With Azure, you have the flexibility to modernize your data platform on your terms, either using Azure-hosted database options, or using some of the many database-as-a-service options. If you choose, you can also use these alongside your existing on-premises database sources. This gives you the flexibility to use the database services that best serve your technology and compliance requirements. This brief summary will walk you through the database options available to you.

**DATABASE OPTIONS FOR RELATIONAL DATABASES**

You can extend your current Data Estate to the Cloud using Azure Data Services like site recovery, storage and high availability groups to create efficient hybrid implementations for failover and disaster recovery. You can also move your entire Data Estate to the cloud by doing a lift and shift of your on-premises databases.

Azure Infrastructure-as-a-Service provides you with a secure and familiar platform on which to run your databases inside Virtual Machines (VM). Azure VMs support the majority of Windows and Linux supported databases. You can move your databases and apps, without major change to how you use or maintain the systems. They just exist in the cloud, saving you the overhead of running them in your own data center.
Alternatively, Azure offers a range of relational database-as-a-service offerings. These include:

- Azure SQL Database
- Azure SQL Database Managed Instance
- Azure Database for MySQL
- Azure Database for PostgreSQL

Whether you choose to host your database in Azure IaaS VMs, or you decide to take advantage of Azure's Database-as-a-Service offerings, planning a lift and shift to Azure is a streamlined process when you use the new Azure Database Migration Service. The service provides automated workflows to help you to plan your migration. This includes assessment reporting to guide you through any necessary changes prior to performing your migration.

After completing your assessment, you can migrate different database technologies, such as your on-premises SQL Server, to your database service of choice in Azure. This also includes the ability to migrate your Oracle on-premises databases.

If you are also planning to add analytics to your Data Estate, technologies like Azure SQL Data Warehouse will help you grow and optimize your business processes. Azure SQL Data Warehouse is the first elastic petabyte-scale cloud data warehouse that takes only seconds to scale. A core advantage of this is the ability to scale compute and storage independently, which in turn enables what is called "burst compute." This gives you a burst of compute power as needed to support complex analytical workloads.

Azure SQL Data Warehouse works seamlessly with Power BI, Azure Machine Learning, HDInsight, and Azure Data Factory. And because its parallel-processing architecture enables distributed processing, it's capable of immense compute power.

**NON-RELATIONAL AND DISTRIBUTED DATABASES**

Now, Azure non-relational and distributed database options include Azure Cosmos DB and Azure Data Lake Store. For a fully managed database service, Azure's Cosmos DB is a globally-distributed operational database that supports multiple models. Azure Cosmos DB can replicate your data around the world, allowing every user to be near a copy of their data. And because it's schema agnostic, it allows you to use key-value, graph, and document data together in a single service.

Core to Azure Cosmos DB is the concept of consistency models. You can select from up to five consistency models for your application to ensure data consistency and reliable performance. Whichever models you choose to use, Azure Cosmos DB automatically indexes all data for you, and then provides you access via your preferred method, or you may wish to use it against applications designed for MongoDB, or Azure Table Storage.

With Azure Cosmos DB you can elastically and independently scale throughput and storage across any number of Azure's geographic regions. This provides predictable throughput, consistency and high availability. It's ideal for scenarios working with globally distributed mission critical apps as well as retail ecommerce, IoT, Mobile and gaming applications.

**AZURE DATA LAKE STORE**

Azure Data Lake Store gives you a massively scalable secure data store. It's capable of storing any type of data, including datasets comprising trillions of objects and files, each up to 1 petabyte in size. Designed for use with Big Data scenarios ranging from high-resolution video to genome data sets, Azure Data Lake supports the HDFS standard.
Database Options

Demo Topics

**AZURE DATABASE OPTIONS**

Microsoft Azure has a wealth of services and capabilities to fit every possible database scenario. From hosting your existing databases in Azure Virtual Machines in a ‘Lift and Shift’ manner to hosting multiple small databases in a shared, multi-tenant configuration, you will find that every possibility is covered in a reliable and secure environment.

**STRUCTURED DATA (INFRASTRUCTURE AS A SERVICE)**

As we transition and transform into the Cloud there is a need for multiple different solutions for the many database permutations in the field. Typically you would have a database or databases hosted on premise in a virtual machine or on a physical set of hardware. In order to move to the cloud in a like for like fashion we will most likely use the Infrastructure as a Service capabilities.

**STRUCTURED DATA (PLATFORM AS A SERVICE)**

Azure SQL Database is a database running within the SQL Server platform service and associated with a logical server. The SQL Server platform service provides the functionality to create and manage your database solution allowing you to focus on the solution without any concern for the underlying network, storage, and compute resources.

**UNSTRUCTURED DATA (PLATFORM AS A SERVICE)**

There are a number of options for Unstructured Data including Azure Table Storage and other NoSQL offerings but let’s highlight Azure Cosmos DB since it was built from the ground up to offer turnkey global distribution across any number of Azure regions by transparently scaling and replicating your data wherever your users are. It is multi-model, multi-API, elastic scale and low latency.

**ADDITIONAL RESOURCES**

Whether you decide to go with a 100% Cloud database strategy, or a hybrid implementation that spans both on-premises and cloud data sources, the options are there for you. Take advantage of additional learning experiences and tools with these useful resources.

**AZURE LEARNING PATHS**

AI Developer

**MICROSOFT MECHANICS**

Introducing SQL Server on Linux

**HANDS-ON LABS**

Self-paced Labs