Design for DR and HA in Azure SQL Database

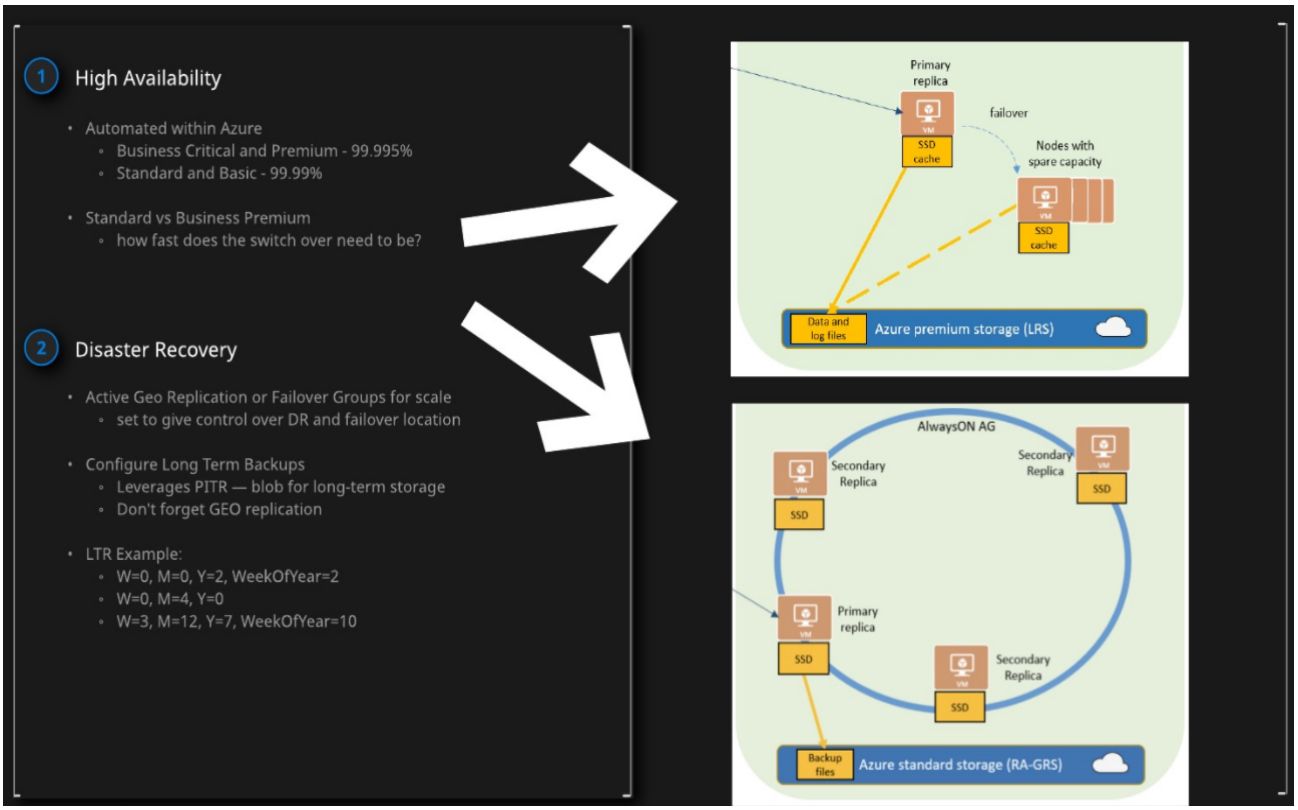
Introduction

In this lab, we will be designing a SQL Database instance to take advantage of high availability and disaster recovery. This lab will include a review of LTR and scaling out with geographic regions.

In this lab, we will Create 2 SQL Databases:

- (x2) Standard 10 DTUs
- SQL Server test12353
- East US region

- Configure Active Geo-Replication to West US for 1 database.
- Configure a failover group for both databases to West US.
- Configure retention for both databases in the West US and East servers: Weekly LTR backups for 2 years and Monthly LTR backups for 4 years



Create SQL Databases

For our first task, we need to create 2 SQL databases with standard 10 DTUs in the East US region.

To start, we need to create our first SQL database. To do so, in our Azure portal, search for SQL DB in the search bar. From the search answers that appear, select SQL Databases under Services. Here, select Create SQL database. In the Project details section, leave Subscription as the default and set the Resource group to the group that appears.

For the Database details section, set the Database name to any name that you want. It must be unique, otherwise it can not be created. For the Server, select Create new.

On the panel that appears, fill in the information as follows:

- **Server name**: Create a unique name
- **Server admin login**: admint
- **Password**: 12345OrangeCaraibe
- **Confirm password**: 12345OrangeCaraibe
- **Location**: (US) East US

Once you have completed these, select OK. The name you created appears.
In the Computer + Storage section, select Configure database.

On the page that appears, select the Standard tab and make sure we have it set to 10 DTUs. Once we have, select Apply. We're taken back to the Create SQL database page. Here, select Review + create. Review the information, then select Create.
We are taken to a page stating, "Your deployment is complete."

To create the second SQL database, go to the SQL databases page and click the +Add button at the top. Here, fill out the database as you did the last one, with the differences being the Database name and the Server needs to be set to the database that we created for the first SQL database.

In the Computer + Storage section, select Configure database.
Again, we select the Standard tab and make sure we have it set to 10 DTUs. Once we have, select Apply. We're taken back to the Create SQL Database. Here, select Review + create. Review the information, then select Create.

Now we have our 2 SQL databases.

Configure a Failover Group for Both Databases

With our databases created, we now need to make sure that they both have disaster recovery support. To do so, we need to configure an Active geo-replication for 1 database and a failover group for both databases in the West US server. The failover group should have a secondary SQL server in West US as the failover option with East being primary.

Create an Active Geo-Replication

To get to our list of databases, select All Resources from the sidebar. Here, select either of the databases that we've created. It does not matter which one you choose.

On the page that appears, under Settings, select Geo-Replication from the sidebar.

Here, under Target Regions select West US. As we do not have a secondary server for this West US region, we are asked to make one. To do so, use the following information:

- Server name: Create a unique name
- Server admin login: admint
- Password: 12345LinuxAcademy
- Confirm password: 12345LinuxAcademy

Once we've entered this information, click Select and then OK. This will submit the deployment of the active geo-replication from the eastern region to the west.

Create a Failover Group

Now, we need to create a failover group that can handle the geo-replication for multiple servers. To create a group, we need to select the SQL server, which is located in our All Resources section. Here, from the sidebar under Settings, select Failover groups.

Here, select + Add group. For the Failover group name, create a unique name.

For the Secondary Server, select the West US that we created earlier. Leave the Read/Write failover policy as Automatic. Leave the Read/Write grace period section as 1 Hour.

Finally, from the Database within the group section, add in our two databases that we created at the beginning of the lab. Once selected, click on Select and then click on Create. These two databases are now going to be backed up on the West US database we created.

Configure Long Term Backups for both Databases

Now that we have our databases created, we need to create backups for them. These backups need to have weekly backups stored for 2 years, and monthly

backups configured and stored for 4 years. Daily backups are handled by the default backups provided for a SQL database. Create an LTR in both West and East servers.

To get started, go back to our SQL server and, under Settings select Manage Backups. Here we will see that we have 7-day backups that were created automatically when we create our databases. Select these databases and then select Configure retention from the top of the page. Here, go to the Long-term Retention Configuration.

Leave the Daily Retention as it is, for the Weekly LTR Backups set it to 2 Year(s). For our Yearly LTR Backup, select Week 1 and then have it kept for 4 years. Now, select Apply.

Both databases now reflect these settings.

Do the same to the backup server for our West US server as well. In doing so, we now have protection for all of our databases.

Conclusion

Upon completing this lab, we have created a SQL database, configured a backup server, a failover group, and configured the long term backups for our databases.