Demo

Wednesday, June 29, 2022 10:41 AM

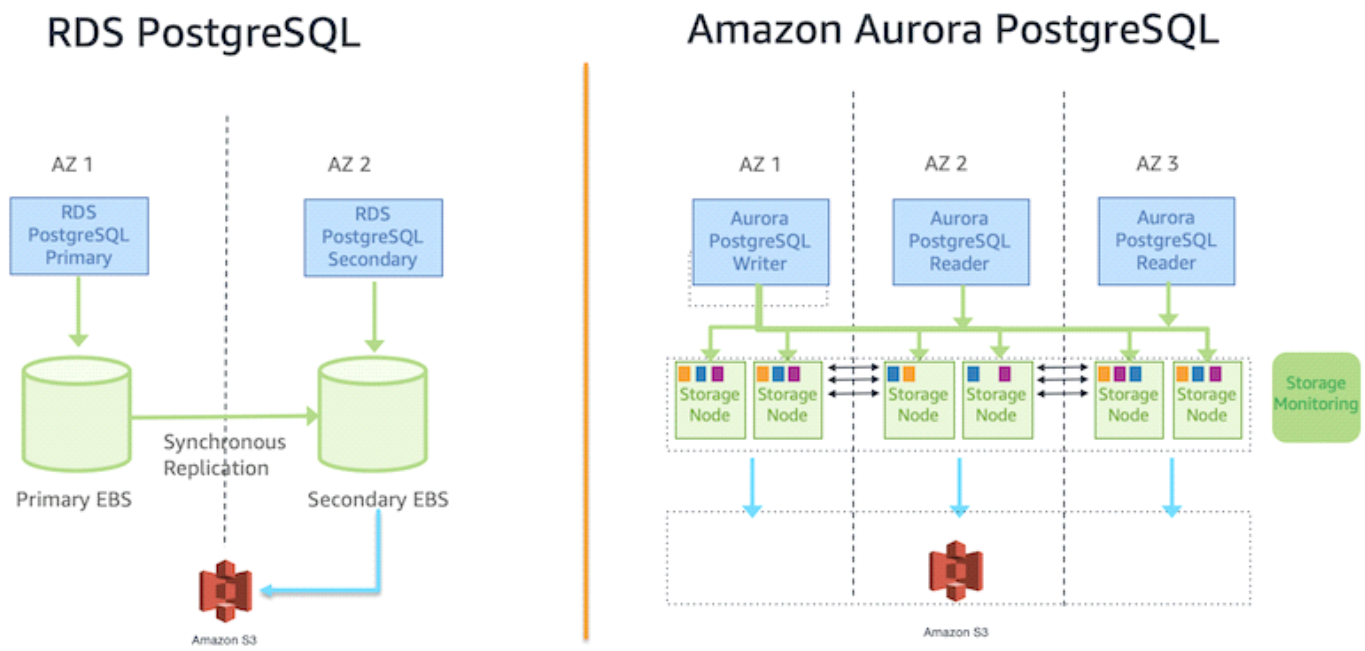
1. Aurora Postgres Production DB architecture for ASB ISIN (what it is, why was it chosen, what it provides for scalability, HA) (Rajesh with Ryan's support)

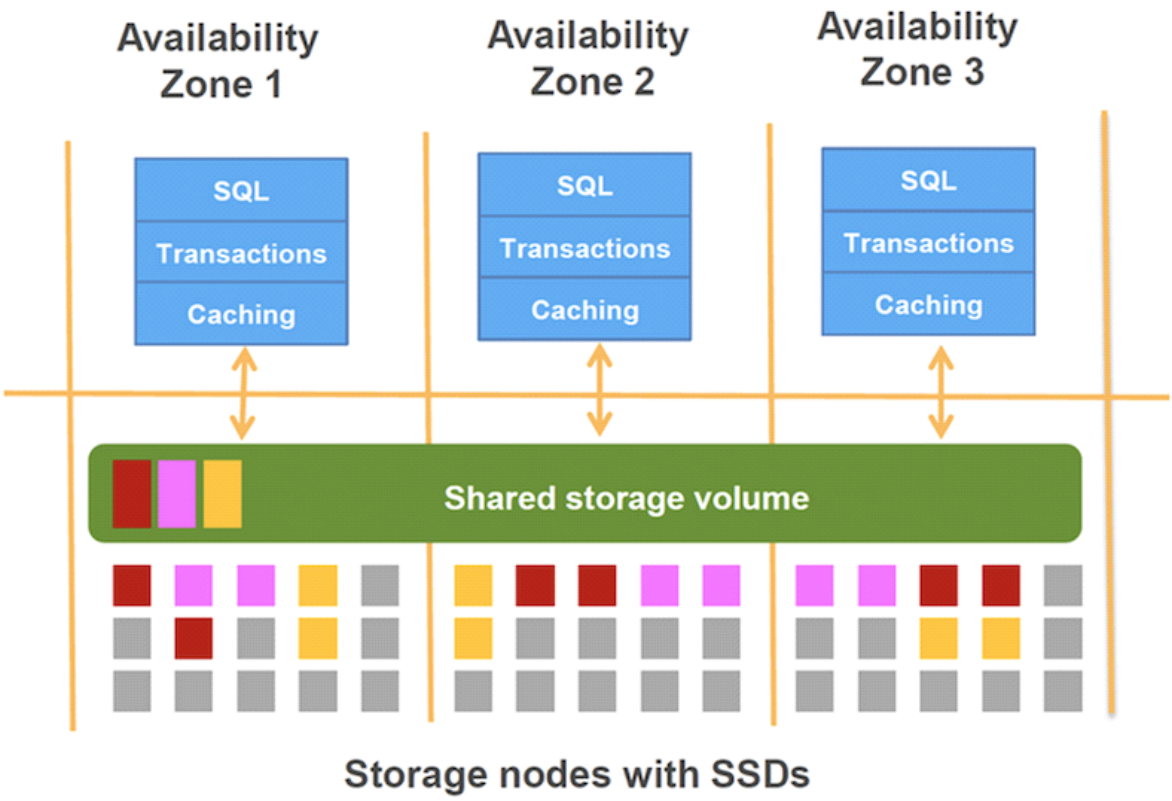
    - What it is
    - Why was it
    - Scalability
    - HA

What it is
performance, scalability, failover, storage, high availability, backup, and database versions. multiple PostgreSQL versions, managing backups, point-in-time recovery (PITR), replication, monitoring, Multi-AZ support, and Storage Auto Scaling.

Storage:
Amazon RDS for PostgreSQL use Amazon Elastic Block Store (Amazon EBS) volumes for database and log storage.

Aurora PostgreSQL uses a high-performance storage subsystem customized to take advantage of fast distributed storage





Amazon RDS for PostgreSQL supports up to 64 TiB of storage
The underlying storage grows automatically in chunks of 10 GiB, up to 128 TiB

Why was it chosen:

	RDS PostgreSQL	Aurora PostgreSQL
Replication Lag	5-10 mins	30 seconds
Read Replicas	5	15
Checkpoint	Database does it	Storage does it
Failover	Few minutes	Few seconds
Backup	Impacts DB performance	Happens at storage level
Global Database	Not Available	Available
IOPS	Max 80K IOPS	Unlimited

Scalability:
Writer-Reader Concept:

Storage scaling
Instance scaling
Read scaling
Managing connections

Aurora promotes one of the readers when a problem is detected on the primary instance or storage layer. If a failure occurs and no Aurora replica has been provisioned, it attempts to create a new database instance automatically

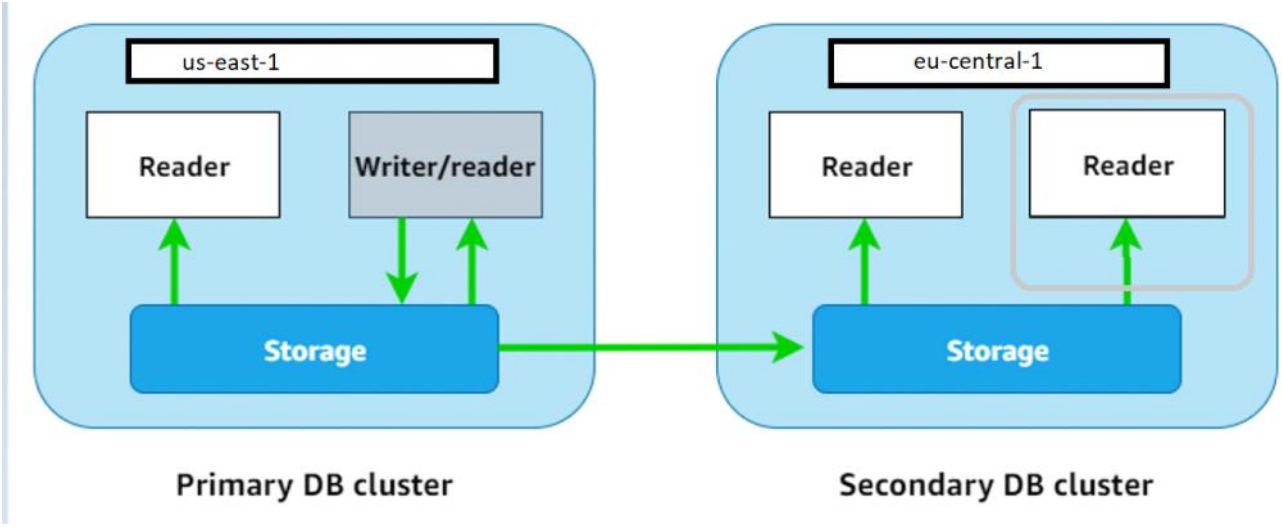
HA:
If you fulfil the high availability requirement of your data by replicating in two Availability Zones, and cross-Region replication lag is acceptable, Amazon RDS for PostgreSQL should meet your requirements.
If the read workload can't afford high replication lag and requires more than five read replicas, Aurora PostgreSQL is a better choice.

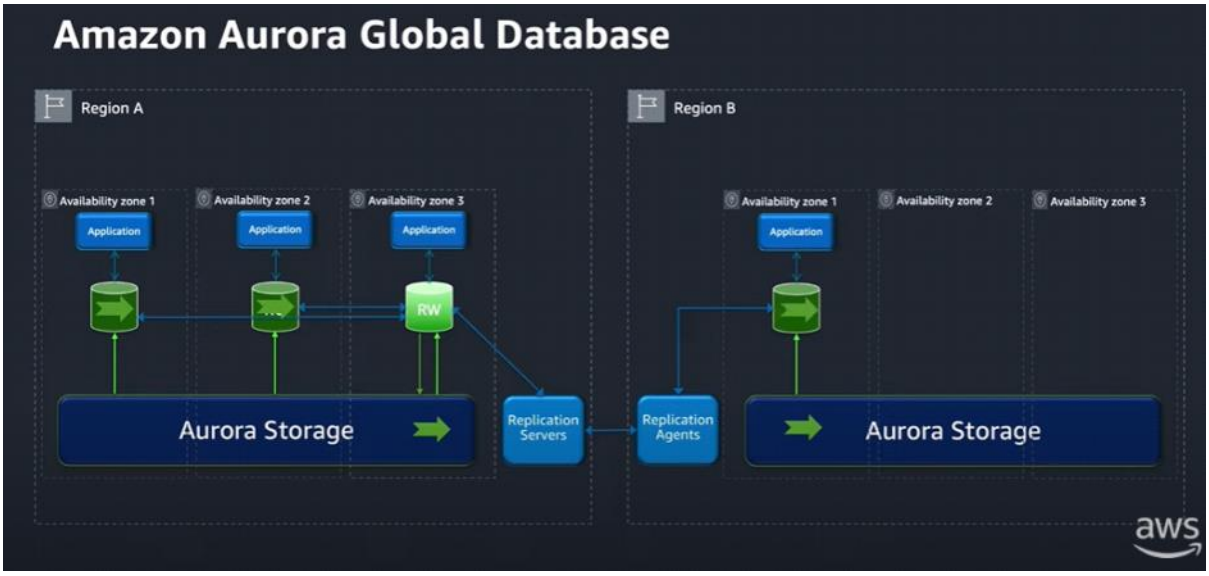
If replication lag is acceptable from seconds to minutes and up to five replicas are enough for your

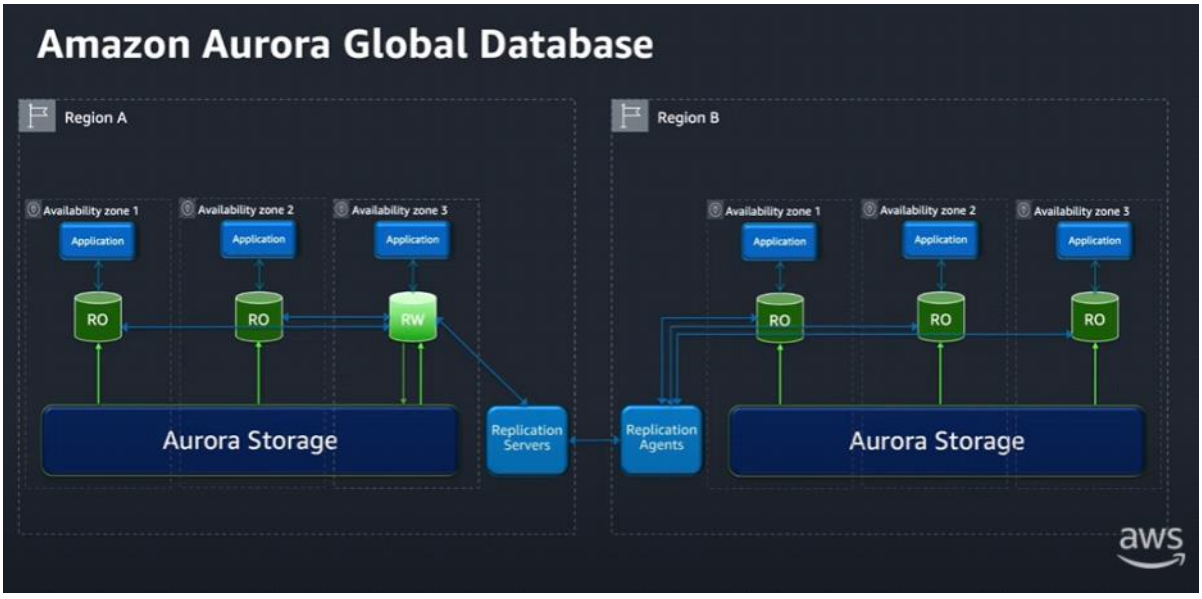
read workload, Amazon RDS for PostgreSQL is a better choice.
For higher data availability and to design a DR solution with minimal Recovery Point Objective (RPO) and Recovery Time Objective (RTO), Aurora PostgreSQL is the preferred choice.

With Aurora Global Database, a single Aurora database can span across multiple Regions to enable fast local reads and quick disaster recovery.
Global Database uses storage-based replication to replicate a database across multiple Regions with typical latency of less than 1 second.

Amazon Aurora Global Database is designed for globally distributed applications, allowing a single Amazon Aurora database to span multiple AWS Regions.




Amazon Aurora Global Database
Region A
Region B
Availability zone 1
Availability zone 2
Availability zone 3
Application
RW
Aurora Storage
Replication Servers
Replication Agents
aws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DR:


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