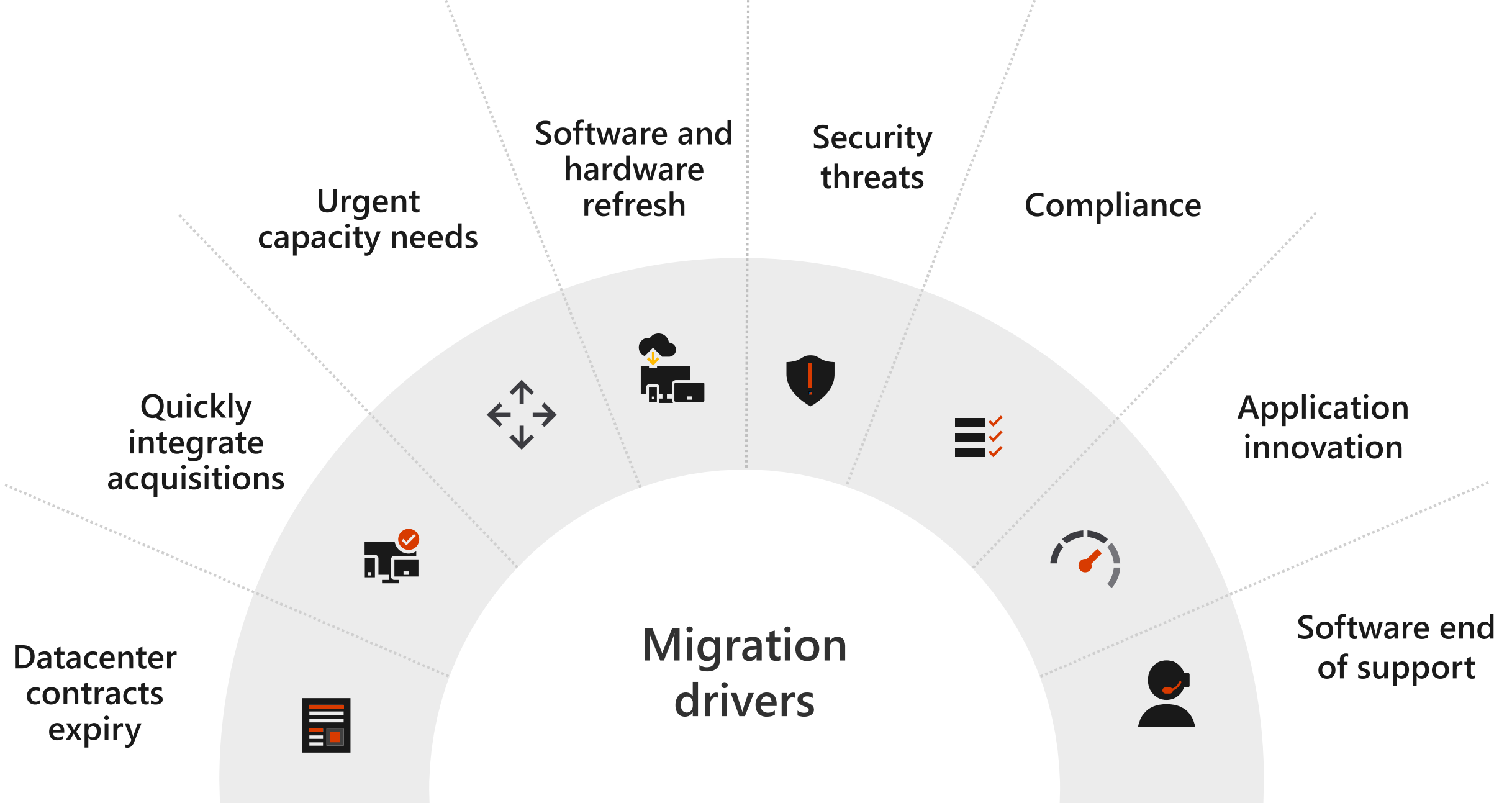




Moving your Database to Azure

Thomas Skytte
Cloud Solution Architect
Data & AI
thomas.skytte@microsoft.com





Azure capabilities across apps, data, and infrastructure



Azure
Migrate



Azure App Services



Azure Database for
PostgreSQL, MySQL



Azure Site
Recovery



Linux Support



Azure SQL database
managed instance



Azure Database
Migration Service









Azure Functions



Cassandra/MongoDB
on Azure Cosmos DB

Azure Database Migration Service

	 Azure SQL DB	 Azure SQL DB MI	 Azure SQL VM	 Azure Cosmos DB	 Azure DB for MySQL	 Azure DB for PostgreSQL
SQL Server	✓	✓	✓			
AWS SQL	✓	✓				
Oracle	✓	✓	✓			✓
MongoDB				✓		
MySQL					✓	
AWS MySQL					✓	
AWS PostgreSQL						✓
PostgreSQL						✓

Stand: 08/27/2019

Azure Data Box

General Availability



Data Box Disk
(40 TB)



Data Box
(100 TB)



Data Box Heavy
(1 PB)



Data Box
Edge



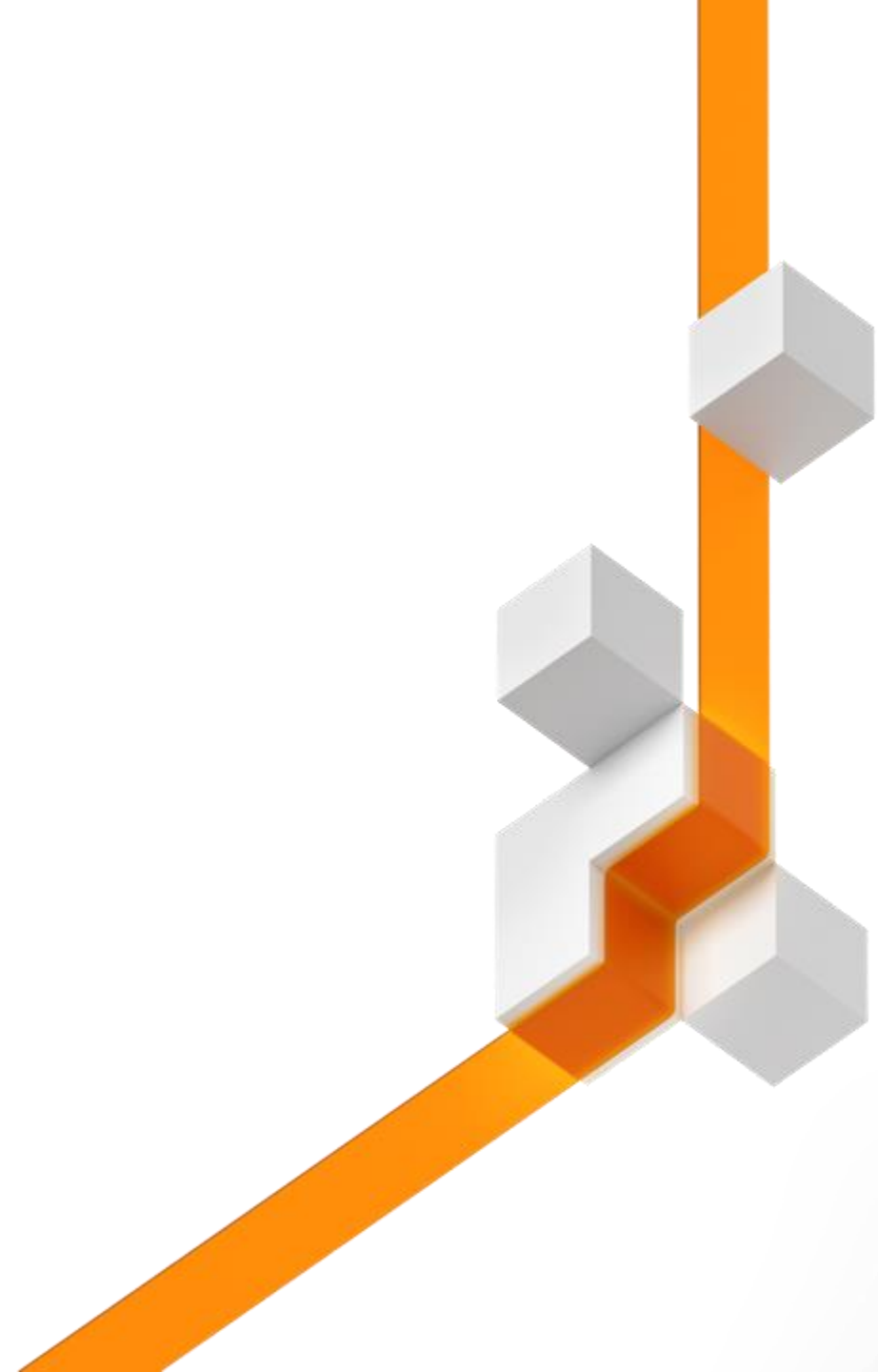
Data Box
Gateway

Provides additional
data migration
options

Migrate large
amounts of data
quickly and securely

Create a link between
your premises and
Azure storage

Tailwind Traders



Tailwind Traders acquires Northwind



REDMOND, WA Tailwind Traders, Inc announced that it has agreed to acquire Northwind Traders, the venerable "old guard" international foods company, in an effort to bolster its virtual hardware offerings with some international culinary flare.

A rich catalog...



HOME APPLIANCES

SINK

HOME

GARDENING

DECOR

KITCHEN ACCESSORIES

DIY TOOLS

Login



upload new photo

Cordless Power Tools



Home Appliances



Sink



Home



Gardening



Decor



Kitchen Accessories



DIY tools

Show more



\$110

Blend Solid White Sheer...

ADD TO LIST



\$120

Door Hardware Kit Singl...

ADD TO LIST



\$105

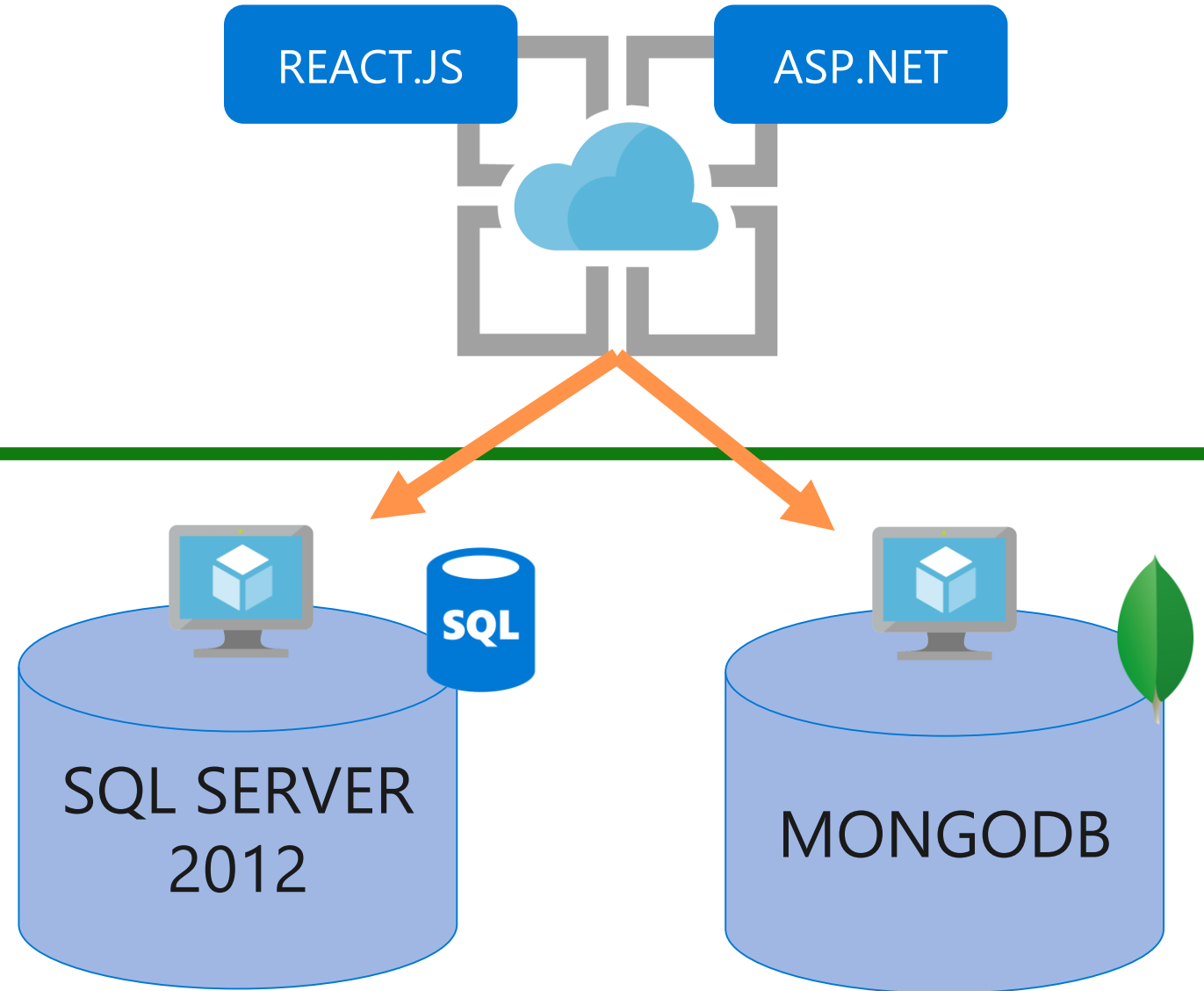
White Sheer Curtains

ADD TO LIST

Architecture **before** the move



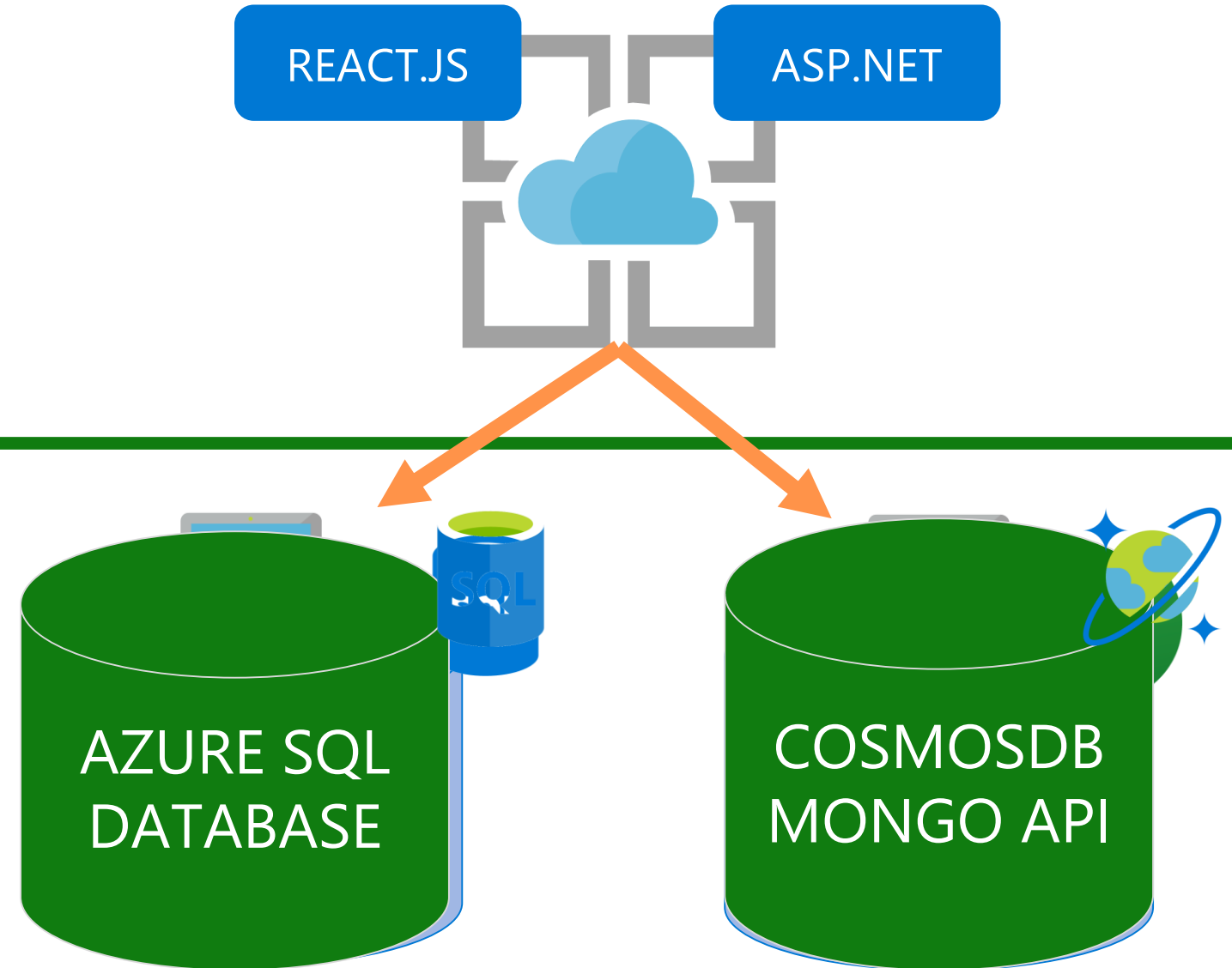
ON PREMISE



Architecture **after** the move

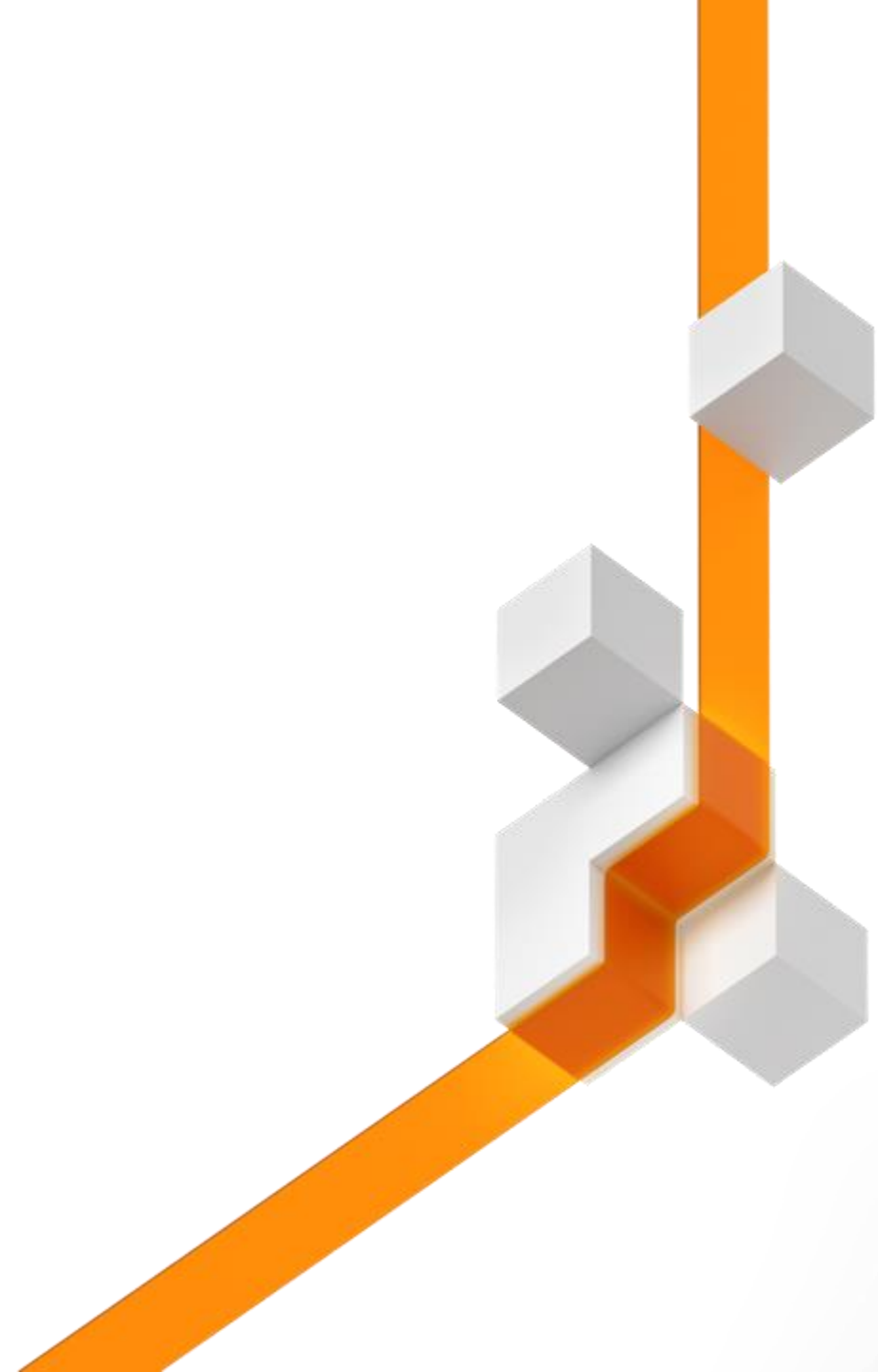


ON PREMISE





NoSQL with CosmosDB



Azure Cosmos DB

Globally distributed database service





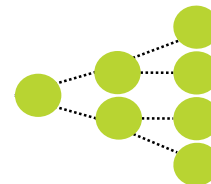
Key-Value



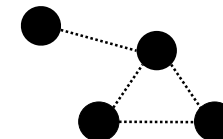
Column-family



Documents



Graph

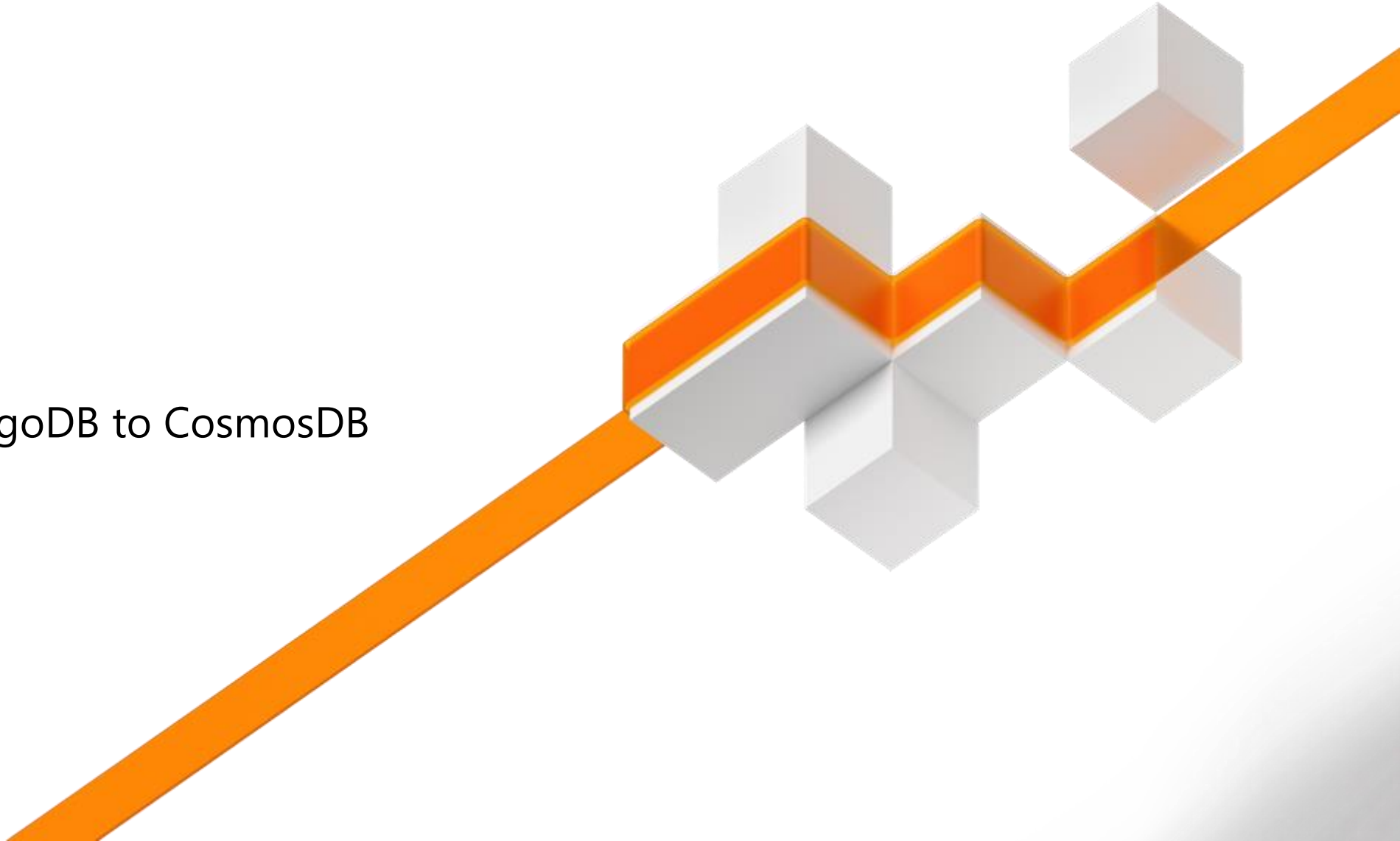
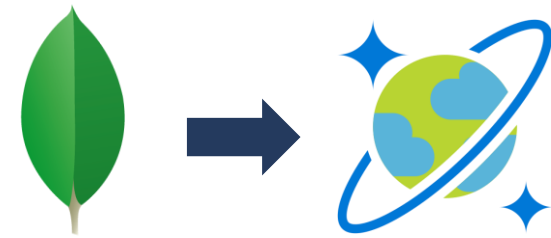


Global distribution Elastic scale out Guaranteed low latency Five consistency models Comprehensive SLAs

A globally-distributed, multi-model database service

Demo

Migrating from MongoDB to CosmosDB



mod20abcdvms - Microsoft Azu

mod20abcdpaas - Microsoft Azu

Azure Cloud Shell

←

→

↺

🔒

https://portal.azure.com/?feature.customportal=false#@microsoft.onmicrosoft.com/reso...

🔍

☆

8

🗨️

🌟

👤

😊

⋮

🇺🇸 Interactive deep lea...

📁 Microsoft

📁 AI

📁 Coursera | Online C...

📁 Home | Azure Fund...

📁 m

📁 MITT

📁 TODO

🚀 AzPortal

🔄 Git MOD20

Microsoft Azure

🔍 Search resources, services, and docs (G+)

📺

📄

🔔

⚙️

?

😊

lbugnion@microsoft.com

MICROSOFT

👤

>>

Dashboard > Resource groups > mod20abcdpaas

📦 mod20abcdpaas

Resource group

🔍 Search (Ctrl+)

📦 Overview

📅 Activity log

👤 Access control (IAM)

🏷️ Tags

⚡ Events

Settings

☁️ Quickstart

🏠 Deployments

📄 Policies

☰ Properties

🔒 Locks

📄 Export template

💰 Cost Management

+

 Add

≡

 Edit columns

🗑️

 Delete resource group

🔄

 Refresh

➡️

 Move

⬇️

 Export to CSV

🏷️

 Assign tags

⋮

 More

Subscription (change)

🔥 Ignite the Tour

Subscription ID

cd400f31-6f94-40ab-863a-673192a3c0d0

Tags (change)

🔗 Click here to add tags

⏴

Filter by name...

All types

All locations

No grouping

12 items

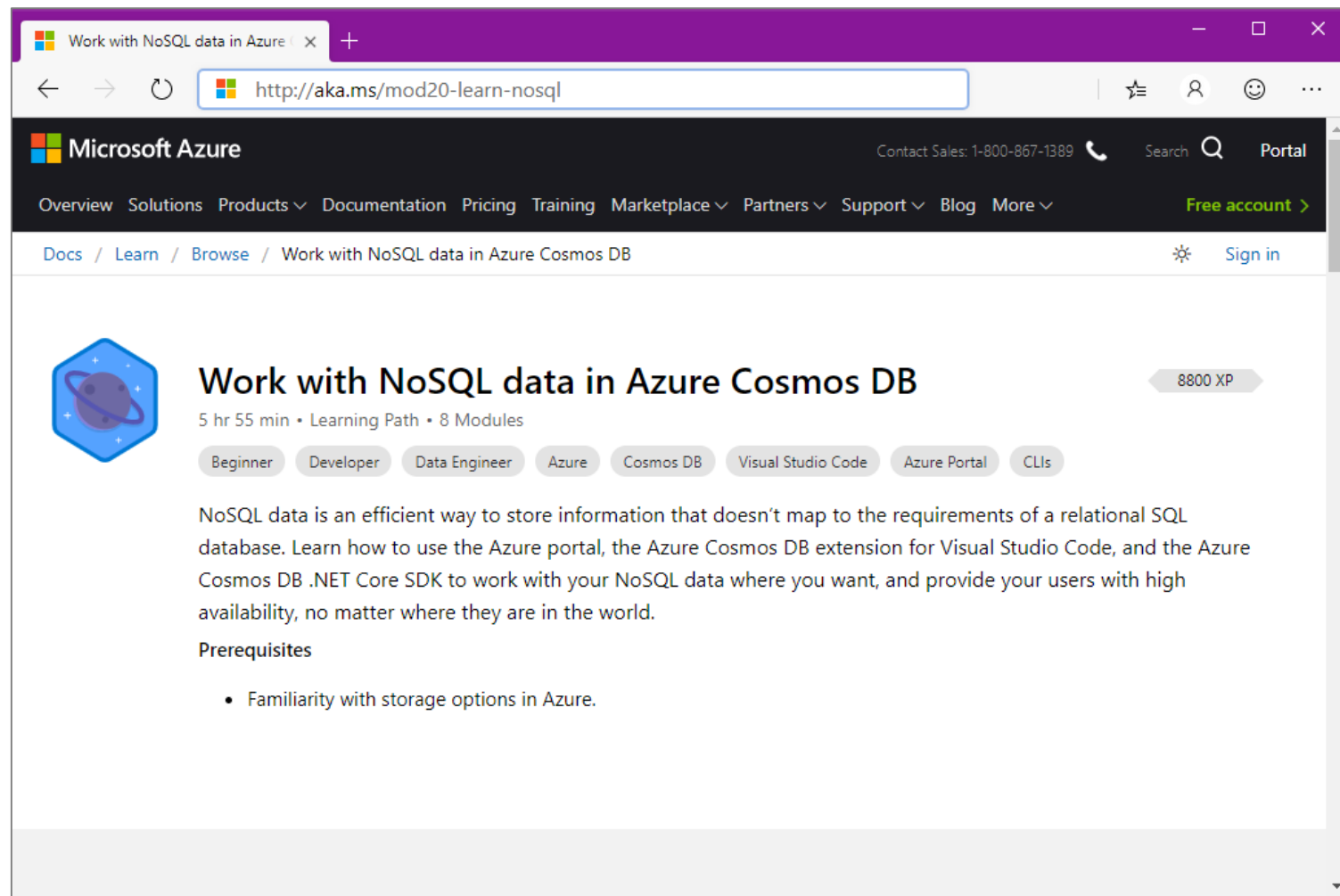
☐ Show hidden types ⓘ

<input type="checkbox"/>	NAME ↑↓	TYPE ↑↓	LOCATION ↑↓	
<input type="checkbox"/>	💡 mod20abcd	Application Insights	West Europe	⋮
<input type="checkbox"/>	🌐 mod20abcd	App Service	West Europe	⋮
<input type="checkbox"/>	☁️ mod20abcddms	Azure Database Migration Service	West Europe	⋮
<input type="checkbox"/>	🌌 mod20abcdmongo	Azure Cosmos DB account	West Europe	⋮
<input type="checkbox"/>	🌟			⋮

/MS Learn alert

Complete interactive learning exercises, watch videos, and practice and apply your new skills.

aka.ms/mod20-learn-nosql



The screenshot shows a web browser window with the URL <http://aka.ms/mod20-learn-nosql>. The page is the Microsoft Azure Learn portal for the course "Work with NoSQL data in Azure Cosmos DB". The course is represented by a blue hexagonal icon with a planet and rings. It has a duration of 5 hr 55 min, consists of 8 modules, and is worth 8800 XP. The course is categorized under Beginner, Developer, Data Engineer, Azure, Cosmos DB, Visual Studio Code, Azure Portal, and CLIs. The description states: "NoSQL data is an efficient way to store information that doesn't map to the requirements of a relational SQL database. Learn how to use the Azure portal, the Azure Cosmos DB extension for Visual Studio Code, and the Azure Cosmos DB .NET Core SDK to work with your NoSQL data where you want, and provide your users with high availability, no matter where they are in the world." The prerequisites listed are: "Familiarity with storage options in Azure."

Work with NoSQL data in Azure

Microsoft Azure

Contact Sales: 1-800-867-1389

Search

Portal

Overview Solutions Products Documentation Pricing Training Marketplace Partners Support Blog More

Free account

Docs / Learn / Browse / Work with NoSQL data in Azure Cosmos DB

Sign in

Work with NoSQL data in Azure Cosmos DB

8800 XP

5 hr 55 min • Learning Path • 8 Modules

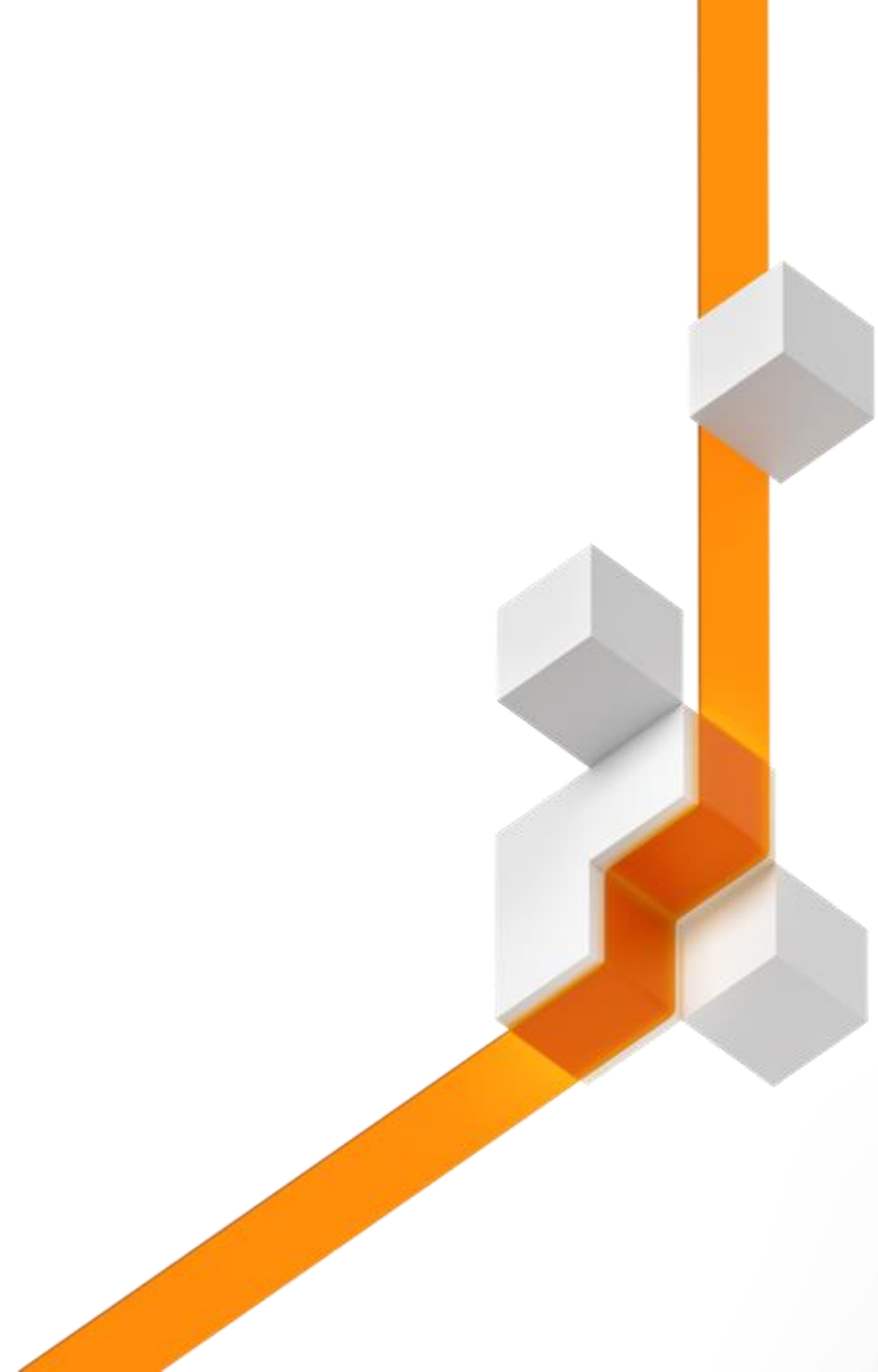
Beginner Developer Data Engineer Azure Cosmos DB Visual Studio Code Azure Portal CLIs

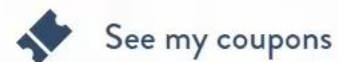
NoSQL data is an efficient way to store information that doesn't map to the requirements of a relational SQL database. Learn how to use the Azure portal, the Azure Cosmos DB extension for Visual Studio Code, and the Azure Cosmos DB .NET Core SDK to work with your NoSQL data where you want, and provide your users with high availability, no matter where they are in the world.

Prerequisites

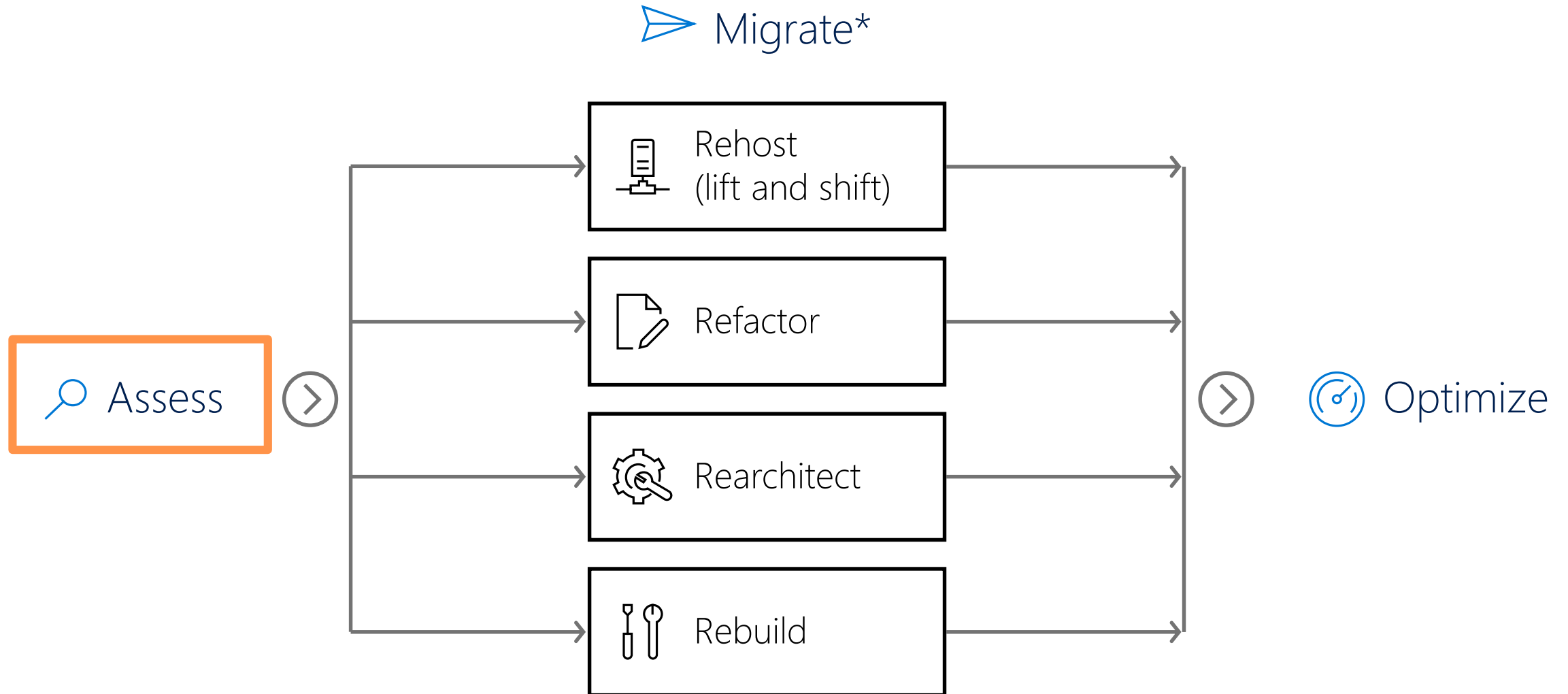
- Familiarity with storage options in Azure.

Relational data with Azure SQL



 **Free Shipping** • For \$100 or more orders

How to easily migrate and get benefits of cloud?





Recycle Bin



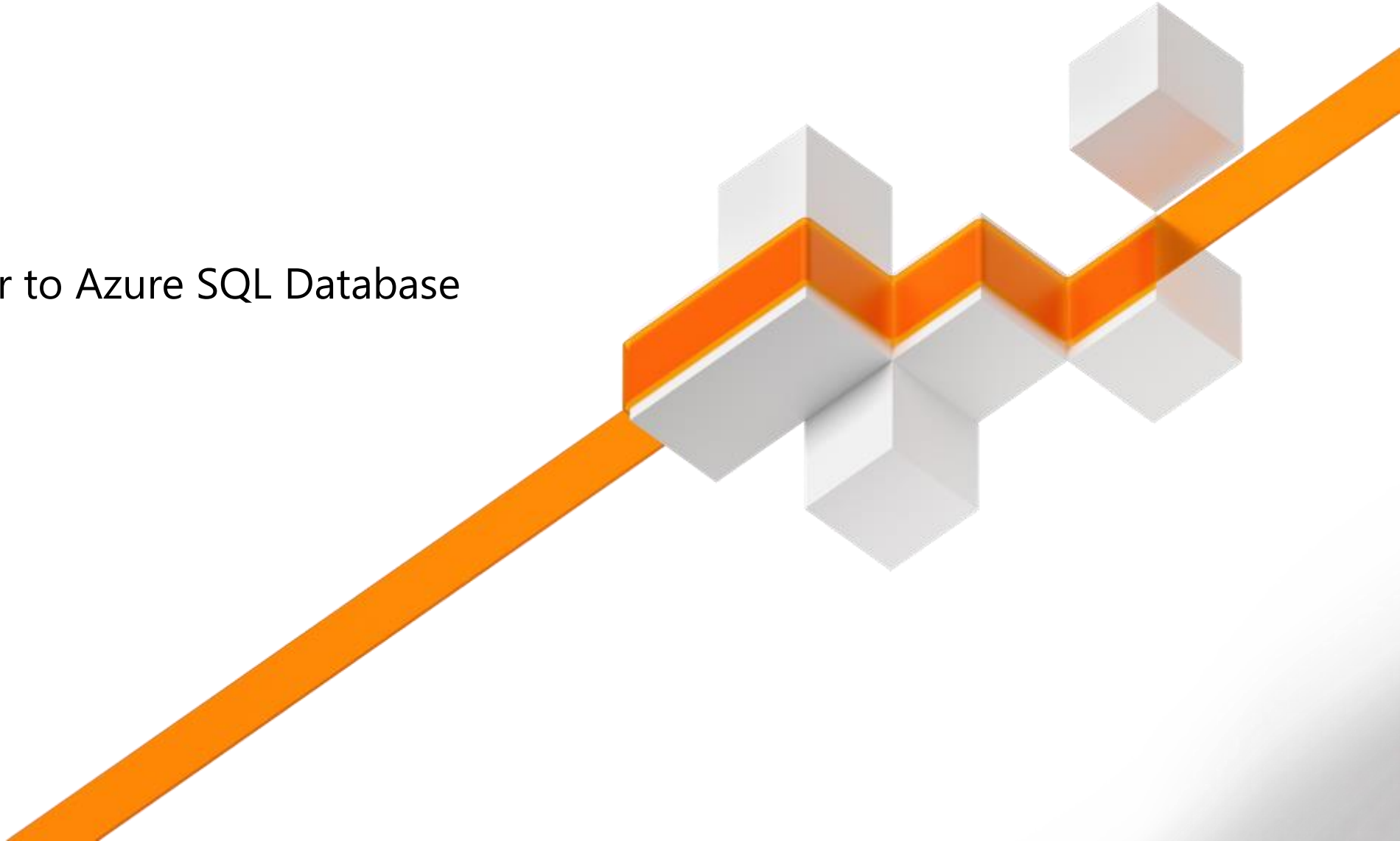
DMA





Demo

Migrating SQL Server to Azure SQL Database
(Part 1)



Azure SQL Database momentum

5.8 million
databases

70 PB
total size

550k
subscriptions

3 trillion
batch requests per day

37k
databases migrated via
Database Migration Service

100 million
queries analyzed per
hour

DocuSign

PAYCHEX

**Rockwell
Automation**

 **Allscripts**

KOMATSU

intershop

 **KMD**


umbraco

 **Stackify**

DESCARTES

 **LEGACY
HEALTH**

M-Files

THOMSON REUTERS
ELITE

 **wipro**

SQL Managed Instance



Key takeaways

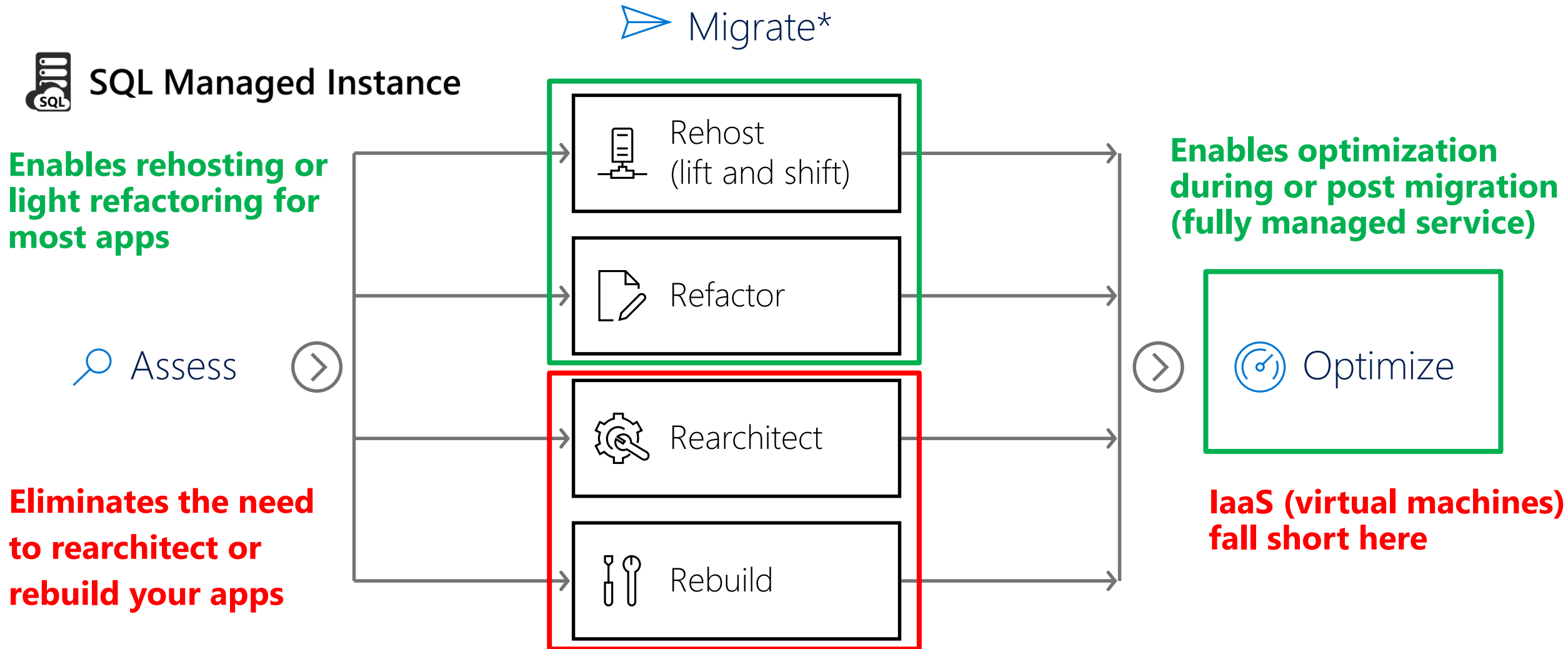
Generally Available

Enterprise-ready

Easily migrate SQL Server to cloud

All the benefits of a fully-managed service

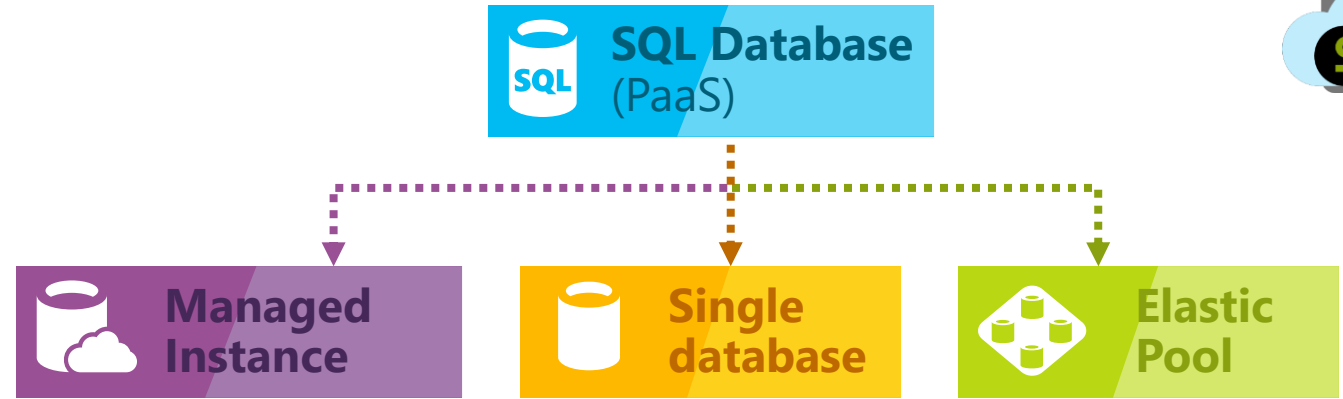
How to easily migrate and get benefits of cloud?



What is SQL Database Managed Instance?



New deployment option enabling friction-free migration of SQL Server workloads to a fully-managed service



Fully-managed service

- Built on the same infrastructure as SQL Database
- Provides the same benefits (PaaS)

SQL Server compatibility

- Fully-fledged SQL instance with nearly 100% compat with on-premise

Full isolation and security

- Contained within your VNet
- Private IP addresses
- Express Route / VPN connectivity

New purchasing options

- Transparent
- Frictionless
- Competitive



Demo

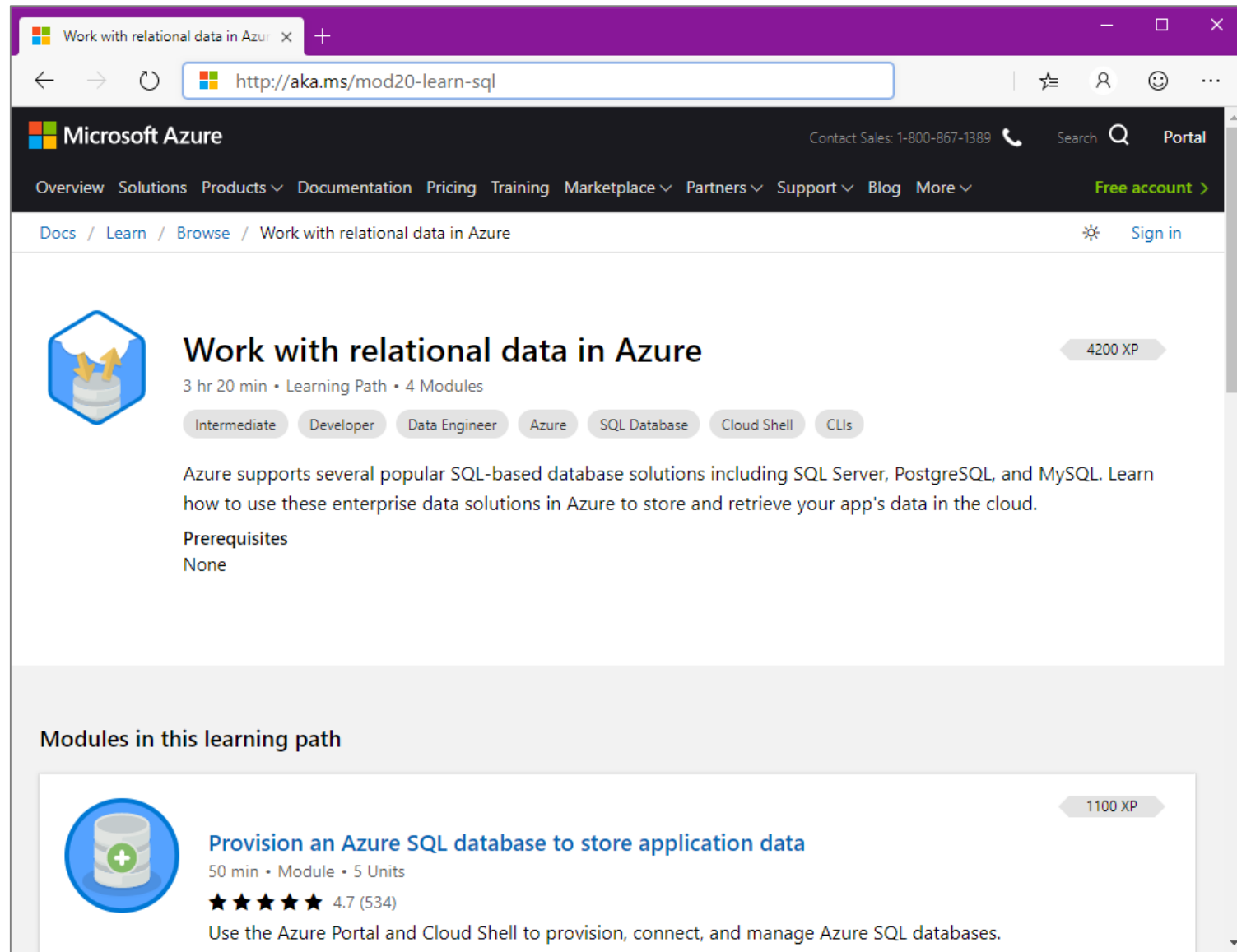
Migrating SQL Server to Azure SQL Database
(Part 2)



/MS Learn alert

Complete interactive learning exercises, watch videos, and practice and apply your new skills.

aka.ms/mod20-learn-sql



The screenshot shows a web browser window with the URL <http://aka.ms/mod20-learn-sql>. The page is the Microsoft Azure Learn interface for the learning path "Work with relational data in Azure".

Microsoft Azure (top navigation bar)

Navigation links: Overview, Solutions, Products, Documentation, Pricing, Training, Marketplace, Partners, Support, Blog, More. A "Free account" link is also present.

Breadcrumbs: Docs / Learn / Browse / Work with relational data in Azure

Work with relational data in Azure (Learning Path)

- Icon: A blue hexagon with a white database cylinder and two yellow arrows pointing up.
- Duration: 3 hr 20 min
- Learning Path: 4 Modules
- XP: 4200 XP
- Tags: Intermediate, Developer, Data Engineer, Azure, SQL Database, Cloud Shell, CLIs
- Description: Azure supports several popular SQL-based database solutions including SQL Server, PostgreSQL, and MySQL. Learn how to use these enterprise data solutions in Azure to store and retrieve your app's data in the cloud.
- Prerequisites: None

Modules in this learning path

- Provision an Azure SQL database to store application data**
 - Icon: A blue circle with a white database cylinder and a green plus sign.
 - Duration: 50 min
 - Module: 5 Units
 - XP: 1100 XP
 - Rating: ★★★★★ 4.7 (534)
 - Description: Use the Azure Portal and Cloud Shell to provision, connect, and manage Azure SQL databases.

Azure Database for open source DBs engines



Fully managed services
without changing your
applications

Simple and flexible
pricing, Language and
frameworks of your choice

Automatic backups,
patching, built-in
monitoring, security

PostgreSQL



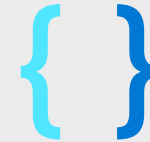
The world's most advanced open source relational database



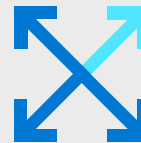
Ranked 2017 and 2018
DBMS of the Year
by DB-Engines



Open source



SQL-compliant



Extensible

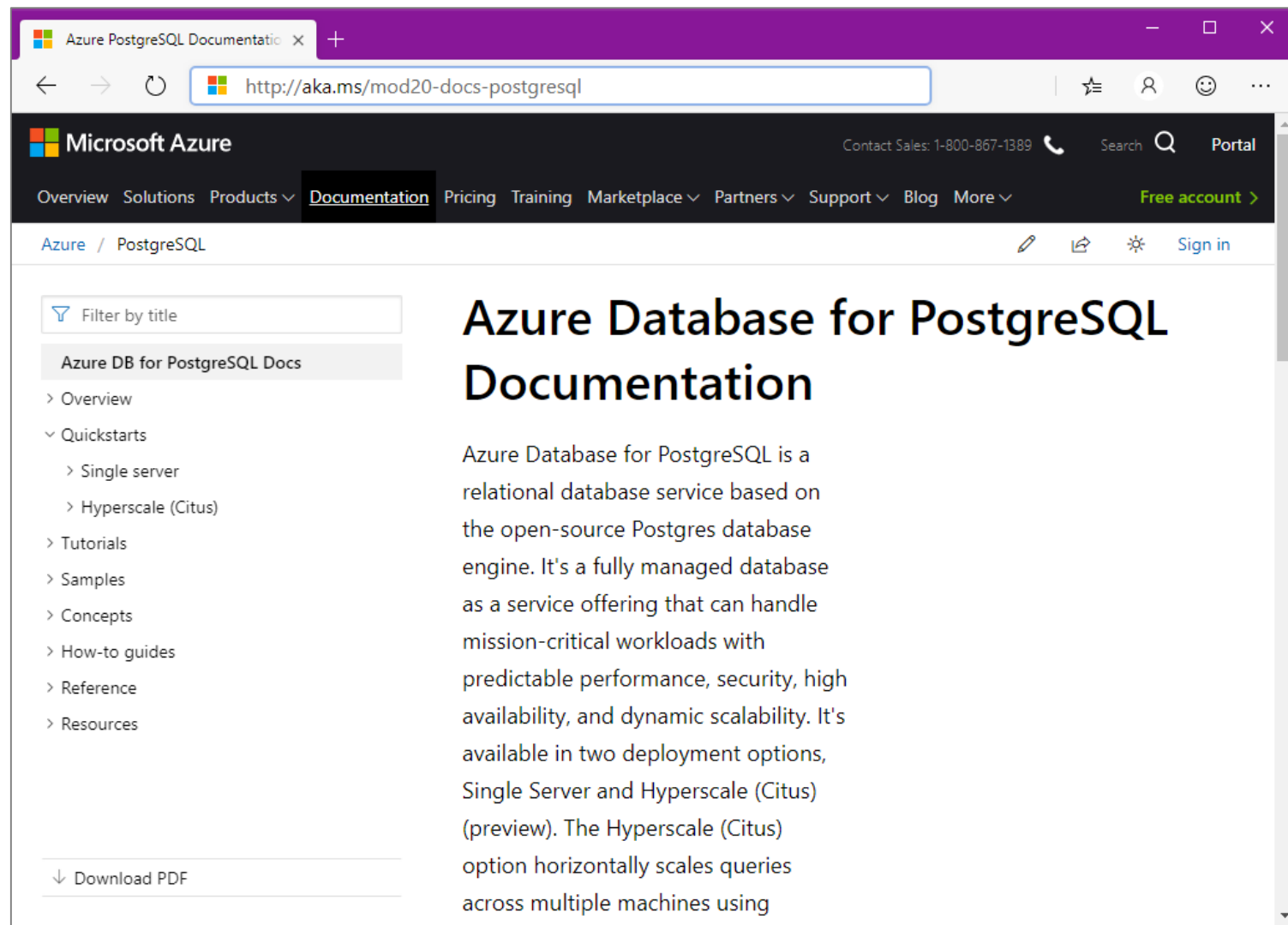


Developer-centric

/Docs alert

Explore overviews, tutorials, samples, and more.

aka.ms/mod20-docs-postgresql



The screenshot shows a web browser window with the URL <http://aka.ms/mod20-docs-postgresql>. The page is the Microsoft Azure documentation for PostgreSQL. The header includes the Microsoft Azure logo, contact information (1-800-867-1389), a search bar, and a portal link. The navigation bar lists various sections: Overview, Solutions, Products, Documentation (highlighted), Pricing, Training, Marketplace, Partners, Support, Blog, and More. A 'Free account' link is also present. The main content area is titled 'Azure Database for PostgreSQL Documentation'. It features a sidebar with a 'Filter by title' search bar and a list of document categories: Overview, Quickstarts (with sub-items: Single server, Hyperscale (Citus)), Tutorials, Samples, Concepts, How-to guides, Reference, and Resources. Below the sidebar is a 'Download PDF' button. The main text area describes Azure Database for PostgreSQL as a relational database service based on the open-source PostgreSQL engine, highlighting its fully managed nature, mission-critical capabilities, and deployment options (Single Server and Hyperscale (Citus) preview).

Azure PostgreSQL Documentatio x +

← → ↺ <http://aka.ms/mod20-docs-postgresql> ☆ 👤 😊 ...

Microsoft Azure Contact Sales: 1-800-867-1389 Search Portal

Overview Solutions Products Documentation Pricing Training Marketplace Partners Support Blog More Free account >

Azure / PostgreSQL Sign in

Filter by title

Azure DB for PostgreSQL Docs

- > Overview
- > Quickstarts
 - > Single server
 - > Hyperscale (Citus)
- > Tutorials
- > Samples
- > Concepts
- > How-to guides
- > Reference
- > Resources

Download PDF

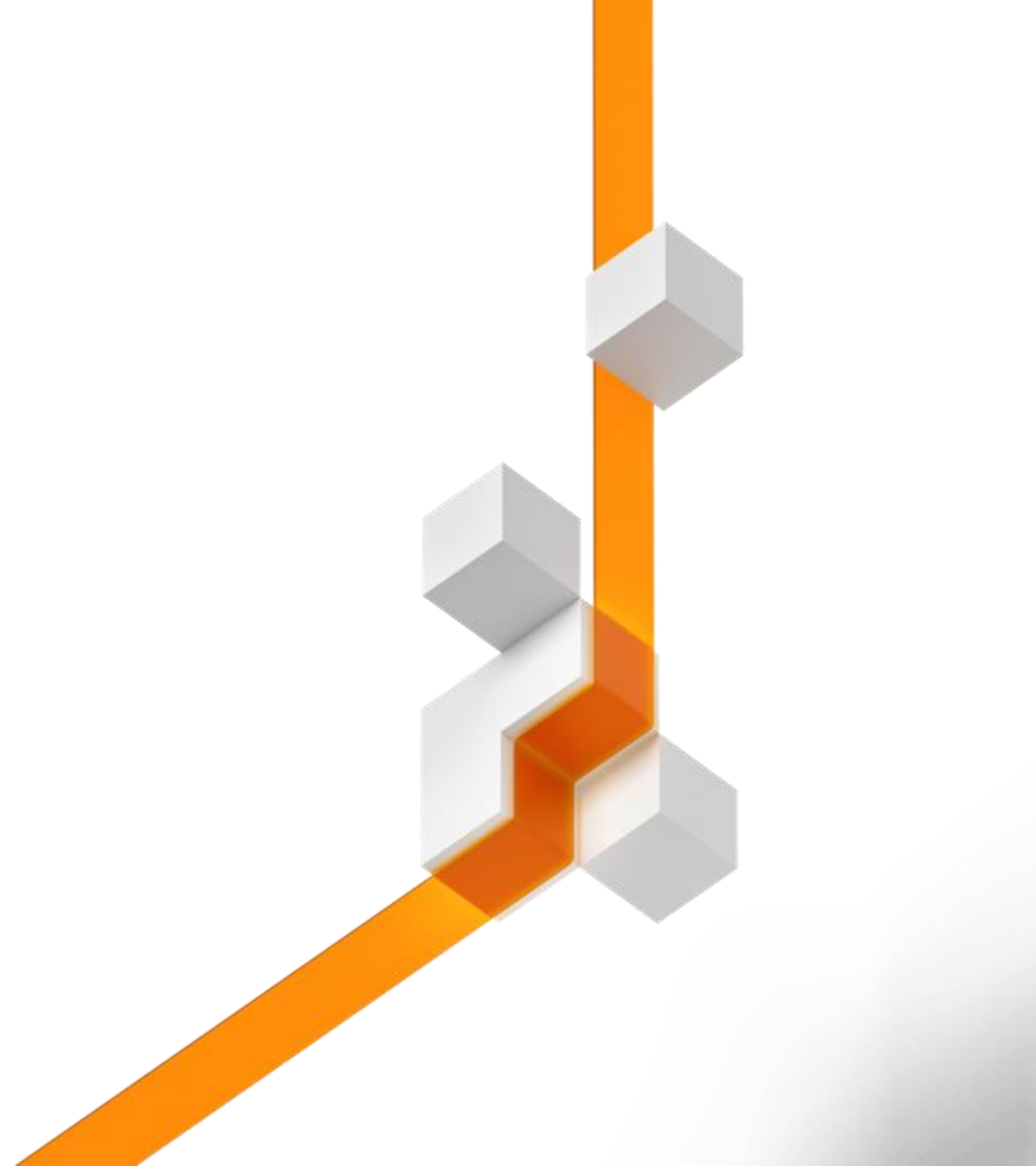
Azure Database for PostgreSQL Documentation

Azure Database for PostgreSQL is a relational database service based on the open-source PostgreSQL database engine. It's a fully managed database as a service offering that can handle mission-critical workloads with predictable performance, security, high availability, and dynamic scalability. It's available in two deployment options, Single Server and Hyperscale (Citus) (preview). The Hyperscale (Citus) option horizontally scales queries across multiple machines using

There has never been a better time to migrate to Azure

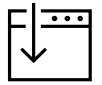
- More features than ever ✓
- Services to help you migrate ✓
- Global, Reliable, Secure ✓

Resources



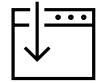


Resources



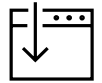
Session Resources

aka.ms/MOD20



Session Code on GitHub

aka.ms/MOD20Repo



All Event Resources

aka.ms/mymysignitethetour

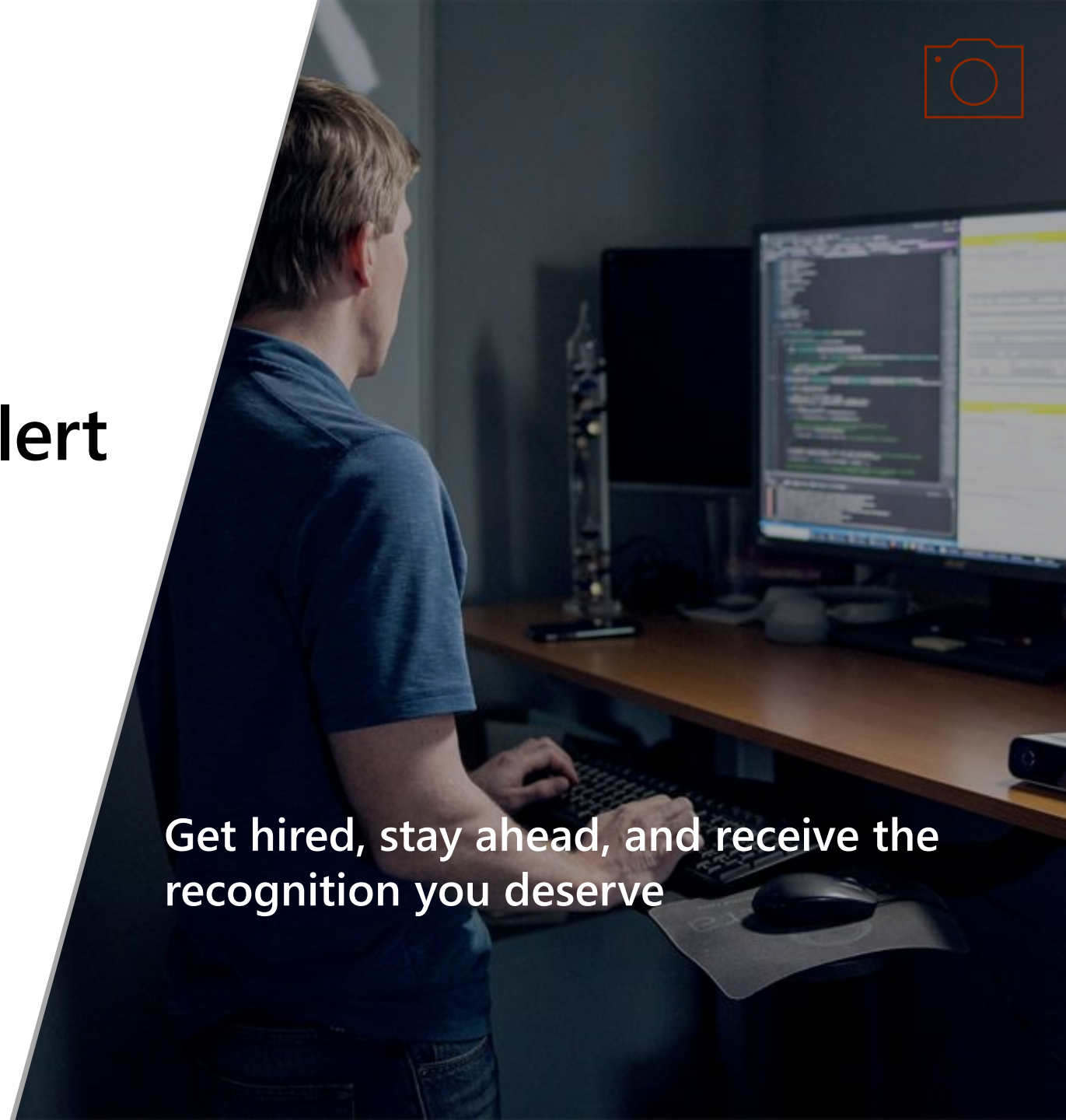


/Microsoft Certification alert

Microsoft Certified:
Azure Data Engineer Associate

aka.ms/DataEngineerCert

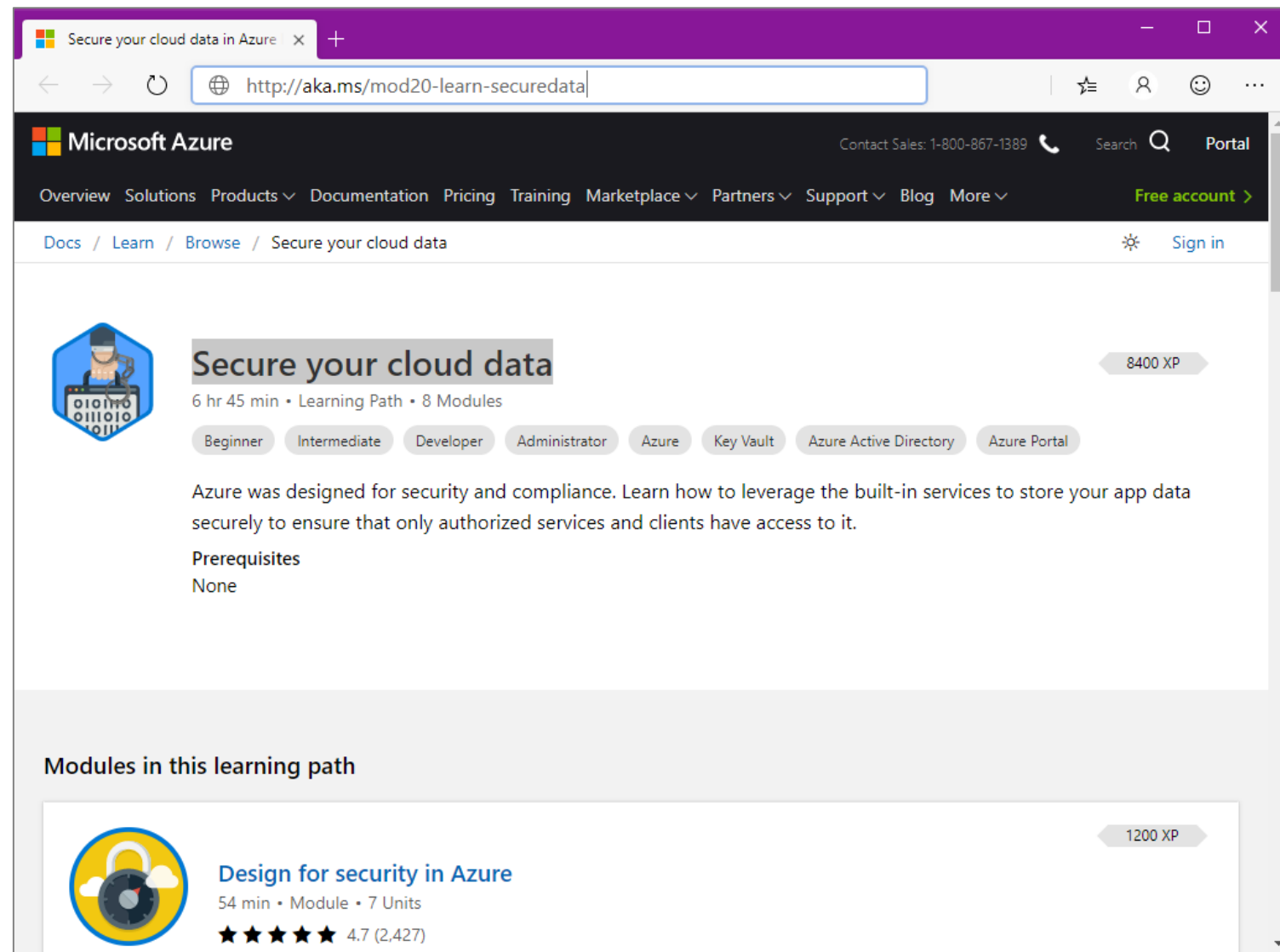
Get hired, stay ahead, and receive the
recognition you deserve



/MS Learn alert

Complete interactive learning exercises, watch videos, and practice and apply your new skills.

aka.ms/mod20-learn-securedata



The screenshot shows a web browser window with the URL <http://aka.ms/mod20-learn-securedata>. The page is the Microsoft Azure Learn interface for the 'Secure your cloud data' learning path. The header includes the Microsoft Azure logo, contact information (1-800-867-1389), a search bar, and a 'Portal' link. The navigation bar lists various sections: Overview, Solutions, Products, Documentation, Pricing, Training, Marketplace, Partners, Support, Blog, and More. A 'Free account' link is also present. The breadcrumb trail shows 'Docs / Learn / Browse / Secure your cloud data'. The main content area features a hexagonal icon with a person and binary code, the title 'Secure your cloud data', and a progress indicator showing '8400 XP'. Below the title, it states '6 hr 45 min • Learning Path • 8 Modules'. A row of tags includes 'Beginner', 'Intermediate', 'Developer', 'Administrator', 'Azure', 'Key Vault', 'Azure Active Directory', and 'Azure Portal'. The description reads: 'Azure was designed for security and compliance. Learn how to leverage the built-in services to store your app data securely to ensure that only authorized services and clients have access to it.' The prerequisites are listed as 'None'. A section titled 'Modules in this learning path' shows a card for 'Design for security in Azure' with a circular icon, '54 min • Module • 7 Units', and a rating of 4.7 (2,427) stars. A progress indicator for this module shows '1200 XP'.

Secure your cloud data in Azure

http://aka.ms/mod20-learn-securedata

Microsoft Azure

Contact Sales: 1-800-867-1389

Search

Portal

Overview Solutions Products Documentation Pricing Training Marketplace Partners Support Blog More

Free account

Docs / Learn / Browse / Secure your cloud data

Sign in

Secure your cloud data

8400 XP

6 hr 45 min • Learning Path • 8 Modules

Beginner Intermediate Developer Administrator Azure Key Vault Azure Active Directory Azure Portal

Azure was designed for security and compliance. Learn how to leverage the built-in services to store your app data securely to ensure that only authorized services and clients have access to it.

Prerequisites

None

Modules in this learning path

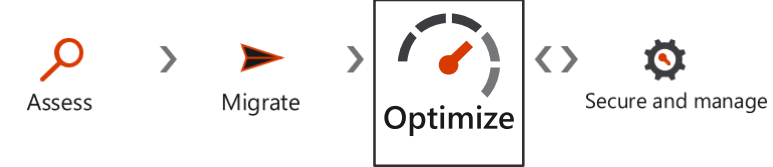
Design for security in Azure

54 min • Module • 7 Units

★★★★★ 4.7 (2,427)

1200 XP

Continuously optimize migrated resources

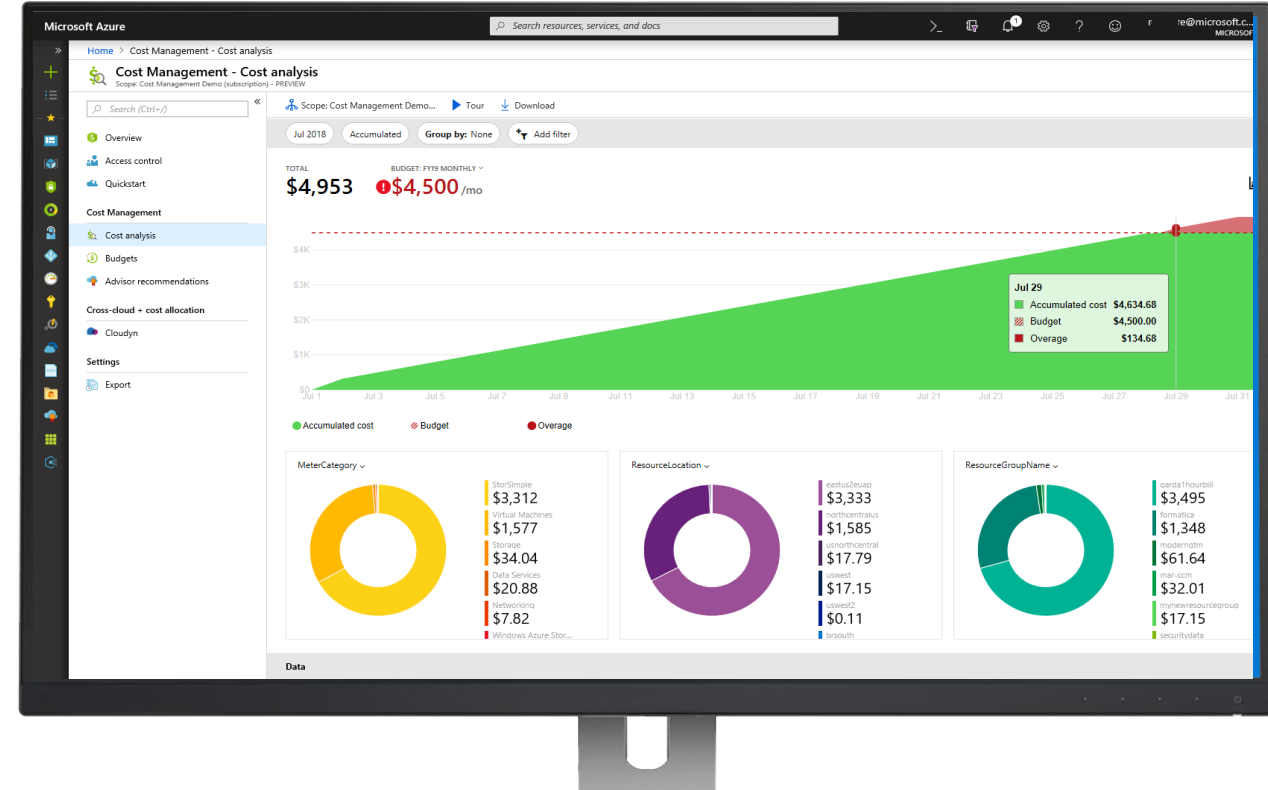


Azure Cost Management

- Unified experience to optimize cloud spends
- Built-in best practice recommendations (e.g., turn off idle VMs)

Use Azure Hybrid Benefit and Azure Reserved Instances during or after migration

Modernize for longer term value




Build your case: Azure **Total Cost of Ownership** calculator

aka.ms/mod20-tco

Total Cost of Ownership (TCO) Calculator

Estimate the cost savings you can realize by migrating your workloads to Azure

 Welcome to the preview of the new TCO Calculator. Please [leave feedback](#). ×

1

2

3

Define your workloadsAdjust assumptionsView report

Define your workloads

Enter the details of your on-premises workloads. This information will be used to understand your current TCO and recommended services in Azure.

Servers

Enter the details of your on-premises server infrastructure. After adding a workload, select the workload type and enter the remaining details.

[+ Add server workload](#)

Databases

Enter the details of your on-premises database infrastructure. After adding a database, enter the details of your on-premises database infrastructure in the Source section. In the Destination section, select the Azure service you would like to use.

[+ Add database](#)

Storage

Enter the details of your on-premises storage infrastructure. After adding storage, select the storage type and enter the remaining details.

[+ Add storage](#)

Networking

Enter the amount of network bandwidth you currently consume in your on-premises environment.

Outbound bandwidth ⓘ

1

GB

▼

(1 - 2000)

Next

Azure Migrate

A central hub for starting, executing, and tracking your Azure migration

Guidance

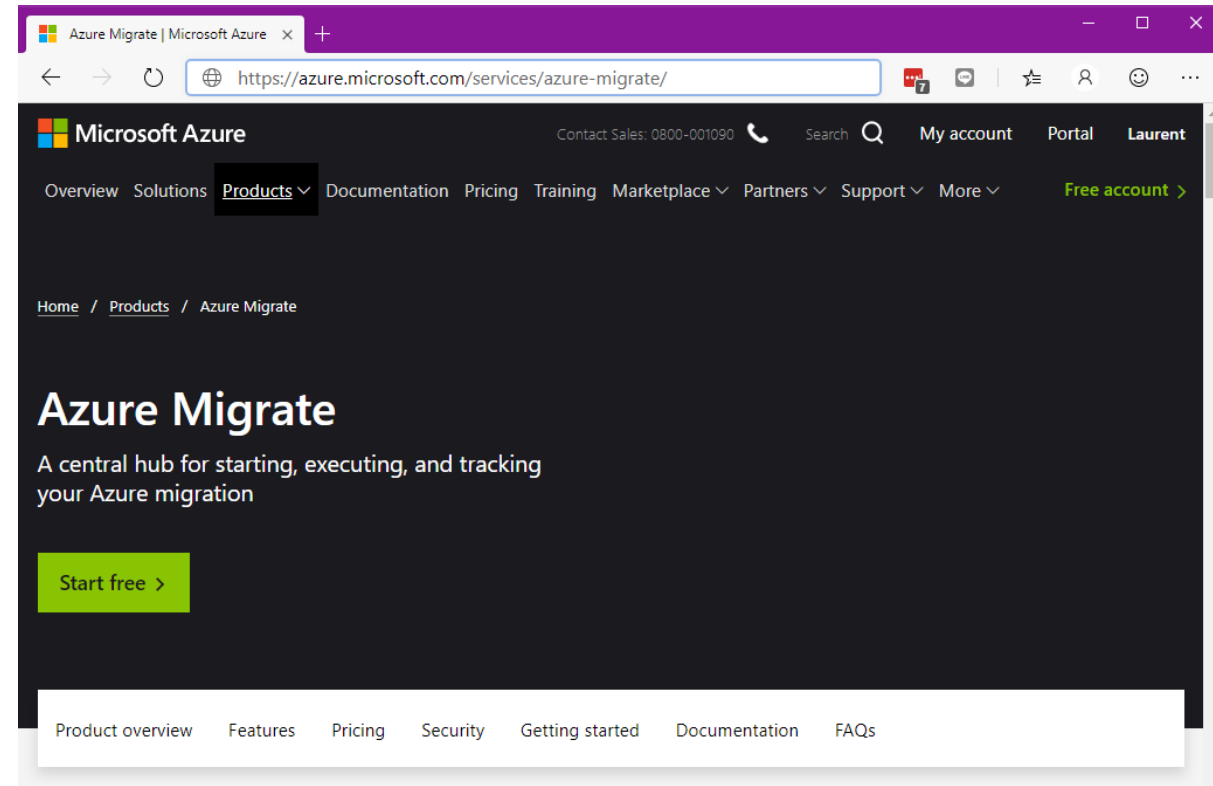
Migration journey and strategies

Tools

Right tools for the job

Partners

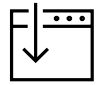
Migration experts



aka.ms/mod20-migrate

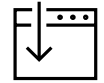


Resources



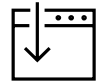
Session Resources

aka.ms/MOD20



Session Code on GitHub

aka.ms/MOD20Repo



All Event Resources

aka.ms/mymysignitethetour

Get Certified

Azure Data Engineer Associate:
aka.ms/DataEngineerCert

