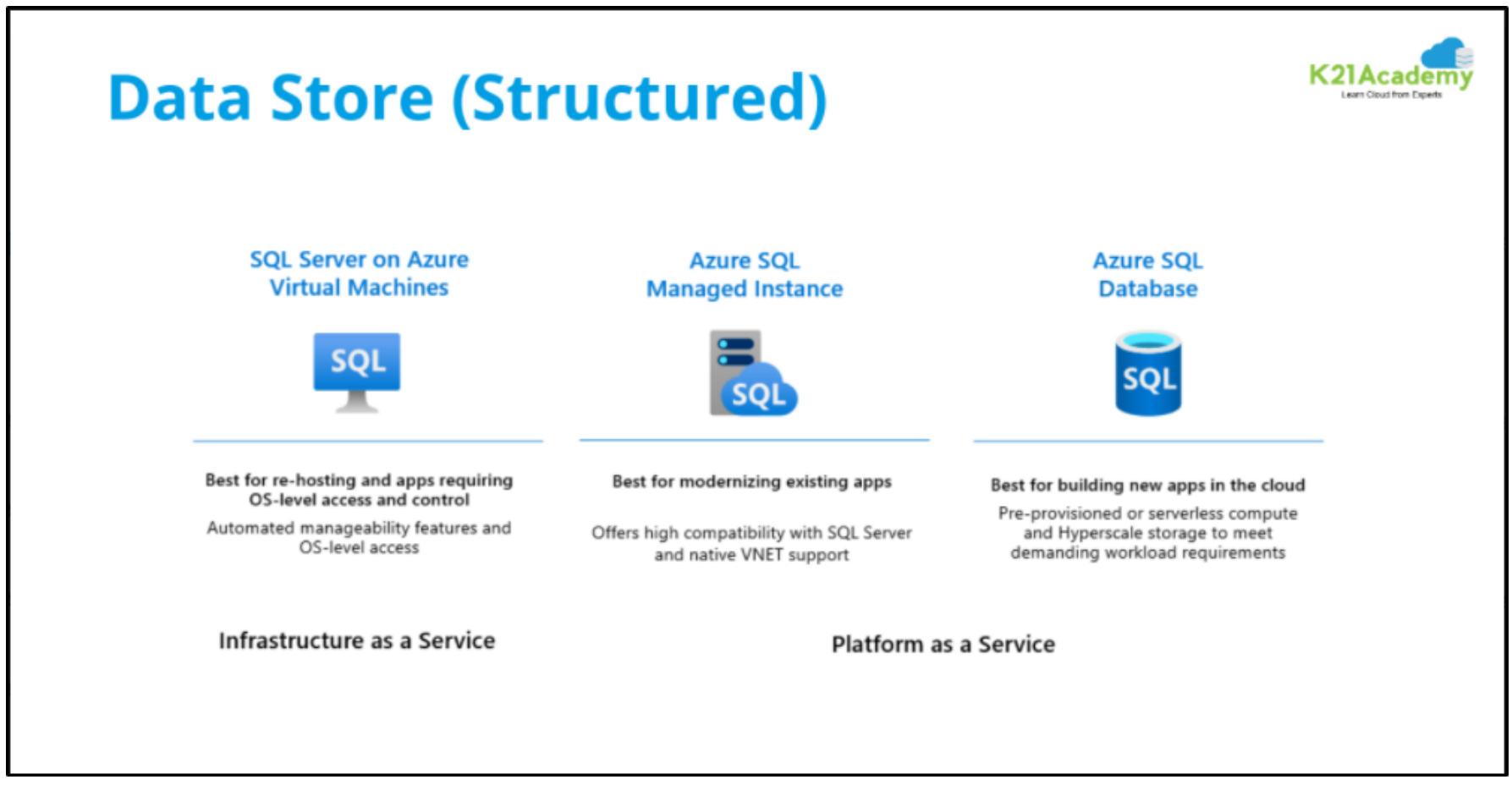
What is Azure SQL Service?

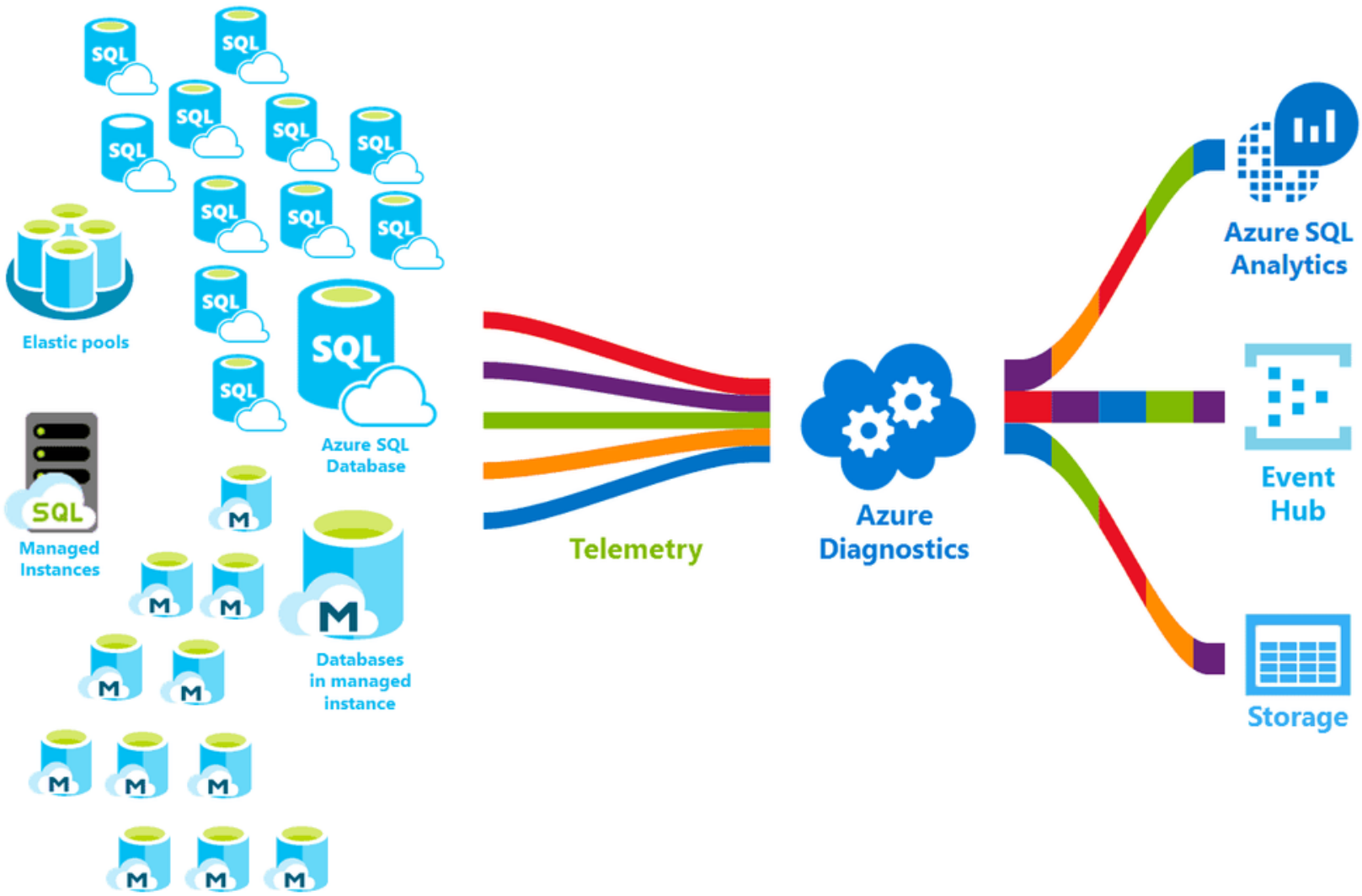
Azure SQL Database is evergreen, meaning it does not need to be patched or upgraded, and it has a solid track record of innovation and reliability for mission-critical workloads. Companies are choosing Azure for their SQL workloads.



Azure SQL allows hosting our Microsoft SQL Server workloads on the Azure Cloud.

We have three major ways of hosting the SQL database on the Azure Cloud.

1. **Azure SQL Database:** It is a fully managed database service in Azure. It is always running on the current version of the SQL Server database engine and patched OS with 99.99% availability.
2. **Azure SQL Managed Instance:** It is a fully managed service. It’s for those companies who want to migrate their existing SQL workloads to the cloud.
3. **SQL Server on Azure VMs:** It is when we want to have more control over the SQL server environment.



What is Azure SQL Database Service?

It is a fully-managed platform as a service. Here the platform manages aspects such as the database software upgrades, the patching, the backups, the monitoring.

Using this, we can provide a highly available and performant storage layer for our applications. It includes...

- SQL Server on Azure Virtual Machines
- Azure SQL Managed Instance
- Azure SQL Database
- Azure SQL Edge

A question that arises here is...

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What are the differences between Azure SQL Database and SQL Server on-premises?

Azure SQL Database and Microsoft SQL Server (often referred to as SQL Server) are both database management systems developed by Microsoft.
But they have some key differences, especially in terms of deployment, management, and scalability. Here are the top differences between Azure SQL Database and Microsoft SQL Server:

- **Deployment Model: -** Azure SQL Database is a fully managed database as a service (DBaaS) offering in the Cloud, meaning Microsoft manages the infrastructure, patching, and backups.

Whereas Microsoft SQL Server is typically deployed on-premises or in virtual machines (VMs) on Cloud platforms like Azure.

- **Management Overhead: -** Azure SQL Database significantly reduces management overhead since Microsoft handles most administrative tasks such as patching, backups, high availability, and performance tuning.

Whereas Microsoft SQL Server requires more manual management, including installation,configuration, maintenance, backups, and updates.

- **Scalability: -** Azure SQL Database offers built-in scalability features that allow users to easily scale compute and storage resources based on demand.

Microsoft SQL Server scalability is limited to the capacity of the underlying hardware or VMs.

- **High Availability: -** Azure SQL Database provides built-in high availability with automatic replication, failover, and data redundancy across multiple nodes within Azure datacenters.

Microsoft SQL Server can achieve high availability through features like Always On Availability Groups and database mirroring, but configuring and managing these features requires additional effort and expertise from administrators.

- **Security: -** Azure SQL Database includes built-in security features such as encryption at rest and in transit, dynamic data masking, row-level security, and threat detection. It also integrates with Azure Active Directory for authentication and access control.

Microsoft SQL Server offers similar security features, but administrators are responsible for configuring and managing them. Security updates and patches must be applied manually.

- **Cost Model: -** Azure SQL Database operates on a subscription-based pricing model, where users pay for the resources consumed.

Microsoft SQL Server typically involves upfront licensing costs for the software, as well as ongoing costs for hardware, maintenance, and support.

How to Deploy Azure SQL Database?

- Single Database: Single database represents a managed isolated database. We create a database in Azure SQL with its own set of resources and it is managed by server.

- Elastics Pool: An Azure SQL Elastics pool allows us to allocate a shared set of computing resources to the collection of Azure SQL Database. Elastics Pools are well fit for a large number of databases with particular utilization patterns.

- Managed Instance: The managed instance is a deployment option of Azure SQL providing near 100% compatibility with the latest SQL server on-premises.

How can I migrate my existing databases to Azure SQL Database?

Migration strategies are crucial for organizations planning to transition their databases to the cloud.

Common migration methods include using

- Azure Database Migration Service,
- SQL Server Management Studio (SSMS),
- Azure Data Factory,
- or third-party tools.

How to work with Azure SQL Database?

Check all the steps on the thorough blog post we've ready for you on all these.

Share it with your Azure enthusiast friends & colleagues. You may bookmark it for future reference. ;)

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