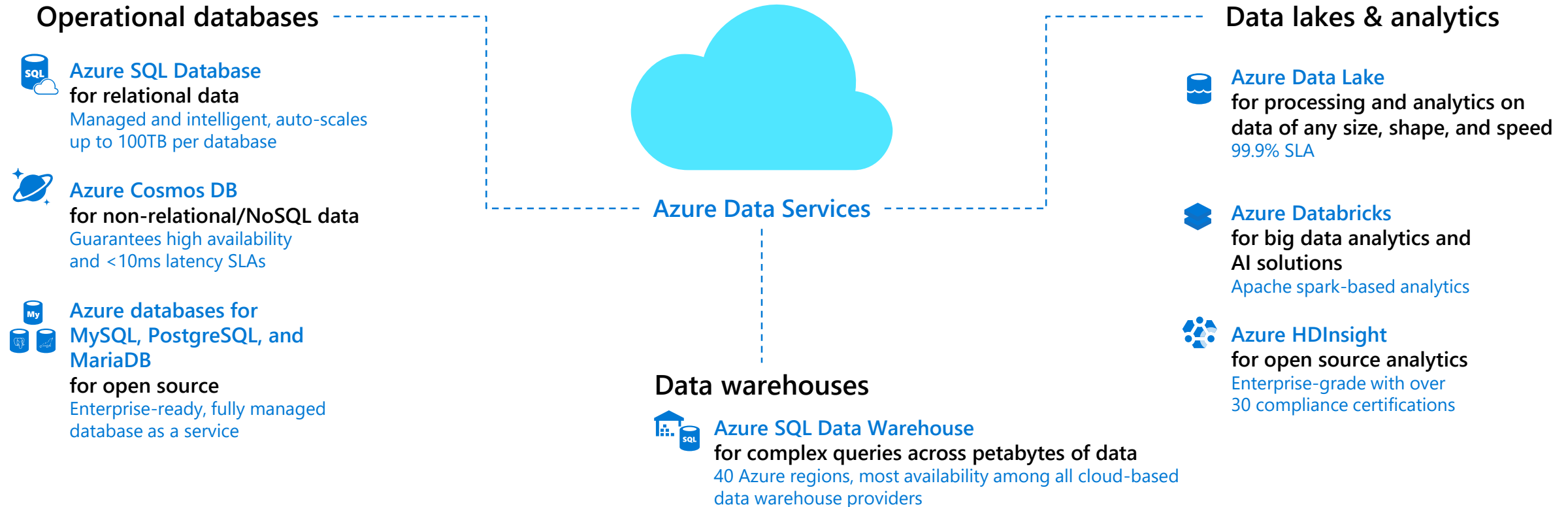


# Cloud, but why?



# The modern data estate

## *Microsoft's cloud solution*

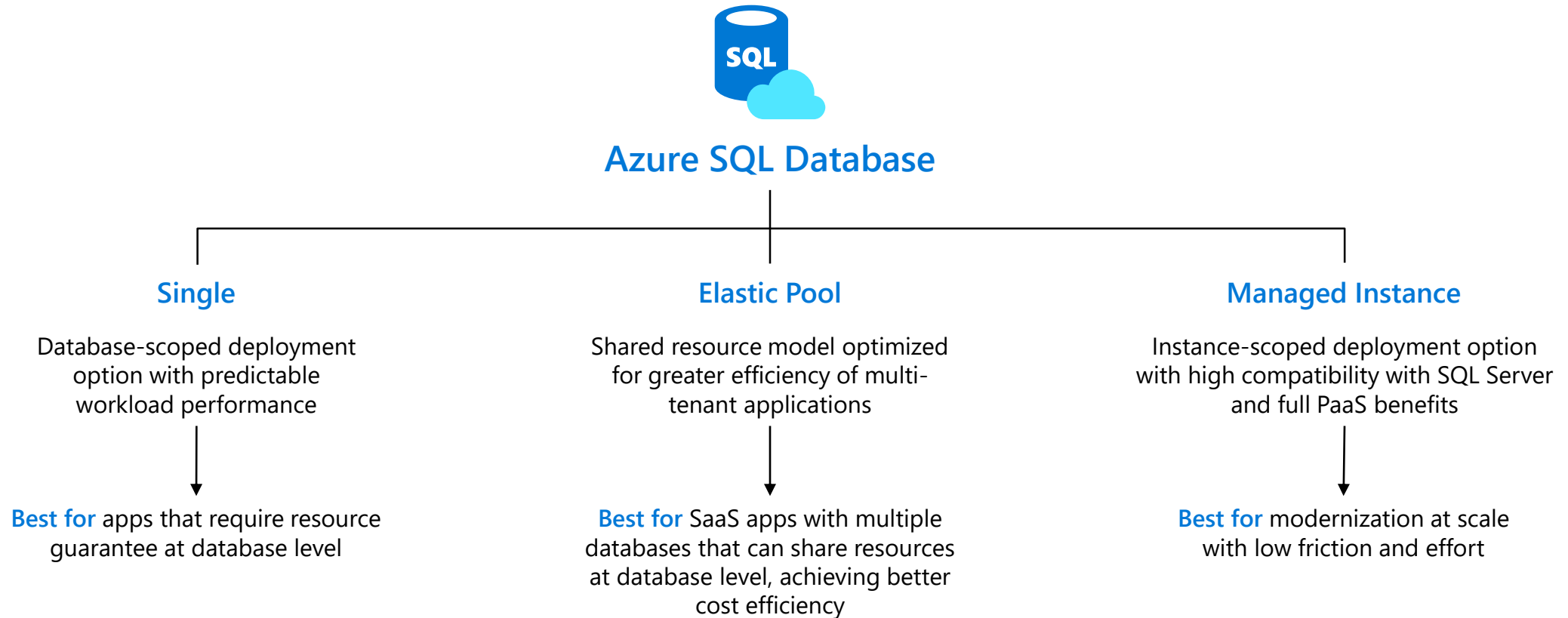


Reason over any data, anywhere

Flexibility of choice

Security and performance

# Azure SQL Database hosting options



# Hyperscale your database

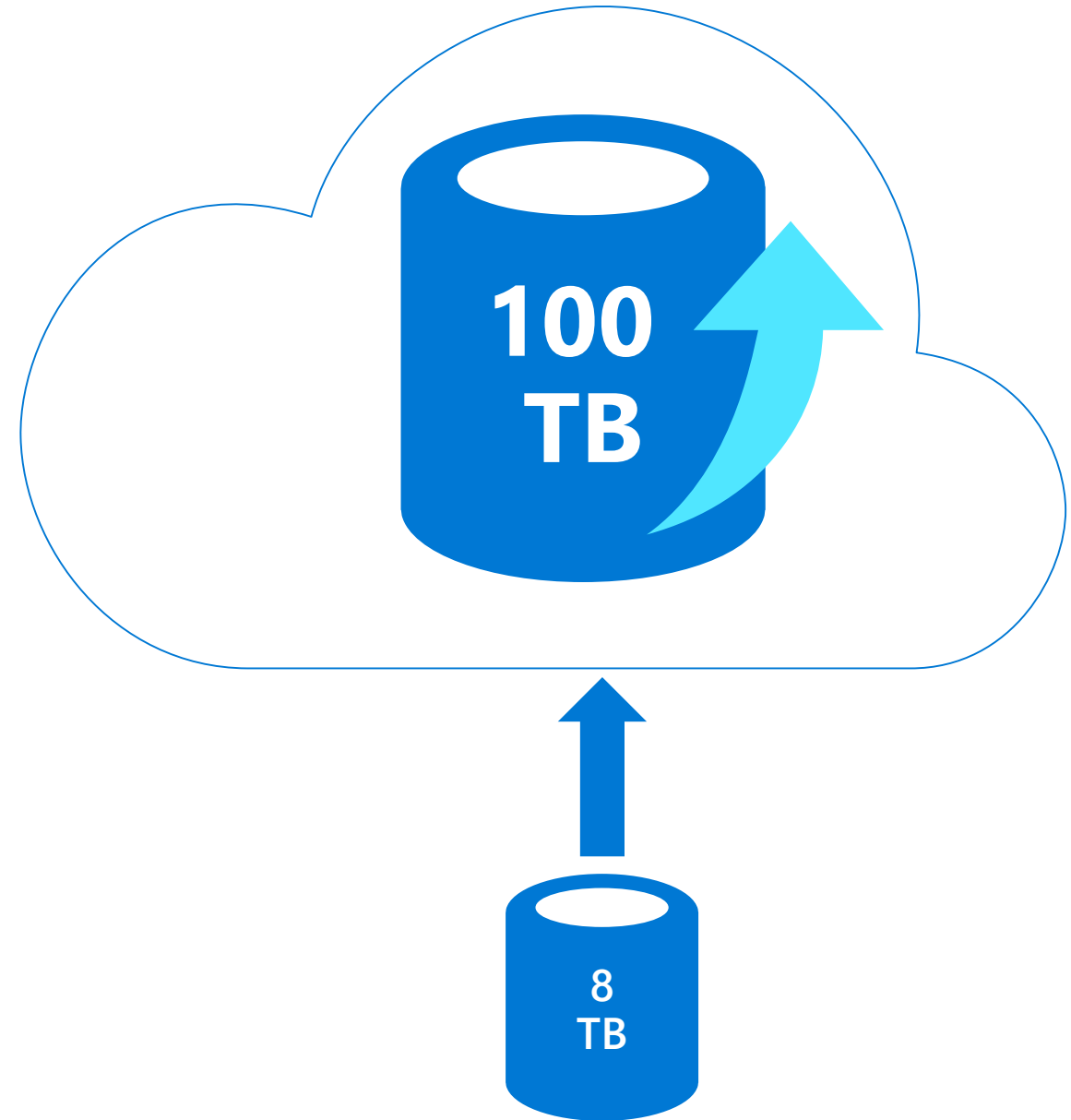
Hyperscale is a new, highly scalable service tier that adapts on-demand to your workload's needs, auto-scaling up to 100TB per database.

Storage dynamically adapts to your workloads' needs, auto-scaling up to 100TB.

Provision one or more additional compute nodes that can serve your read-only workload and use them as a hot-standby, in case of failover.

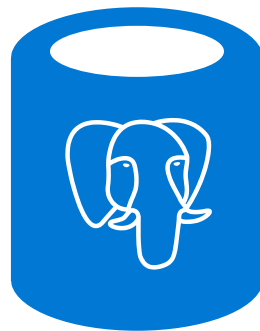
Perform operations in constant time, regardless of the size of the data operation.

Compute and storage resources scale rapidly and independently without sacrificing performance.

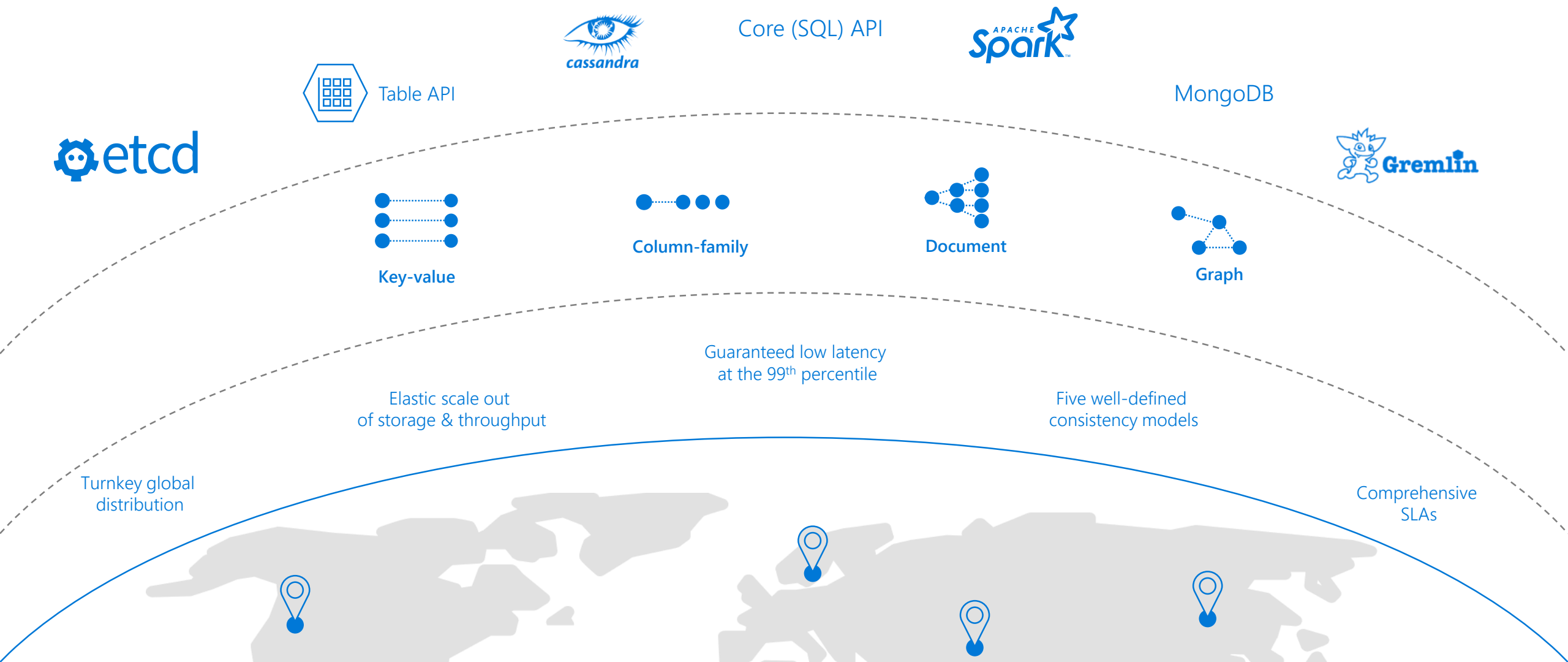




# AZURE DATABASE SERVICES FOR MYSQL, POSTGRESQL, AND MARIADB DEMONSTRATE MICROSOFT'S COMMITMENT TO OPEN SOURCE



# AZURE COSMOS DB



Cloud, got it - but how?





# Cloud migration strategies



## Rehost

Often referred to as “**lift and shift**” migration, this no-code option lets you migrate your existing applications to Azure quickly. Each *application is migrated as-is*, which provides the benefits of the cloud without the risks or costs of making code changes.

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## Refactor

Often referred to as **repackage**, this cloud migration strategy involves *some change to the application design but no wholesale changes to the application code*. Your application can take advantage of infrastructure as a service (IaaS) and platform as a service (PaaS) products, such as Azure App Service, Azure SQL Database Managed Instance, and containers.

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## Rearchitect

Modify or extend your application's code base to scale and optimize it for the cloud. *Modernize your app into a resilient, highly scalable, independently deployable architecture* and use Azure to accelerate the process, scale applications with confidence, and manage your apps with ease.

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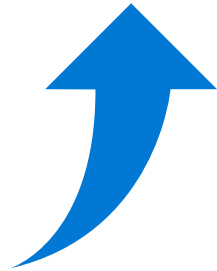
## Rebuild

Rebuild an application from scratch using cloud-native technologies. Azure platform as a service (PaaS) provides a complete development and deployment environment in the cloud, without the expense and complexity of software licenses, the need for underlying application infrastructure, or middleware and other resources. With this cloud migration strategy, *you manage the applications and services you develop*, and Azure manages everything else.

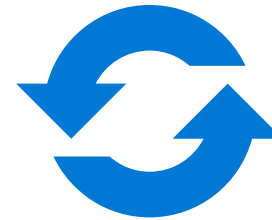
For more information about cloud migration strategies, see [Start your cloud migration process](#).

# Cloud migration strategies

*Rehost and refactor offer the best migration experience for on-premises to Azure migrations*



**Rehost**  
(lift and shift)

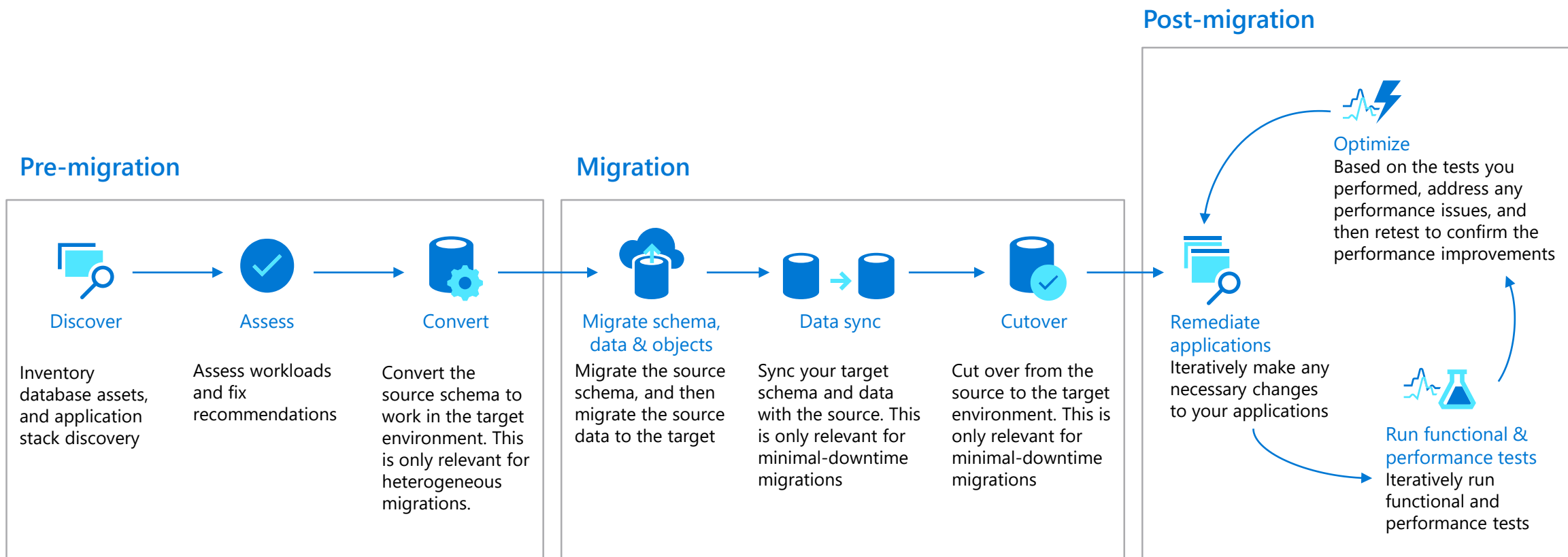


**Refactor**

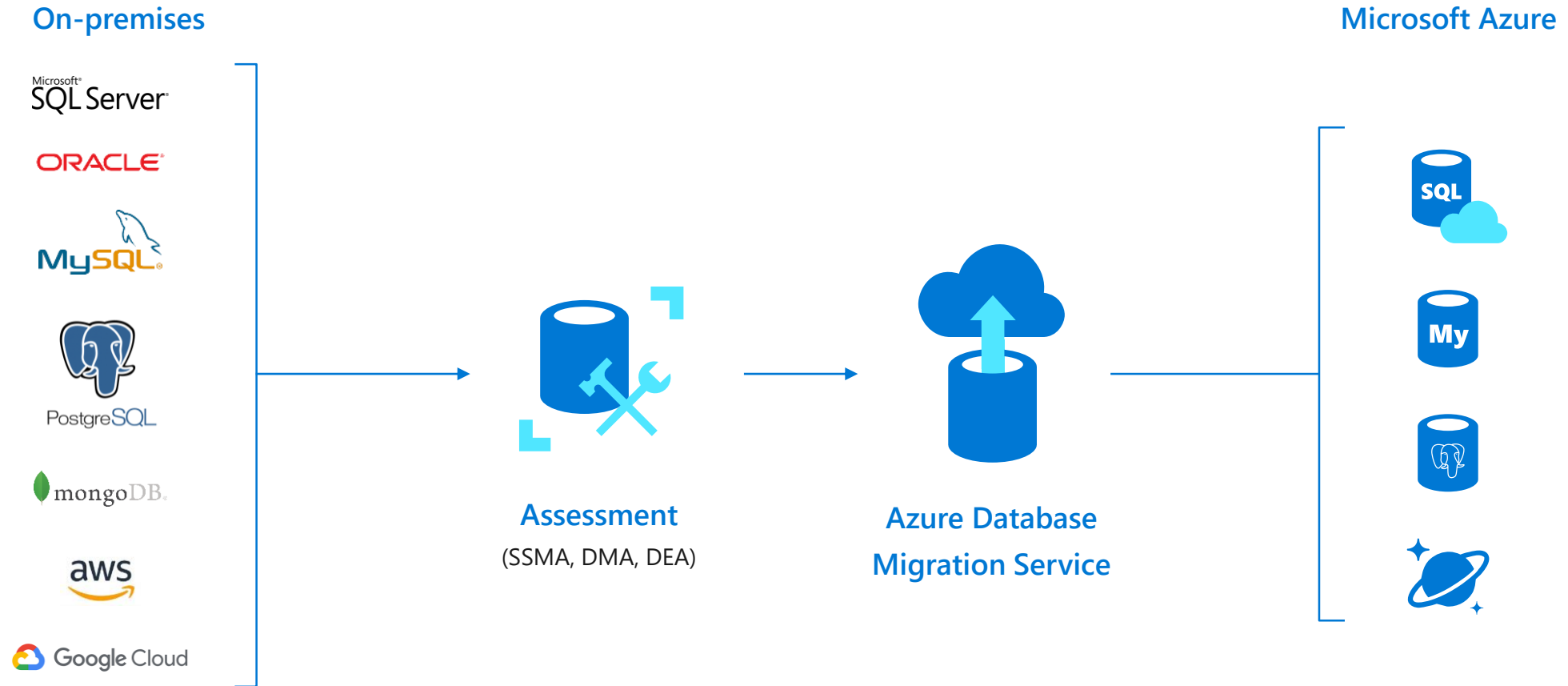




# Database migration process overview



# Tools and services for your migration journey



DEMO

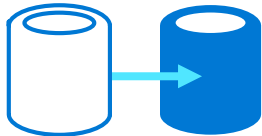
# Data Migration Assistant

# Azure Database Migration Service

*Accelerate your transition to Azure*



Homogeneous  
sources



Heterogeneous  
sources



Orchestration



Scale migration



Near-zero  
downtime

A seamless, end-to-end solution for moving on-premises databases to Azure

# Online migration using logical replication

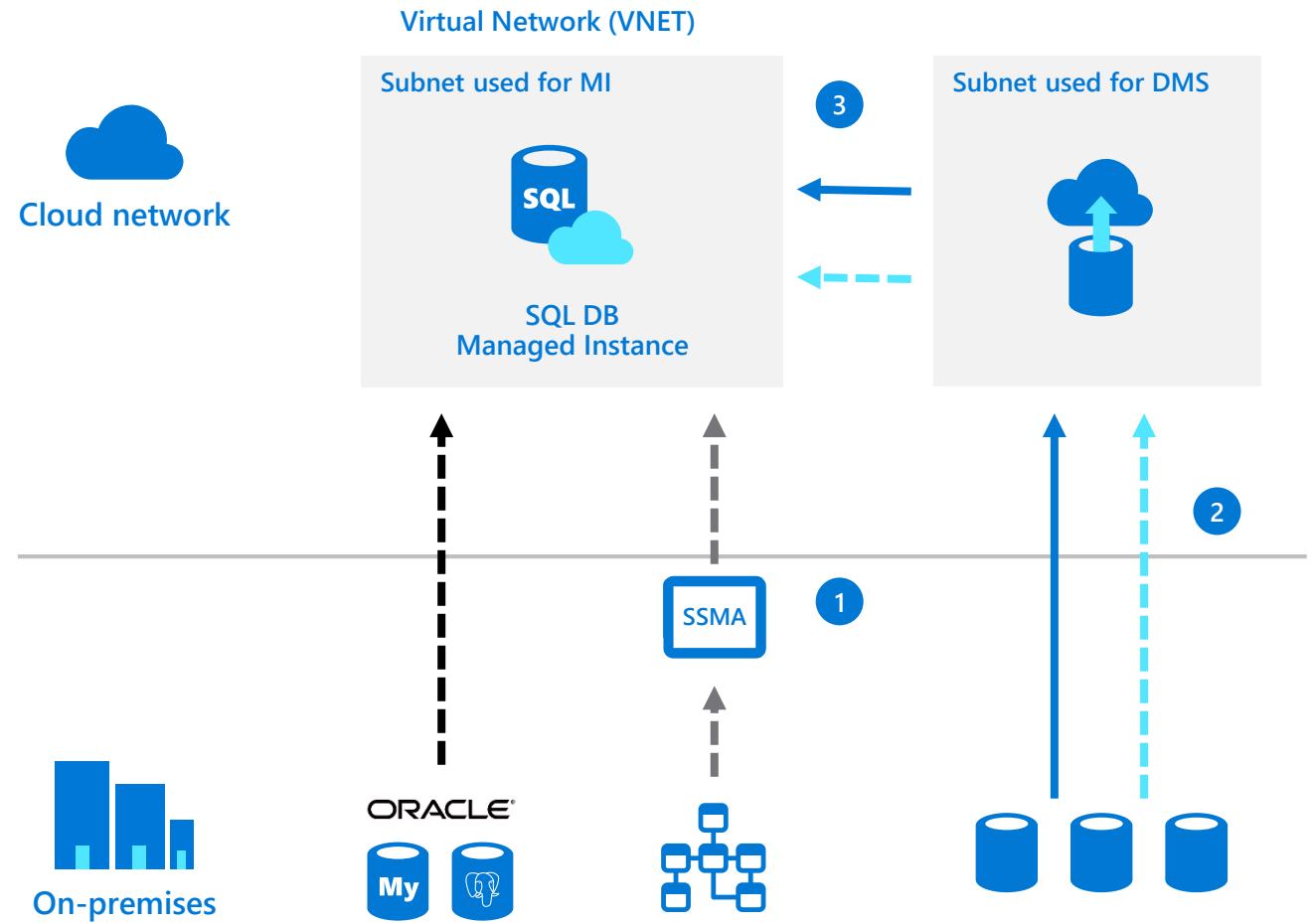
## *Competitive, MySQL and PostgreSQL migration example*

- 1 Convert database schema using SSMA
- 2 DMS reads existing data and tracks changes
- 3 DMS applies all data changes until cutover

Convert schema with SSMA, setup replication through DMS, initiate cutover and change the application connection strings

### Legend

- ➡ Initial data load
- ➡ Incremental data changes
- ➡ Site to site connectivity (VPN or ExpressRoute)
- ➡ Database schema objects





DEMO

# Online migration using logical replication

# Online migration with backup and restore technology

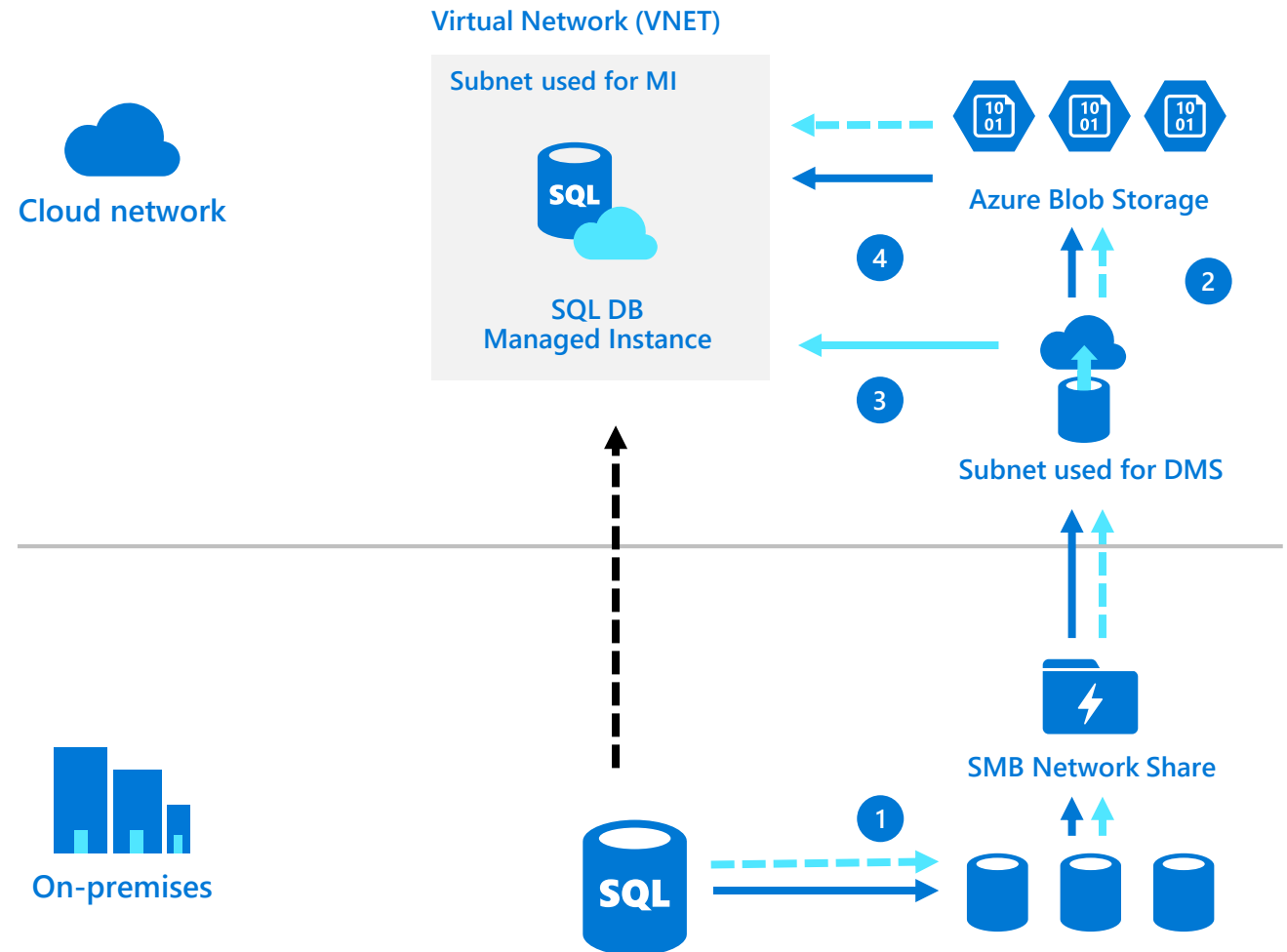
## *SQL Server to Azure SQL Database Managed Instance example*

- 1 Provide existing backups in network share
- 2 DMS upload backup files to Azure storage
- 3 DMS initiate the migration to Managed Instance
- 4 Full backup restored and Transaction log backups continuously applied until cutover

Stop incoming traffic to source databases, provide Tail-Log backup, initiate cutover in DMS and change the application connection strings

### Legend

- ➡ Full Database backup files
- ➡ Transaction log backup files
- ➡ Site to site connectivity (VPN or ExpressRoute)



DEMO

# Online migration with backup and restore technology





How to Start your Migration Journey



# Start your migration journey today



## Assess

Calculate savings with the [Azure TCO calculator](#)



## Migrate

Use the [Azure Database Migration Service](#) and [Data Migration Assistant](#) to migrate your on-premises database to Azure



## Optimize

Take advantage of offers such as [Azure Hybrid Benefit](#) and [Azure Reserved Virtual Machine Instances](#)



## Secure and manage

Get industry-leading security with [Azure Security Center](#), and protect your data in the cloud with [Azure Backup](#)



# Resources for migration

## Azure migration center

<https://azure.microsoft.com/en-us/migration/>

## Azure Database Migration Guide

<https://aka.ms/dmguide>

Find a partner: <http://migration/Pages/SearchPartners.aspx>

## Azure Database Migration Service (DMS)

<https://aka.ms/get-dms>

## Azure DMS documentation

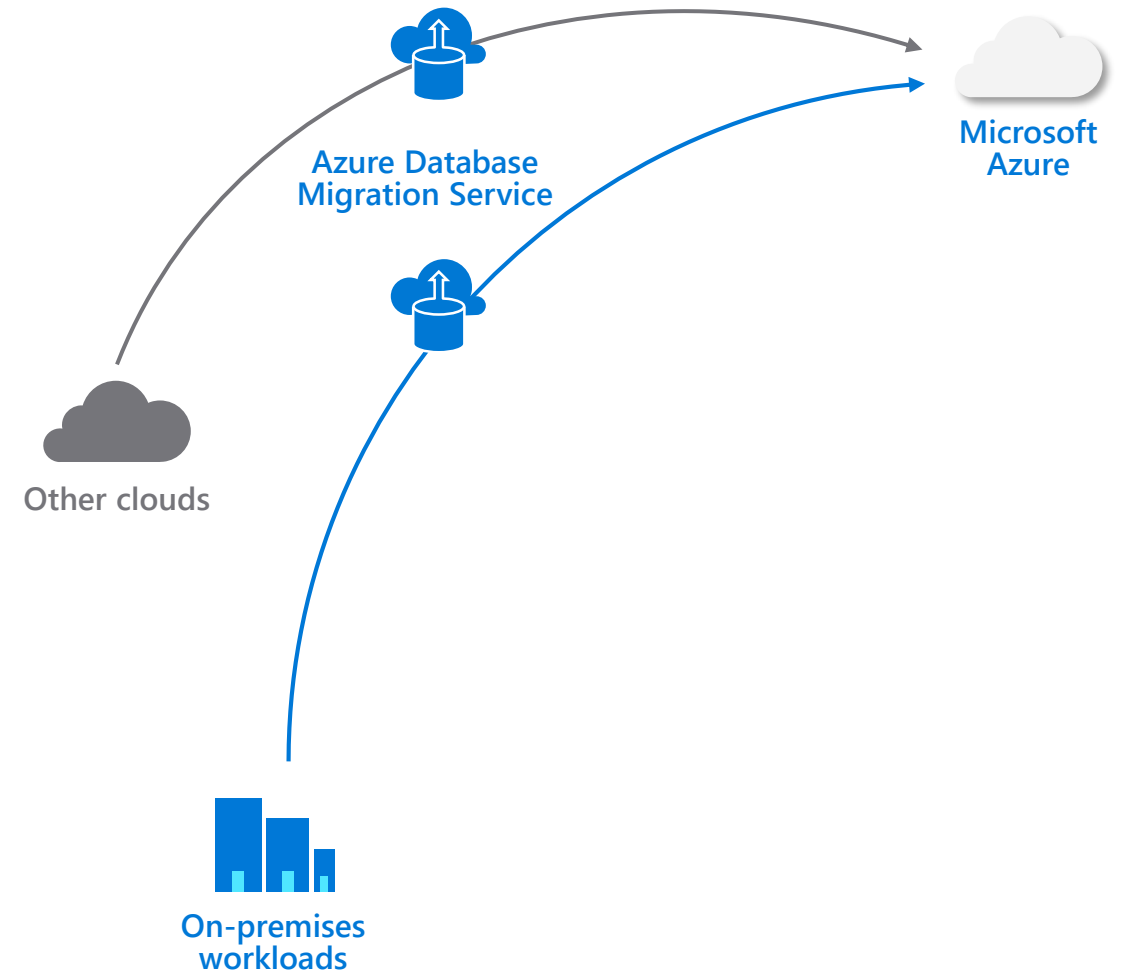
<https://aka.ms/dms-docs>

## Demos

- [Migrating and modernizing your data estate to Azure with Data Migration Services](#)
- [Database migration roadmap with Microsoft](#)

## Blog

[Data Migration Team Blog](#)





Microsoft Azure