Azure

Azure Database for MySQL

ankitnarula1991@gmail.com

Azure Database for MySQL

- Azure Database for MySQL is a relational database service in the Microsoft cloud based on the MySQL Community Edition.

- **Features of My SQL**

- Zone redundant and same zone high availability
- Maximum control with ability to select your scheduled maintenance window
- Data protection using automatic backups and point-in-time-restore for up to 35 days.
- Automated patching and maintenance for underlying hardware, operating system and database engine to keep the service secure and up to date.
- Predictable performance, using inclusive pay-as-you-go pricing.
- Elastic scaling within seconds.
- Industry-leading support experience.

Azure Database for MySQL - Deployment models

- Azure Database for MySQL powered by the MySQL community edition is available in two deployment modes:

- Flexible Server
- Single Server

- **Flexible Server:** Flexible Server is a fully managed MySQL database as a service offering that can handle mission-critical workloads with predictable performance and dynamic scalability. Develop applications with Azure Database for MySQL leveraging the open-source tools and platform of your choice.

Azure Database for MySQL - Deployment models

- **Single Server**: Single Server is a fully managed database service designed for minimal customization. The single server platform is designed to handle most of the database management functions such as patching, backups, high availability, security with minimal user configuration and control.

Azure Database for MySQL - High availability Concepts

- **High availability Concepts (Flexible Server)**

- Azure Database for MySQL Flexible Server allows configuring high availability with automatic failover. The high availability solution is designed to ensure that committed data is never lost because of failures and that the database won't be a single point of failure in your software architecture. When high availability is configured, flexible server automatically provisions and manages a standby replica.

Azure Database for MySQL - High availability Concepts

- **There are two high availability architectural models:**

- **Zone-redundant HA**: This option is preferred for complete isolation and redundancy of infrastructure across multiple availability zones.

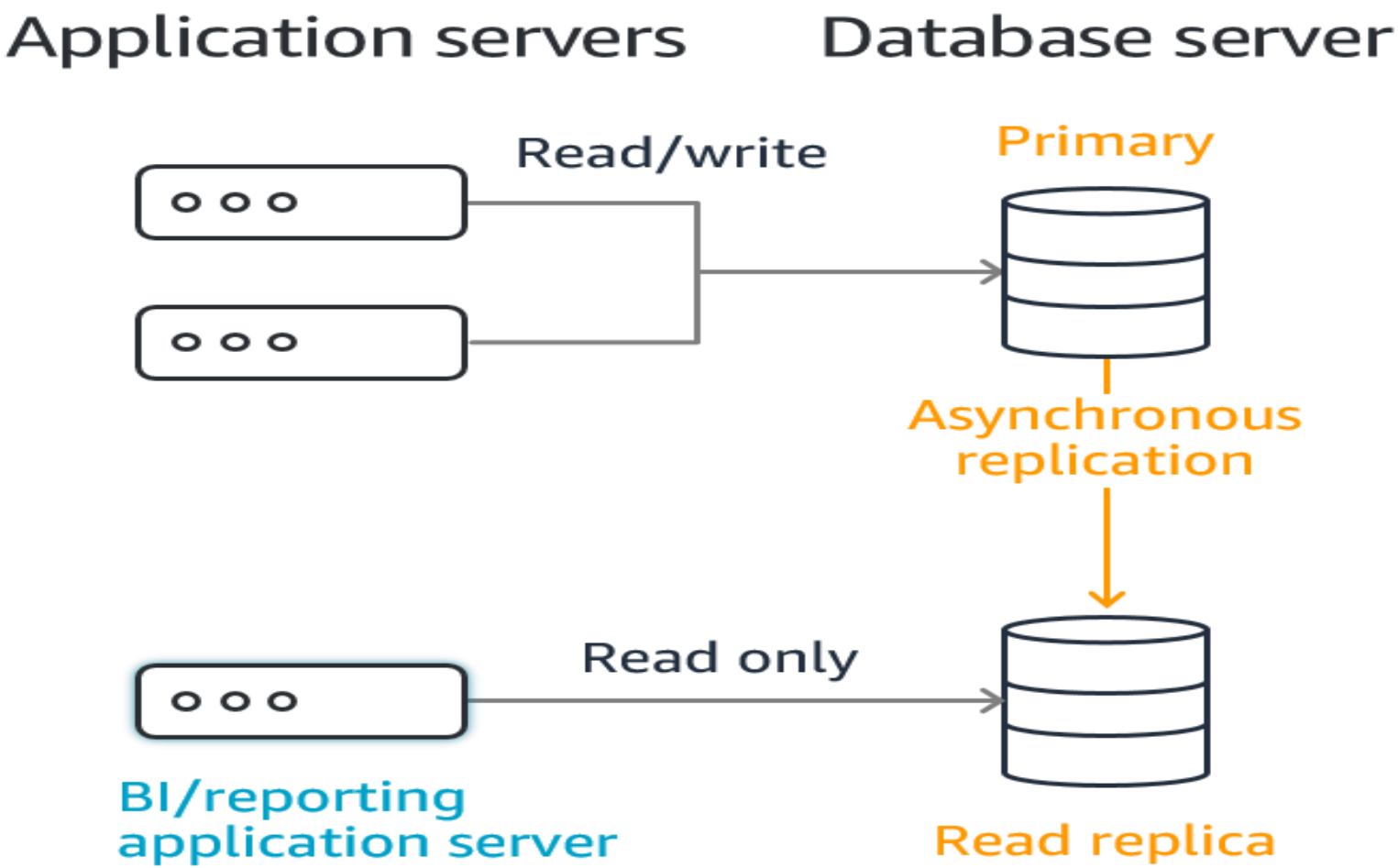
- **Same-zone HA**: This option is preferred for infrastructure redundancy with lower network latency because the primary and standby servers will be in the same availability zone.

Azure Database for MySQL - Replication Latency

- The read replica feature allows you to replicate data from an Azure Database for MySQL server to a read-only replica server.

- Read replica allows us to have a read only copy of our production database.
- They make it easy to elastically scale out beyond the capacity constraints of a single DB instance for read-heavy database workloads.
- When we create a read replica, RDS gives us a read-only endpoint which is a DNS that resolves only to our read replica.

Azure Database for MySQL - Replication Latency



Azure Database for MySQL - Backup

- Azure Database for MySQL automatically creates server backups and stores them in user configured locally redundant or geo-redundant storage.

- **Backup Retention**

- Backups are retained based on the backup retention period setting on the server. You can select a retention period of 7 to 35 days. The default retention period is 7 days. You can set the retention period during server creation or later by updating the backup configuration.

Azure Database for MySQL - Backup

- **Locally redundant backup storage**: When the backups are stored in locally redundant backup storage, multiple copies of backups are stored in the same datacenter. This option protects your data against server rack and drive failures.

- **Geo-Redundant backup storage**: When the backups are stored in geo-redundant backup storage, multiple copies are not only stored within the region in which your server is hosted, but are also replicated to its geo-paired region.

Azure Database for MySQL - Restore

- In Azure Database for MySQL, performing a restore creates a new server from the original server's backups and restores all databases contained in the server.
- There are two types of restore available:

- **Point-in-time restore:** is available with either backup redundancy option and creates a new server in the same region as your original server utilizing the combination of full and transaction log backups.
- **Geo-restore:** is available only if you configured your server for geo-redundant storage and it allows you to restore your server to a different region utilizing the most recent backup taken.

Azure Database for MySQL - Restore

- **The estimated time for the recovery of the server depends on several factors:**

- The size of the databases

- The network bandwidth if the restore is to a different region

- The presence of primary key in the tables in the database. For faster recovery, consider adding primary key for all the tables in your database.

Azure Database for MySQL

- Search Azure Database for MySQL
- Click on create
- Select resource type as Flexible server
- Click on create
- Select the resource group
- Enter server name (Unique Name)

Azure Database for MySQL

- Select the region (East US)
- Select the Version (5.7)
- Select workload type as For Development or hobby projects
- Select has automatically select the compute & storage or if we want to change click on configure server
- Change compute size to 400 Max iops

Azure Database for MySQL

- If we want to set high availability then we need to check the box
- Backup option we can select as per our requirement
- Click on save
- Enter username & password
- Click on next: Networking
- Select the public access

Azure Database for MySQL

- Click on Add 0.0.0.0 or we can add the specific IP from where we want to access the database.
- Click on continue
- Click on Review + create
- Click on create
- Click on the name of the database

Azure Database for MySQL

- Click on Backup & restore
- Click on restore for restore the database.
- Enter the details as per the client requirement
- **Replication**
- Click on replication
- Make sure you change the Compute to general purpose or system will give you the error message.

Azure Database for MySQL

- Click on Add replica
- Enter the name of the replica
- Select the location
- Click on ok
- **Note: Read replicas are created with the same server configuration as the master. The replica server configuration can be changed after it has been created. The replica server is always created in the same resource group and same subscription as the source server. If you want to create a replica server to a different resource group or different subscription, you can move the replica server after creation. It is recommended that the replica server's configuration should be kept at equal or greater values than the source to ensure the replica is able to keep up with the master.**

Connect MySQL Database with Workbench

- Download MYSQL Workbench: **Click Here**
- **Note:** To Download Workbench for windows Microsoft Visual C++ 2019 is mandatory in our system. **Click Here**
- Click on the overview
- Note down the server name & server admin login name
- Open MySQL Workbench
- Click on Database
- Click on Connect to database

Connect MySQL Database with Workbench

- Enter the host name (Server Name)
- Enter the username (server admin login name)
- Click on store in Vault
- Enter the password
- Click on ok
- Click on ok
- Now we are able to connect to the database.
- SQL Query: **Click Here**

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