Amazon Aurora:

## What is wrong with traditional RDMS?

They are monolithic:

- Very coupled layers
  - SQL, Transactions, Storage, Caching, Logging
- Slow together
- Fail together
- Does not scale independently

## What is Aurora?

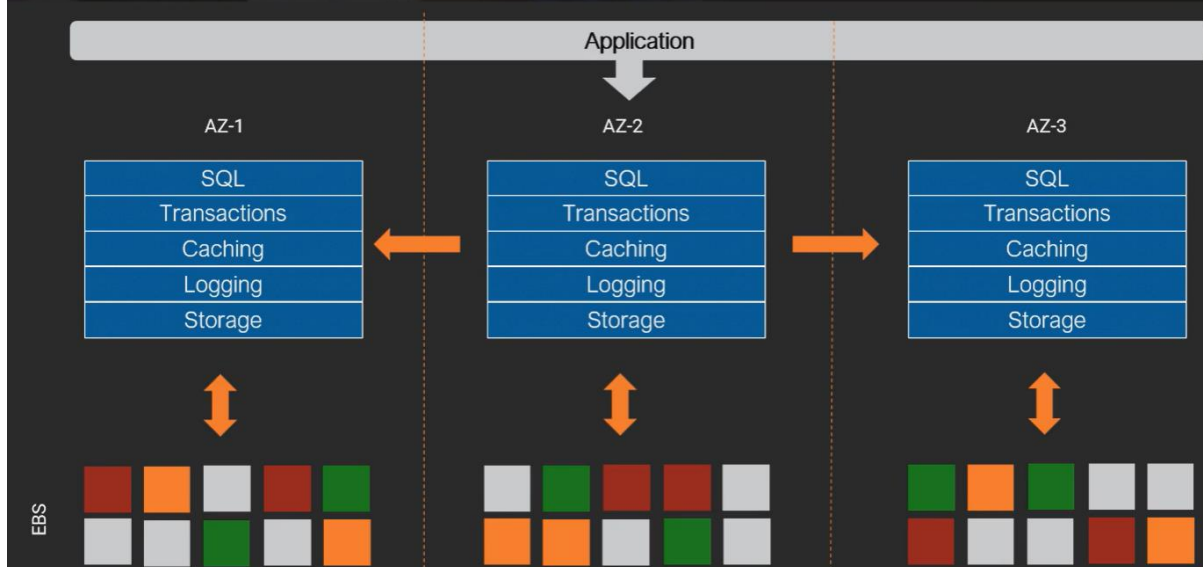Amazon Aurora reimagined the database in the Cloud

Broke apart the monolithic stack...
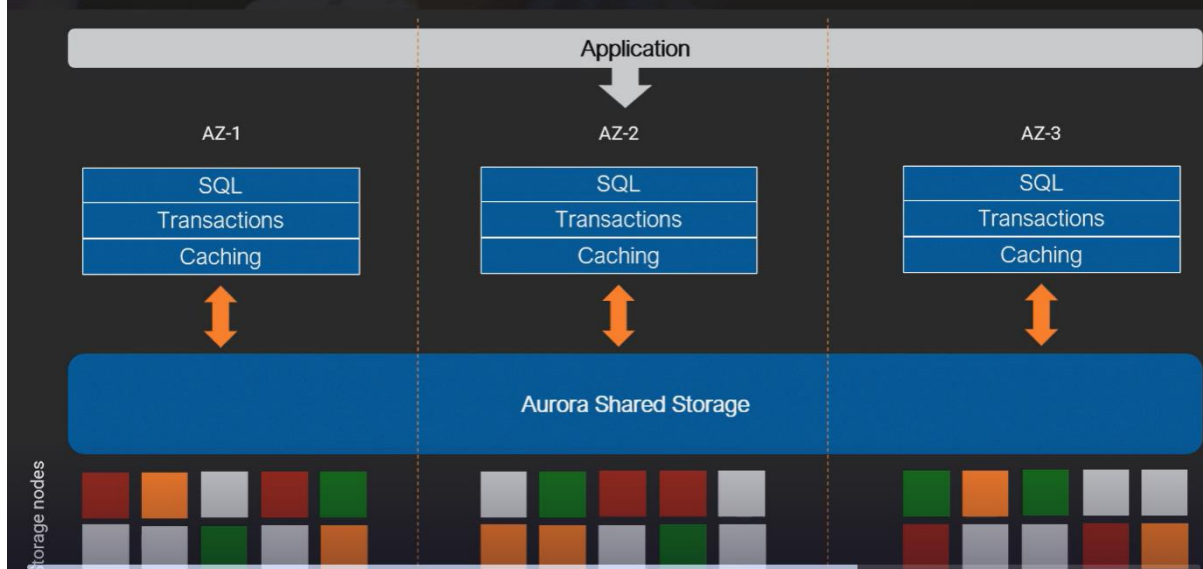
To enable a database that can scale out.

Self-healing

Naturally leverages the **distributed** and **elastic** nature of the Cloud.

**Amazon** Aurora

# How does RDS work?

# How does Aurora work?

- AWS rebuilt Logging and Storage layers
  - S3, SWF, DynamoDB, Route53, EC2 and VPCs

- Managed by RDS
  - Management and Administrative functions

- **Cloud optimized** relational database

- Not a custom in-house database by Amazon:
  - MySQL and PostgreSQL compatible

Amazon Aurora

**Amazon Aurora launched in 2014**

**Fastest** growing service in **AWS History**

Key Concepts:

Aurora DB Cluster

- One or more DB instances **and** a cluster volume

Two types of DB Instances

1. Primary DB Instance
2. Aurora Replica

Aurora DB Connections

- DB Connections through endpoints

Several types of Aurora endpoints

1. Cluster endpoint
2. Reader endpoint
3. Custom endpoint
4. Instance endpoint

Aurora Global Databases

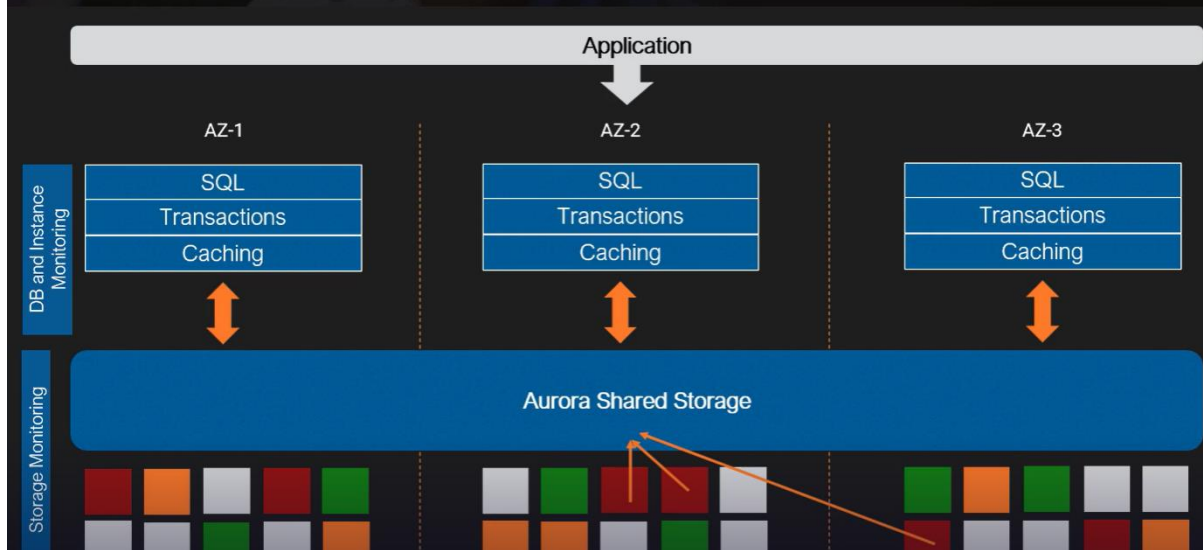- Primary region – Read & Write
- Secondary region - Read-Only

In case of failure
- Secondary region can be promoted

Amazon Aurora Storage



Performance
- PostgreSQL is 2x – 3x faster
- MySQL is 5x faster
- Better at scale
- Take with a grain of salt (validate for yourself)

Storage is up to 64 TB
- Grows with you (no upfront allocation required)

Continuous Backups to S3 (99.999999999% uptime)

Aurora Serverless:



What is Aurora Serverless?

Built on the same foundation of Amazon Aurora
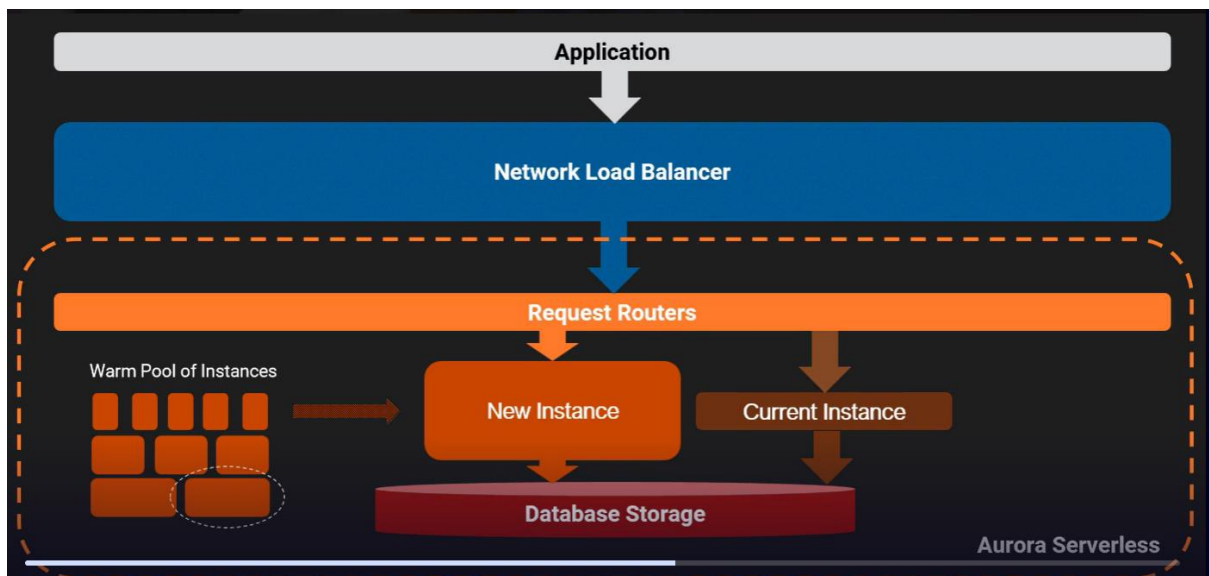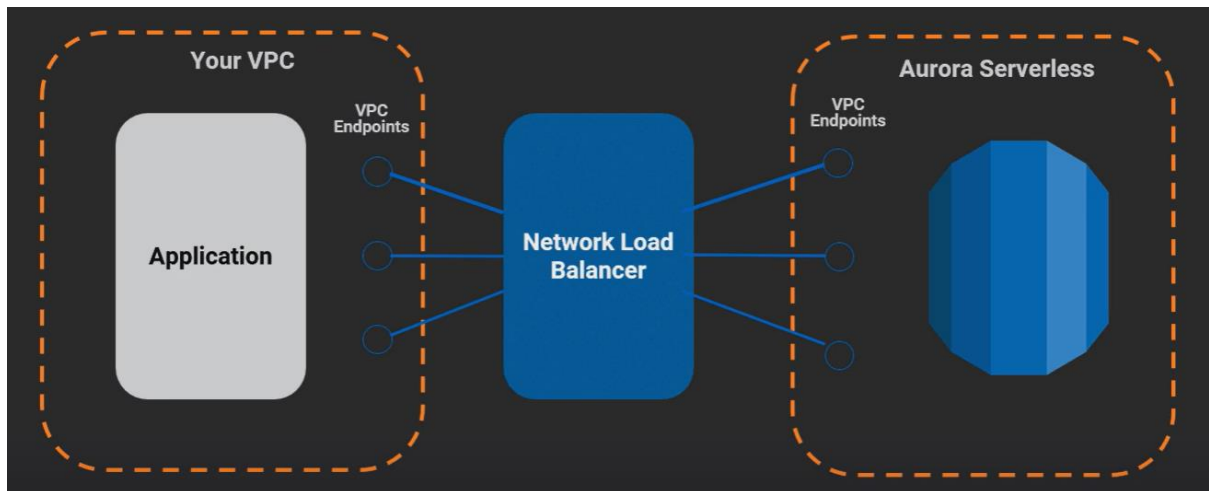- MySQL and PostgreSQL compatible

Aligns Amazon Aurora with the Serverless model
- Don't need to think about instances.
- Pay for what you use.

How?
- Aurora's storage optimization
- Decouples the database host from the Application.

## Capacity Management

No more Database Instance Classes

Aurora Compute Unit

- An ACU provides an amount of Memory and CPU.
- Set a Min and Max amount of ACU for your Database.

Aurora Serverless will automatically scale as needed:

- Scaling rules based on **CPU** and **Connections.**
- Can also scale to 0 automatically when inactive.