Understanding AWS Relational Database Services (RDS)

RDS Characteristics

Database engine managed by AWS

MySQL, Oracle, Microsoft SQL, PostgreSQL, MariaDB, or Amazon Aurora

Multi-AZ deployment options

On-demand and reserved instance pricing

Magnetic, GP-SSD, or PIOPS

Oracle and Microsoft SQL licensing:

- Included Licenses
- Bring your own licensing

Automated or manual backups

RDS Automated Backups

Continuously tracks changes and backs up your DB

Volume snapshot of your entire DB instance, not just DBs

One day of backups retained by default but can be configured up to 35 days

Backup retention period defined during configuration

When you delete an RDS instance, all automated snapshots are deleted

- Manual snapshots are preserved

RDS Automated Backups

Automated backups occur daily during a 30 minute configurable backup window

Automated backups are preserved for a configurable number of days (retention period)

RDS Restore

You cannot restore from a DB snapshot to an existing DB instance

- A new DB instance is created when you restore

Only default DB parameters and security groups are restored

- You must manually associate all other DB parameters and SGs

RDS combines daily backups in conjunction with transaction logs to restore the DB Instance to any point during the retention period

Up to the last five minutes

Multi-AZ Failover

Multi-AZ RDS deployment designed for HA

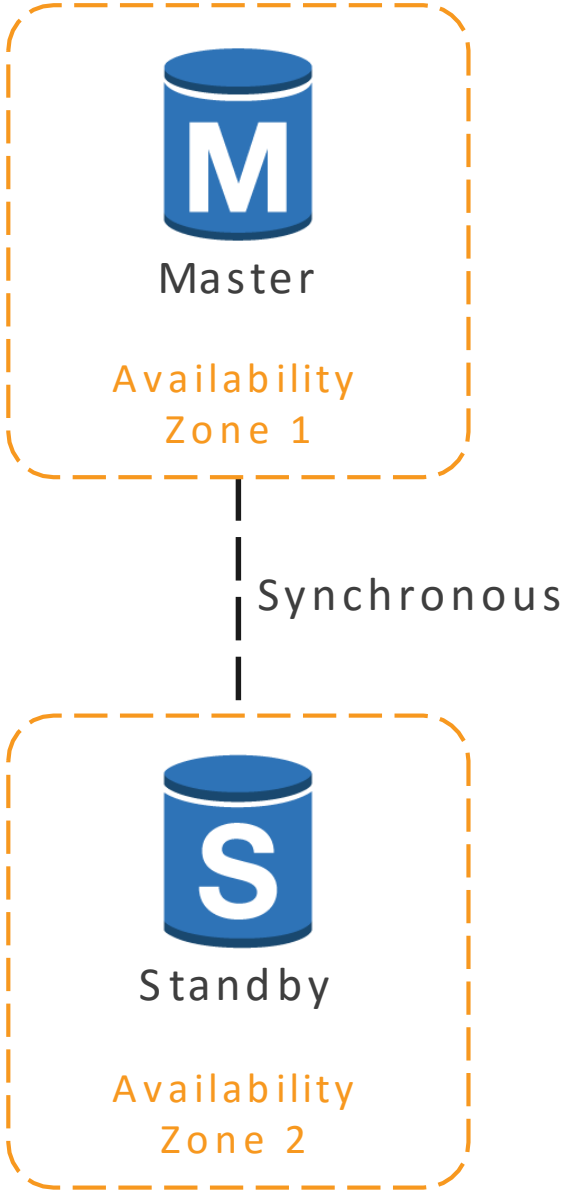
Synchronous replica in secondary AZ

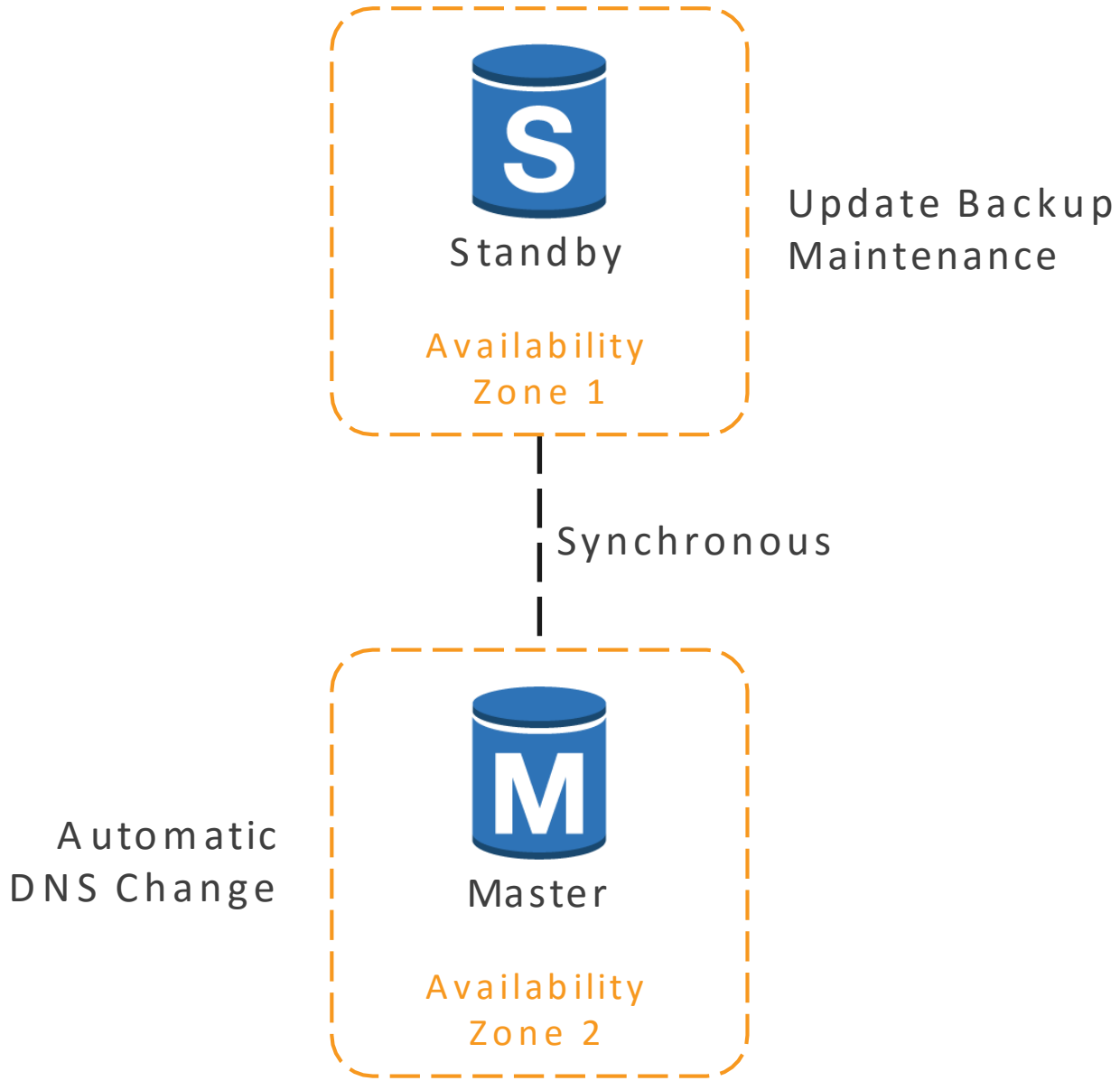
Standby replica RDS instance is invisible

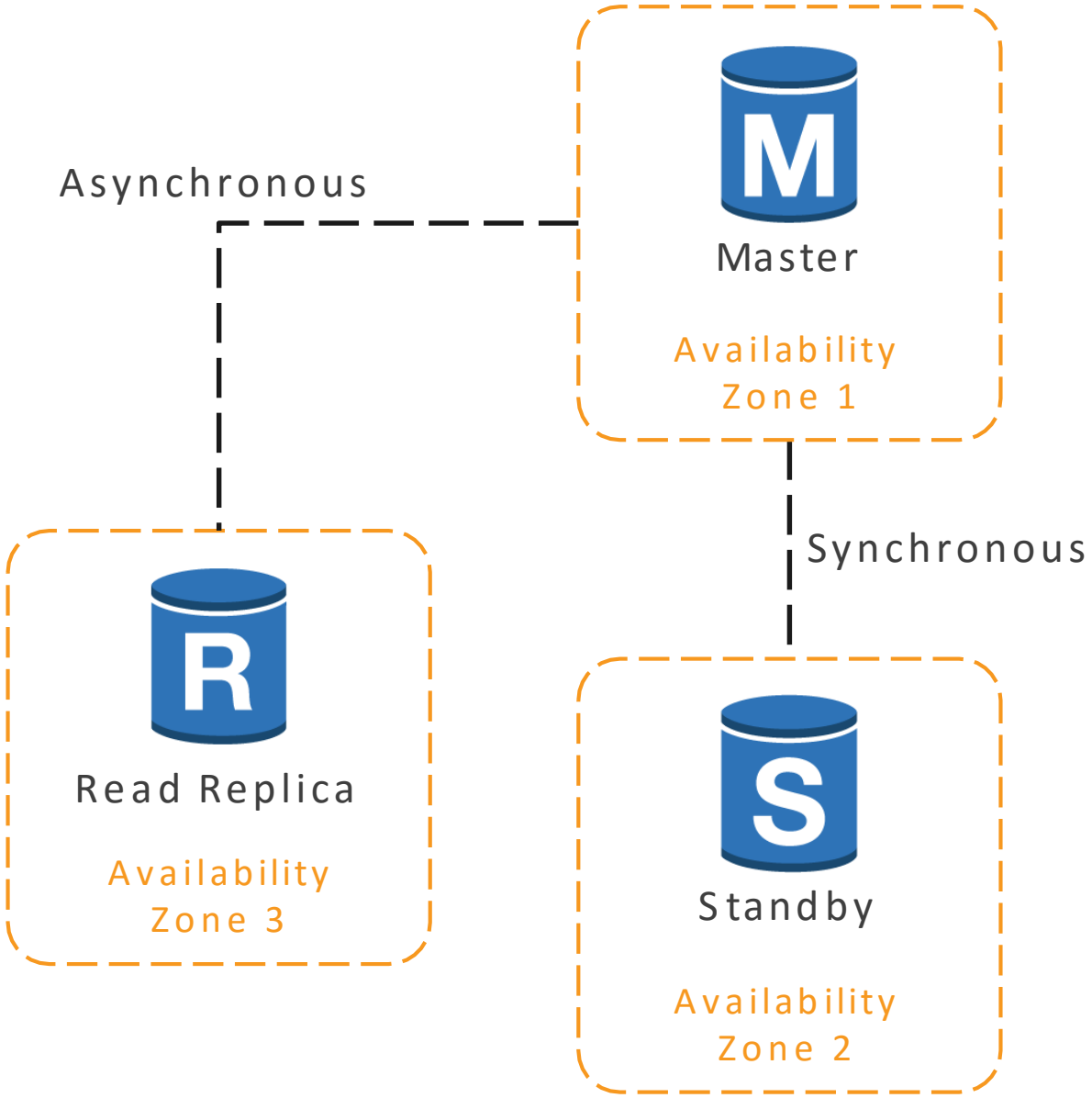
DB snapshots always taken against standby instance

AWS automatically adjusts DNS record when needed

Multi-AZ is different from a RDS read replica


M
Master
Availability
Zone 1
Synchronous
S
Standby
Availability
Zone 2


S
Standby
Availability
Zone 1
Update Backup
Maintenance
Synchronous
Automatic
DNS Change
M
Master
Availability
Zone 2


Asynchronous
M
Master
Availability
Zone 1
Synchronous
R
Read Replica
Availability
Zone 3
S
Standby
Availability
Zone 2

RDS Read Replicas

Read replicas designed for workload sharing / offloading

Created from a snapshot of the master instance

Asynchronous replication / Read-only connections

Read-only disaster recovery

RDS Reserved Instances

DB engine

DB instance class

Deployment type

License model

Region

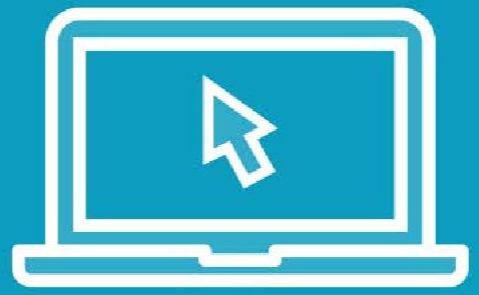
RDS Reserved Instances

Move between Azs in the same Region

Are available for Multi-AZ deployments

Can be applied to Read Replicas provided the DB Instance class and Region are the same

Demo



Creating an RDS instance

Windows Integrated Authentication

- Choose one of the AWS offered directory services
- Establish a trust relationship
- Windows integrated authentication only works with a domain created using AWS directory service
- Alternatively, you can use SQL authentication

Summary

RDS characteristics

Multi-AZ failover

RDS read replicas

RDS reserved instances