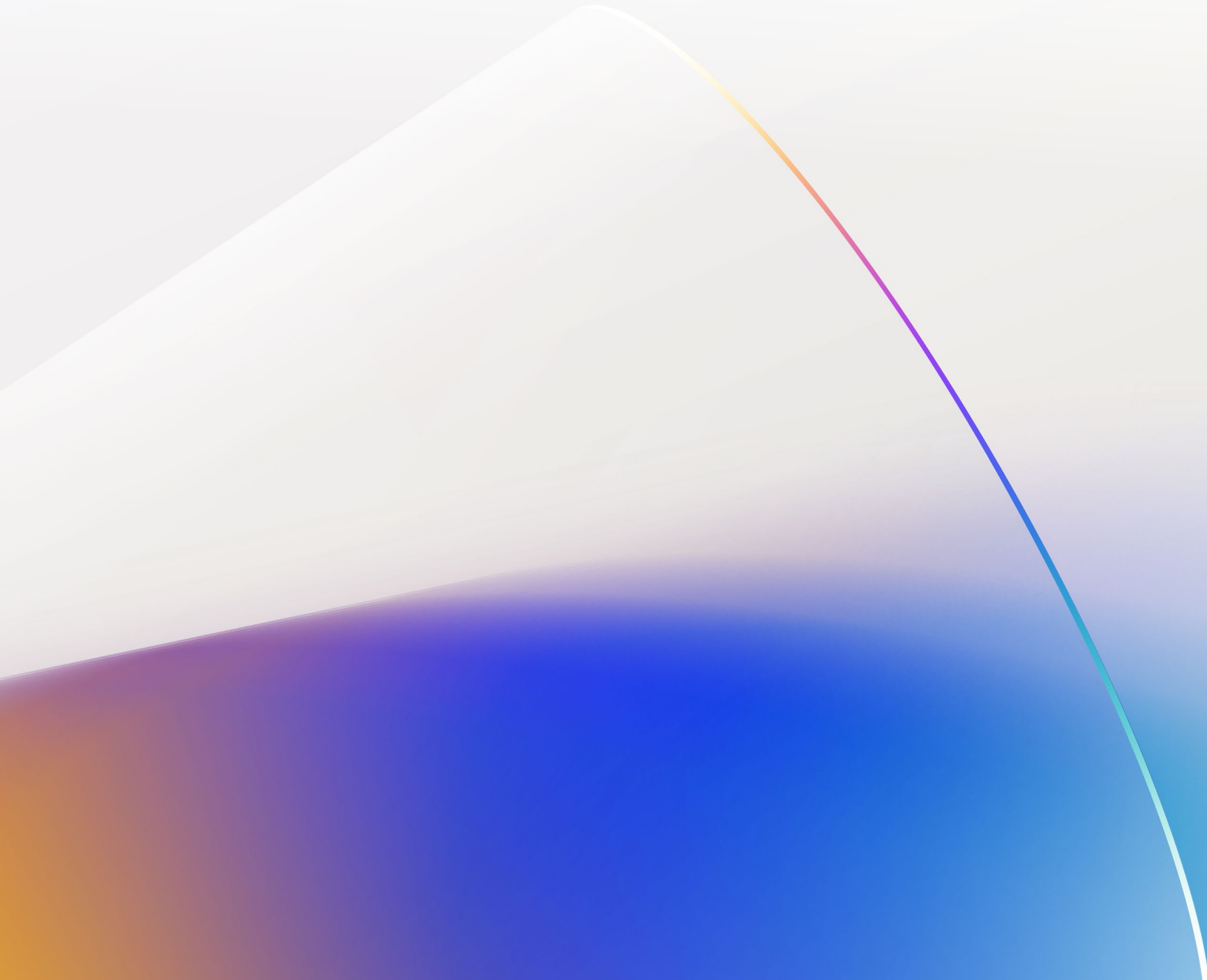
Microsoft Azure

Start Innovating with Azure SQL



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Chapter 1

Introduction

The cloud powers modern business and technological innovation. By using cloud data technologies, organizations can access various tools for their database management functions, including AI, big data analytics, and edge computing, to enhance their innovation capabilities and create competitive advantages.

But organizations don't always have the infrastructure to handle demands on managing critical functions like security or AI workloads. They turn to the public cloud to help them develop or outsource these functionalities.

For many, the first step is to migrate workloads to the cloud to enable you to invest in AI innovation, whether that's leveraging existing services like ChatGPT, Azure OpenAI Service, Microsoft Copilot for Microsoft 365, and GitHub Copilot, or building and training models with Azure AI-optimized infrastructure.

Migrate today to take advantage of AI tomorrow.

Chapter 2

How to drive innovation with Azure

Competition and rising customer expectations demand that organizations accelerate their digital transformations. The move to cloud databases is a critical step in this direction, allowing them to control their data sprawl, strengthen security, and centralize critical operations like compliance and strategy. More importantly, it enables organizations to scale at will and innovate with the latest IT tools on their terms without having to worry about managing hardware.

Prepare your organization for AI

Discover new ways to deliver business value with AI. Intelligent cloud-native SQL databases help provide a secure, agile, and AI-ready foundation to accelerate innovation so you don't get left behind in the race to innovate groundbreaking experiences.

Maximize ROI while eliminating legacy costs

Microsoft SQL Server helps you mitigate the massive costs associated with maintaining legacy infrastructure and licensing while optimizing your operational capabilities with scalable cloud resources.

Stay secure and resilient across hybrid environments

Protect workloads across your cloud with intelligent security services backed by 3,500 cybersecurity professionals. Meanwhile, built-in resilience helps you avoid costly business interruptions.

Scale your applications and workloads on demand

Increase agility with best-in-class Azure database technology, reduce operational burden with fully managed application and database services in Azure, and get access to near-limitless storage capacity.

The Cloud Adoption Framework for Azure

The Microsoft Cloud Adoption Framework provides guidance, best practices, tools, and templates to support your adoption journey with Azure. Use this proven approach to execute your migration strategy with confidence.

The cloud adoption journey

Cloud migration involves significant organizational change management, spanning people, processes, and technology. Therefore, a comprehensive approach must include extensive strategizing and planning, an iterative approach to migrating and modernizing database infrastructure, and continuing governance and management. This will help ensure that security, resiliency, and innovation remain top priorities throughout your migration.

Planning → **Implementation** → **Operations**

Define strategy

Identify motivations, align stakeholders and document business outcomes, define migration and modernization strategy, identify cost-saving opportunities, and engage a partner.

Plan

Discover and assess your environment, build the business case, and create a concrete migration and modernization plan.

Migration and modernization waves

Take an iterative approach with each wave, comprising a defined set of workloads.

- **Ready**

  Build a landing zone for your workloads, skill up your staff on key Azure capabilities and tools.

- **Adopt**

  Migrate and modernize your workloads iteratively using built-in tools and automation.

Govern

Establish appropriate cloud usage standards and guardrails that align with organizational needs, balance speed with control, and enable cloud budget tracking.

Manage

Ensure a secure and well-managed environment for your workloads.
For example, monitoring, and security intelligence tools.

Migrate and modernize in the cloud with Azure

Address your cloud portfolio's deployment and operation needs through scalable, modular implementation options to build out your cloud environment.

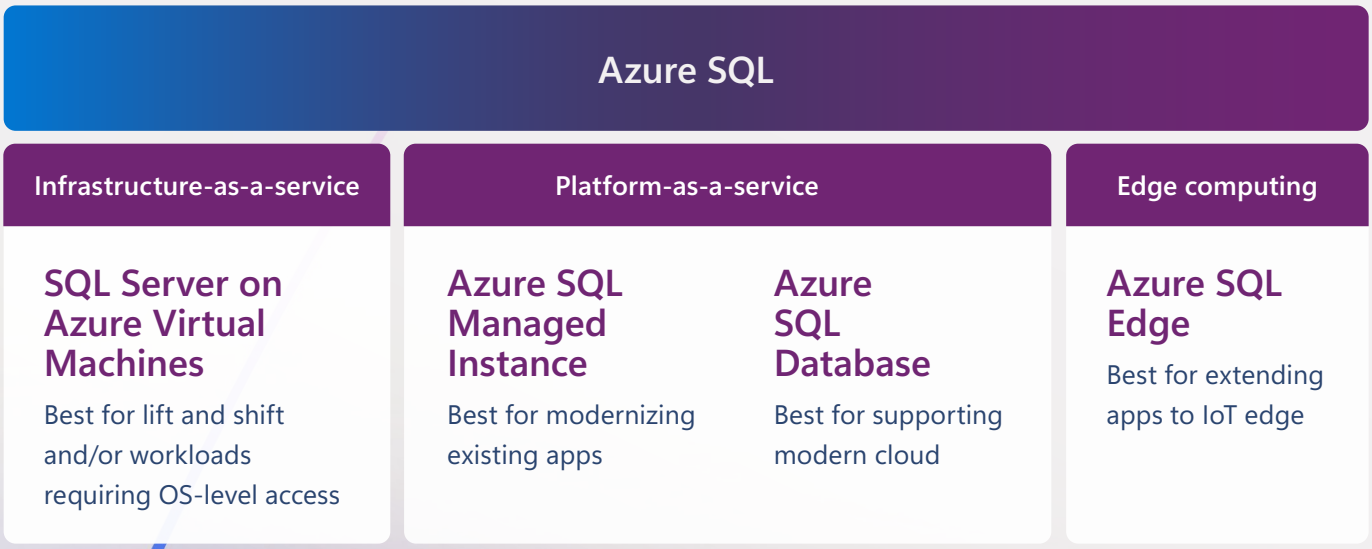
Chapter 3

Migrate to innovate and modernize

Markets are dynamic, and you need a path that offers flexibility. When it comes to migrating your data, you have a variety of options to consider. It's important to choose a path that makes the most sense for your business.

Azure SQL is a family of fully managed, trusted intelligent SQL database services with built-in insights and AI that support a wide range of application patterns. With the four Rs (Rehost, Refactor, Rearchitect, Rebuild) you can power and maintain any application in the cloud.

Because the entire Azure SQL family is built upon the same SQL Server database engine, you'll be able to better use your existing investments into skills and move them easily to the cloud. Meanwhile, the innovative features in Azure SQL help you operate more efficiently and save money along the way.



Common migration and modernization approaches

There are many reasons to migrate to the cloud—enabling AI and IoT capabilities, improving resiliency, boosting innovation, and more. These four "Rs" of rationalization to a digital estate will help you determine the best way to migrate or modernize each SQL workload in the cloud.

Rehost

Also known as a "lift-and-shift" migration, a rehost effort moves a current state asset to the chosen cloud provider, with minimal changes to overall architecture and no changes to code. Rehosting your application enables you to:

- Move quickly into the cloud.
- Migrate applications unmodified.
- Free up more datacenter space.
- Provide more infrastructure as a service options.

Refactor

Often referred to as "repackaging," this approach requires minimal changes to connect to Azure. PaaS options help reduce the operational costs that are associated with many applications. Refactoring your application enables you to:

- Perform faster and shorter updates.
- Ease code portability.
- Get greater cloud efficiency regarding resources, speed, cost, and managed operations.

Rearchitect

This approach focuses on modifying and extending your apps for the cloud—for example, taking monolithic legacy apps and breaking them down into microservices. Rearchitecting your application enables you to:

- Increase application scale and agility.
- Use a mix of technology stacks.
- Ease adoption of new cloud capabilities.

Rebuild

Building an application can become such a massive project it's hard to justify further investment. Rebuilding an app means completely reconstructing it from the ground up to take advantage of Azure cloud services. Rebuilding your application enables you to:

- Accelerate innovation.
- Reduce operational costs.
- Build applications faster.

SQL Server on Azure Virtual Machines

Migrate your SQL workloads to Azure with ease while maintaining complete SQL Server compatibility and operating system-level access. Maximize the value of your current licensing investments while accelerating your migration to the cloud.

Get the performance and security of SQL Server plus the flexibility and hybrid connectivity of Azure

Learn more about SQL Server on Azure Virtual Machines ›

Azure SQL Managed Instance

Modernize your existing SQL Server applications at scale with an intelligent, scalable, cloud database service that combines the broadest SQL Server engine compatibility with all the benefits of a fully managed and evergreen platform as a service (PaaS).

Stay confident with automatic updates, upgrades, and lasting support

Learn more about Azure SQL Managed Instance ›

Azure AI Services

Innovate with confidence knowing that your apps can use modern AI to deploy custom copilots and generative AI solutions. Azure AI revolutionizes how you understand and connect to your SQL database. This includes bolstering your knowledge-building and search capabilities, speeding up the pace at which you can deploy products to market, while still including exciting AI features into your apps.

Improved productivity and increased work output by 150% by integrating Azure AI Services[1]

Learn more about Azure AI Services ›

Azure SQL Database

Optimize performance and durability with an intelligent, scalable, relational database service built for the cloud. Serverless compute and Azure SQL Database storage options automatically scale resources on demand. This lets you focus on building new applications without worrying about storage size or resource management.

Experience 40% lower costs running SQL Server workloads with Azure SQL[2]

Learn more about Azure SQL Database ›

Learn how to architect modern applications ›

[1]The Total Economic Impact™ of Microsoft Azure AI, a commissioned study conducted by Forrester Consulting, April 2023. Results are for a composite organization based on interviewed customers.

[2]IDC White Paper, sponsored by Microsoft, The Business Value of Microsoft Azure for SQL Server and Windows Server Workloads, #US49616022, September 2022.

Chapter 4

Accelerating innovation with Azure: Five stories

1. Planned, effective, and successful migration for American Airlines

As of 2024, American Airlines is one of the largest air travel providers in the world, carrying more passengers in 2022 than any other carrier. The company wanted the most responsive and scalable database infrastructure due to its massive customer base.

The company's Customer Hub team determined they needed to shift from their existing database infrastructure and onto Azure. This, of course, would prove a challenge, as their systems couldn't be down during this change—a disruption of operationality could be devastating to their business and interactions with customers. Their move to Azure SQL Managed Instance allowed them to migrate in phases, shifting 10 terabytes of data and a transaction load of roughly 32,000 transactions per second into the cloud. Their approach ensured a smooth migration of apps and data to Azure, including automated maintenance and a modern platform fueling innovation in customer data services and support.

Learn more about American Airline's migration to Azure ›

2. Modernizing environmental affairs in the UK with The Environment Agency

The Environment Agency (EA) handles land and environmental management throughout the UK, including the administration of regulations, permits, and applications for both citizens and enterprises. By its own account, a combination of legacy databases and a reactive posture limited its effectiveness, and the company decided to migrate their databases to Azure.

With Azure, the company could link services like Data Factory and Azure Data Lake into apps like Power BI, Azure Synapse Analytics, and Power Automate. Integrating these solutions helped the EA manage critical tasks like handling applications. Since then, employees with the EA can better manage their time and process applications more efficiently.

Learn more about The Environment Agency's migration to Azure ›

3. E.ON looks to innovate analytics with deeper integration

E.ON, one of the largest energy providers in Europe, is no stranger to cloud migration. Initially, it had moved to Azure SQL Database in 2017 to help handle data and insights. However, after a few years, it became clear that the company needed to continue its migration to help fuel innovation with a new suite of tools. This meant moving to the Azure SQL Database Hyperscale tier, which could handle up to 100 terabytes of data and associated data projects through linked applications like Azure Machine Learning and Power BI.

Learn more about E.ON's migration to Azure ›

4. Cube RM innovates tender management with Azure and AI

Procuring pharmaceutical supplies and medical equipment is a massive challenge for global providers and vendors. Managing data related to that process (which is often unorganized and unstructured) is a big part of that process. Cube RM, a software provider in the industry, revolutionized how stakeholders submit tenders through a combination of Microsoft Technologies such as Azure Cognitive Services, Azure OpenAI, and Power BI. These tools transformed Cube RM into an innovative organization that can significantly increase accuracy and granularity for clients in more than 40 countries.

Learn more about Cube RM's migration to Azure ›

5. Powering access to essential financial services: The World Bank and Azure Arc

In line with its name, the World Bank serves developing nations worldwide with access to necessary financial services. At first, the company's data infrastructure operated through a decentralized collection of apps and platforms, which wasn't sustainable. Without a centralized infrastructure, the World Bank wasn't able to manage costs and efficiency—a huge problem for the world's biggest lending operation. Azure Arc and SQL Server could include tools like Microsoft Defender for Cloud, Azure Monitor, and Microsoft Purview to bolster security with a centralized approach. As of 2023, they had connected 25% of their SQL Server state to Azure Arc, empowering them to centrally manage their data and security while unearthing unexpected efficiencies.

Learn more about the World Bank's migration to Azure ›

Chapter 5

Migrate to innovate today

The key to unlocking real innovation is by unlocking your entire data estate. Azure makes it easier to deploy from anywhere while simplifying operations and reducing costs.

- Drive innovation with intelligent cloud databases
- Support security and scalability across your organization
- Build apps and get to market faster
- Integrate AI with database and app development services

Create your Azure free account today >

Azure Migration and Modernization >