

AWS RDS Overview



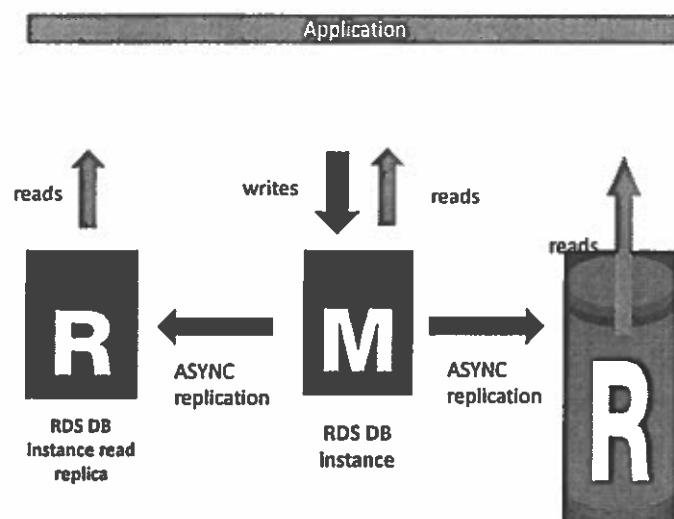
- RDS stands for Relational Database Service
- It's a managed DB service for DB use SQL as a query language.
- It allows you to create databases in the cloud that are managed by AWS
 - Postgres
 - Oracle
 - MySQL
 - MariaDB
 - Oracle
 - Microsoft SQL Server
 - Aurora (AWS Proprietary database)

Advantage over using RDS versus deploying DB on EC2

- Managed service:
- OS patching level
- Continuous backups and restore to specific timestamp (Point in Time Restore)!
- Monitoring dashboards
- Read replicas for improved read performance
- Multi AZ setup for DR (Disaster Recovery)
- Maintenance windows for upgrades
- Scaling capability (vertical and horizontal)
- BUT you can't SSH into your instances

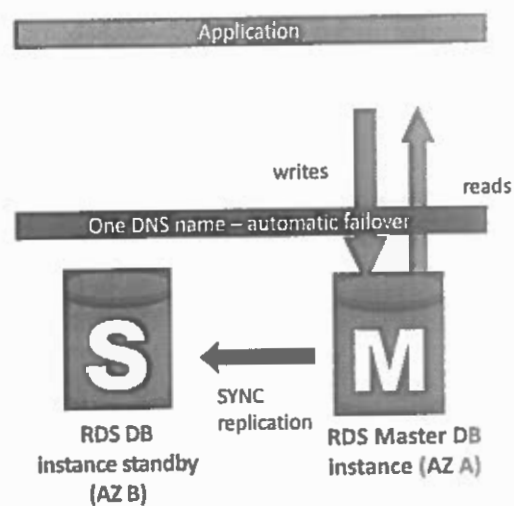
RDS Read Replicas for read scalability

- Up to 5 Read Replicas
- Within AZ, Cross AZ or Cross Region
- Replication is ASYNC, so reads are eventually consistent
- Replicas can be promoted to their own DB
- Applications must update the connection string to leverage read replicas



RDS Multi AZ (Disaster Recovery)

- SYNC replication
- One DNS name – automatic app failover to standby
- Increase availability
- Failover in case of loss of AZ, loss of network, instance or storage failure
- No manual intervention in apps
- Not used for scaling



RDS Backups

- Backups are automatically enabled in RDS
- Automated backups:
 - Daily full snapshot of the database
 - Capture transaction logs in real time
 - => ability to restore to any point in time
 - 7 days retention (can be increased to 35 days)
- DB Snapshots:
 - Manually triggered by the user
 - Retention of backup for as long as you want

RDS Security

- RDS databases are usually deployed within a private subnet, not in a public one
- RDS Security works by leveraging security groups (the same concept as for EC2 instances) – it controls who can communicate with RDS
- IAM policies help control who can manage AWS RDS
- Traditional Username and Password can be used to login to the database
- IAM users can now be used too (for MySQL / Aurora – NEW!)

RDS vs Aurora

- Aurora is a proprietary technology from AWS (not open sourced)
- Postgres and MySQL are both supported as Aurora DB (that means your drivers will work as if Aurora was a Postgres or MySQL database)
- Aurora is “AWS cloud optimized” and claims 5x performance improvement over MySQL on RDS, over 3x the performance of Postgres on RDS
- Aurora storage automatically grows in increments of 10GB, up to 64 TB.
- Aurora can have 15 replicas while MySQL has 5, and the replication process is faster (sub 10 ms replica lag)
- Failover in Aurora is instantaneous. It’s HA native.
- Aurora costs more than RDS (20% more) – but is more efficient