

## **AWS Well-Architected Framework for Seamless Database Migration from PostgreSQL to PostgreSQL Aurora**

### **1. Operational Excellence:**

- Maintain comprehensive documentation for the migration process, including the migration plan, test cases, and post-migration procedures
- Ensure that the database migration strategy is well-designed, taking into account the specific requirements and constraints of PostgreSQL and Aurora.

### **2. Security:**

- Implement strong access controls and authentication mechanisms to protect sensitive data.
- Encryption of data at rest and in transit during the migration process to maintain the highest level of data security.
- Enable auditing and logging features to monitor and track any suspicious activities during the migration.

### **3. Reliability:**

- Ensure high availability of both source and target databases during the migration process to minimize downtime.
- Establish backup and recovery procedures to safeguard data integrity and availability.

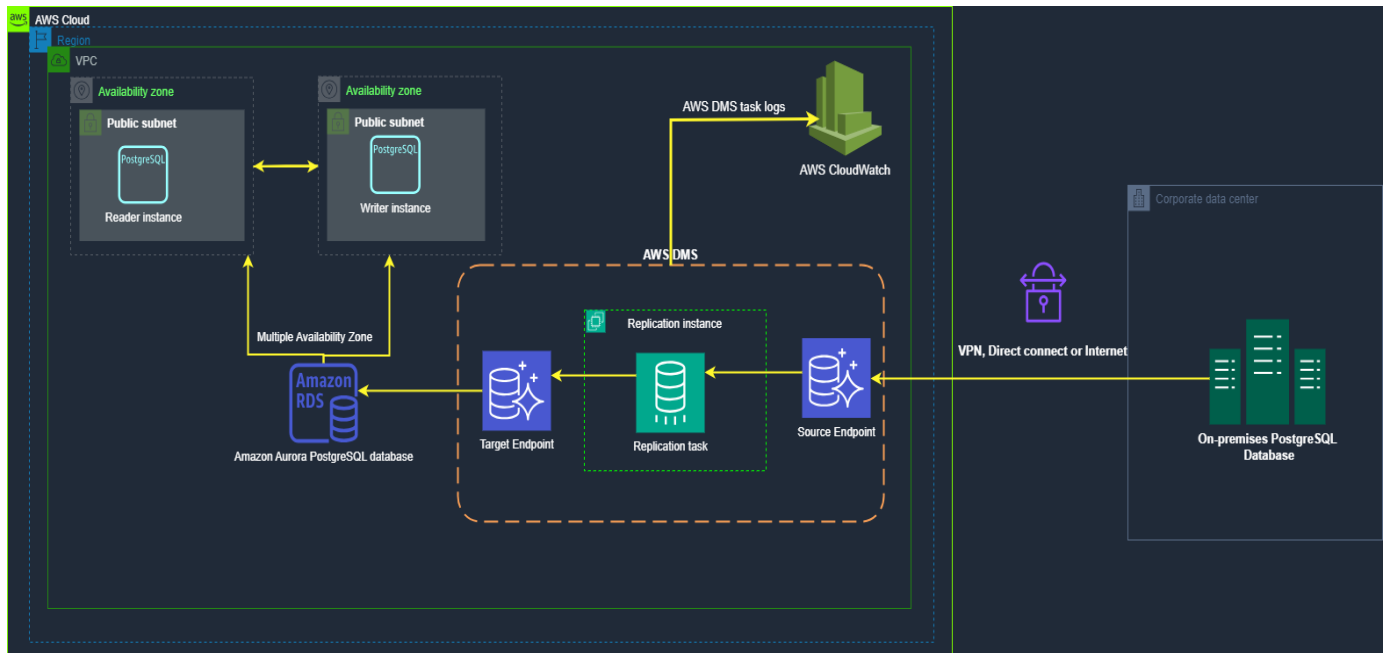
### **4. Performance Efficiency:**

- Optimize the database schema, queries, and indexes for better performance on Aurora.
- Configure the target Aurora instance appropriately to handle the workload efficiently.

### **5. Cost Optimization:**

- Right-size Aurora instance to meet the performance requirements while minimizing costs.
- Continuously monitor the cost of running the migration and optimize resources as needed to reduce unnecessary expenses

## Lab architecture reference



### Database:

PostgreSQL database --> Aurora PostgreSQL

### Configure DMS

- Replication Network
- Launch replication instance
- Endpoint for source & target

### Create target and Source endpoint database

DMS > Endpoints

Endpoints (2)

Find endpoint

<input type="checkbox"/>	Name	Type	Status	Engine	Server name	Port
<input type="checkbox"/>	<a href="#">e-commerce-db-target</a>	Target	Active	Amazon Aurora PostgreSQL	e-commerce-db-instance-1.c6yzmuklkmob.us-east-1.rds.amazonaws.com	5432
<input type="checkbox"/>	<a href="#">sourcepostgres</a>	Source	Active	PostgreSQL	e-commerce-db.cluster-c6yzmuklkmob.us-east-1.rds.amazonaws.com	5432

## Create replication network

Replication instances (1)								
<input type="text" value="Find replication instance"/>								
<input type="checkbox"/>	Name	Status	VPC	Class	Engine version	Availability zone	Network type	Public
<input type="checkbox"/>	<a href="#">e-commercepost</a>	Available	vpc-0ddd...	dms.t3.medium	3.5.1	us-east-1c	IPv4	Yes

## Launch replication network

Database migration tasks (1)										Actions
<input type="text" value="Find database migration tasks"/>										
<input type="checkbox"/>	Identifier	Status	Progress	Type	Source	Target	Replication instance	Started		
<input type="checkbox"/>	<a href="#">postgres-aurora</a>	Load complete	100%	Full load	sourcepostgres	e-commerce-db-target	e-commercepost	September 19, 2023 at 13:53:09 (UTC+02:00)		

## Aurora PostgreSQL instance

<input type="checkbox"/>	DB identifier	Status	Role	Engine	Region & AZ	Size	Actions	CPU	Current activity
<input type="radio"/>	<a href="#">e-commerce</a>	Available	Instance	PostgreSQL	us-east-1c	db.t3.micro	2 Actions	3.53%	0.00 sessions
<input checked="" type="radio"/>	<a href="#">e-commerce-db</a>	Available	Regional cluster	Aurora PostgreSQL	us-east-1	2 instances	-	-	-
<input type="radio"/>	<a href="#">e-commerce-db-instance-1</a>	Available	Writer instance	Aurora PostgreSQL	us-east-1c	db.t3.medium	-	12.83%	0.00 sessions
<input type="radio"/>	<a href="#">e-commerce-db-instance-1-us-east-1d</a>	Available	Reader instance	Aurora PostgreSQL	us-east-1d	db.t3.medium	-	14.58%	0.00 sessions

## Connect to Aurora database using pgadmin

Register - Server

General

Connection

Parameters

SSH Tunnel

Advanced

Host name/address

e-commerce-db-instance-1.c6yzmuklkmob.us-east-1.rds.amazonaws.com

Port

5432

Maintenance database

postgres

Username

admin

Kerberos authentication?

☐

Password

.....

Save password?

☐

Role

Service

Close

Reset

Save

- ✓ e-commerce
  - ✓ Databases (3)
    - > e-commercedb
    - > postgres
    - > rdsadmin
  - > Login/Group Roles
  - > Tablespace
- ✓ Tables (4)
  - > customers
  - > order\_items
  - > orders
  - > products
- > Trigger Functions
- > Types
- > Views