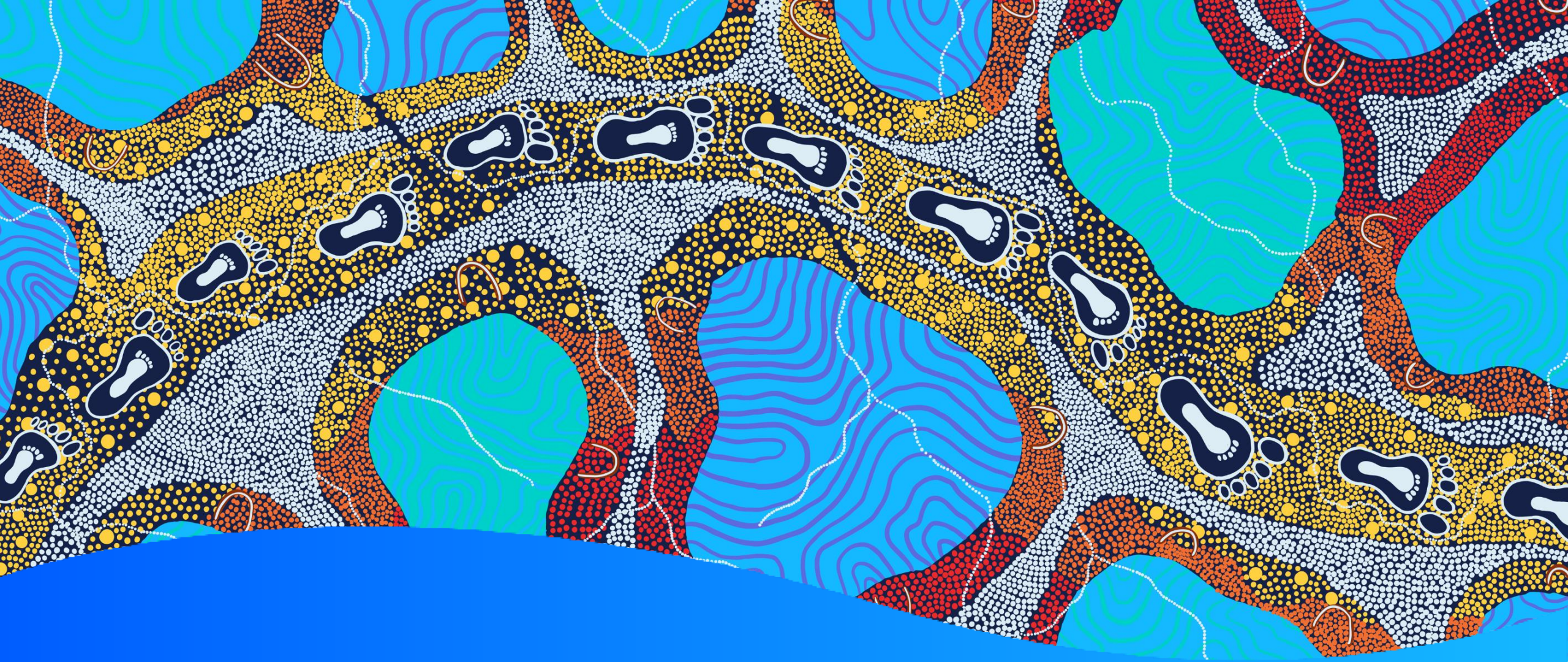


Day 2 – Database on Azure

All things database in Azure





HSS acknowledges the traditional custodians throughout Western Australia and their continuing connection to the land, waters and community. We pay our respects to all members of Aboriginal communities and their cultures, and acknowledge the wisdom of Elders both past and present.

Quick Recap of Day 1

1. Azure Portal
 1. Accessed through <https://portal.azure.com>
 2. The Portal where all workloads are created and managed
2. Azure Storage
 1. Azure one-stop shop for all things storage
 2. 4 types of Azure Storage
 1. Blob
 2. Queue
 3. Table
 4. File Share
 3. Enhance resiliency through redundancy
 1. LRS
 2. ZRS
 3. GRS
3. Homework solution

Database in Azure



HSS health
support
services

What database is offered in Azure

Azure offers different relational, NoSQL and in-memory database

Relational Database:

1. Microsoft SQL Server
 1. Azure SQL Database – DBaaS (Database-as-a-Service)
 2. Azure SQL Managed Instance – Database Platform as a Service
 3. SQL Server on Azure VM – Infrastructure as a Service
2. PostgreSQL - Azure Database for PostgreSQL
3. MySQL – Azure Database for MySQL
4. MariaDB – Azure Database for MariaDB

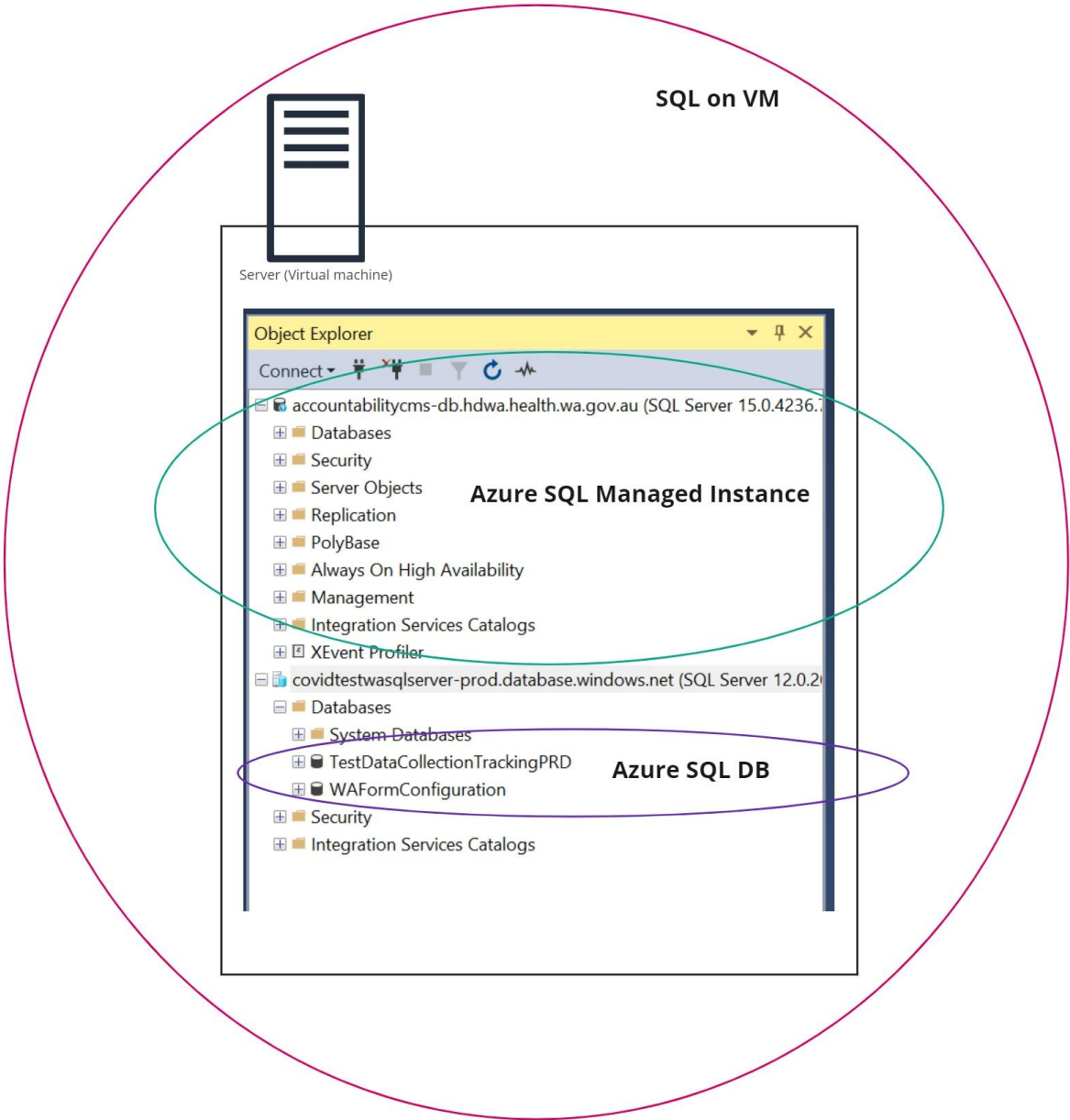
NoSQL

1. Azure Cosmos DB

In-memory Database

1. Azure Cache for Redis

Azure SQL DB vs Azure SQL Managed Instance vs SQL on VM



Azure SQL Database – concepts to understand

Azure SQL Database

- Single Database vs Elastic Pool
 - Single Database – as the name says, you only want a single database
 - Elastic Pool – you define/determine a pool of resources and you can create as many database as you want to be used within this pool of resource
- Purchasing model – DTU vs vCore
 - vCore – allows you to independently choose the compute and storage resources. Also allows you to use Azure Hybrid benefit for SQL Server (SQL Server license cost).
 - Compute
 - Provisioned compute tier – Pay for the tier that you say you want
 - Serverless compute tier – Pay for the amount you use (by the seconds) – workload will be auto-scaled based on usage and potentially scaled down to 0 and you just pay for storage
 - DTU (Database Transaction Unit) – you choose a predetermined DTU SKU which is a combined compute, storage and I/O resources. – Fixed pricing
- Backup
 - Database are automatically backed up without you needing configure anything
 - You will still need to configure your Long-term retention (LTR) period.
 - Backup is stored in Azure Storage (not configured by you), so you can set storage redundancy (LRS, ZRS, GRS)
- Networking
 - Add current client IP address – this will detect your current IP and add it to the SQL firewall to allow you to access them
- Security
 - Ledger – new feature from MS SQL that provides evidence-type audit of changes made to the database over time

Azure Cosmos DB

A high-performance, fully managed and serverless distributed NoSQL database. This really means the database administration is abstracted from you.

Azure Cosmos DB offers different APIs to interface with the underlying data storage:

1. API for NoSQL
2. API for MongoDB
3. API for Apache Cassandra
4. API for Apache Gremlin
5. API for Table
6. API for PostgreSQL (new)

Azure Cosmos DB – concepts

Azure Cosmos DB Account

1. Capacity Mode – Provisioned throughput vs Serverless
 1. Provisioned – Predictable monthly cost using Request Units (RUs) per second (RUs/second). Request units are pre-allocated for usage
 1. Free-tier available using Provisioned throughput
 2. Serverless – Pay depending on total Request Units (RUs) for the month. Request units is available depending on demand so there may be some lags.
2. Global Distribution – determine whether geo-redundancy is available for your account and if you allow multi-region write