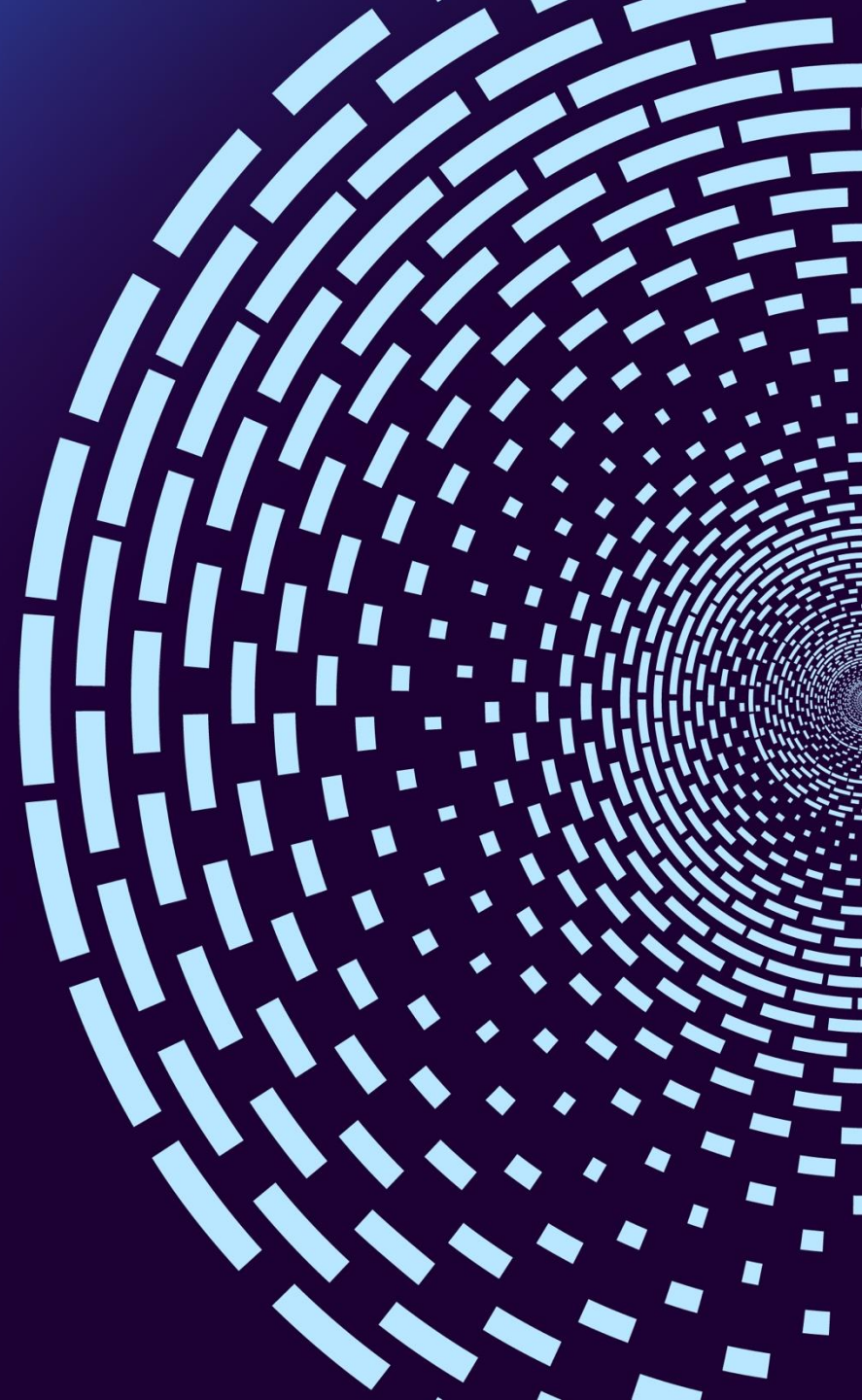aws

AI Conclave

Online

aws
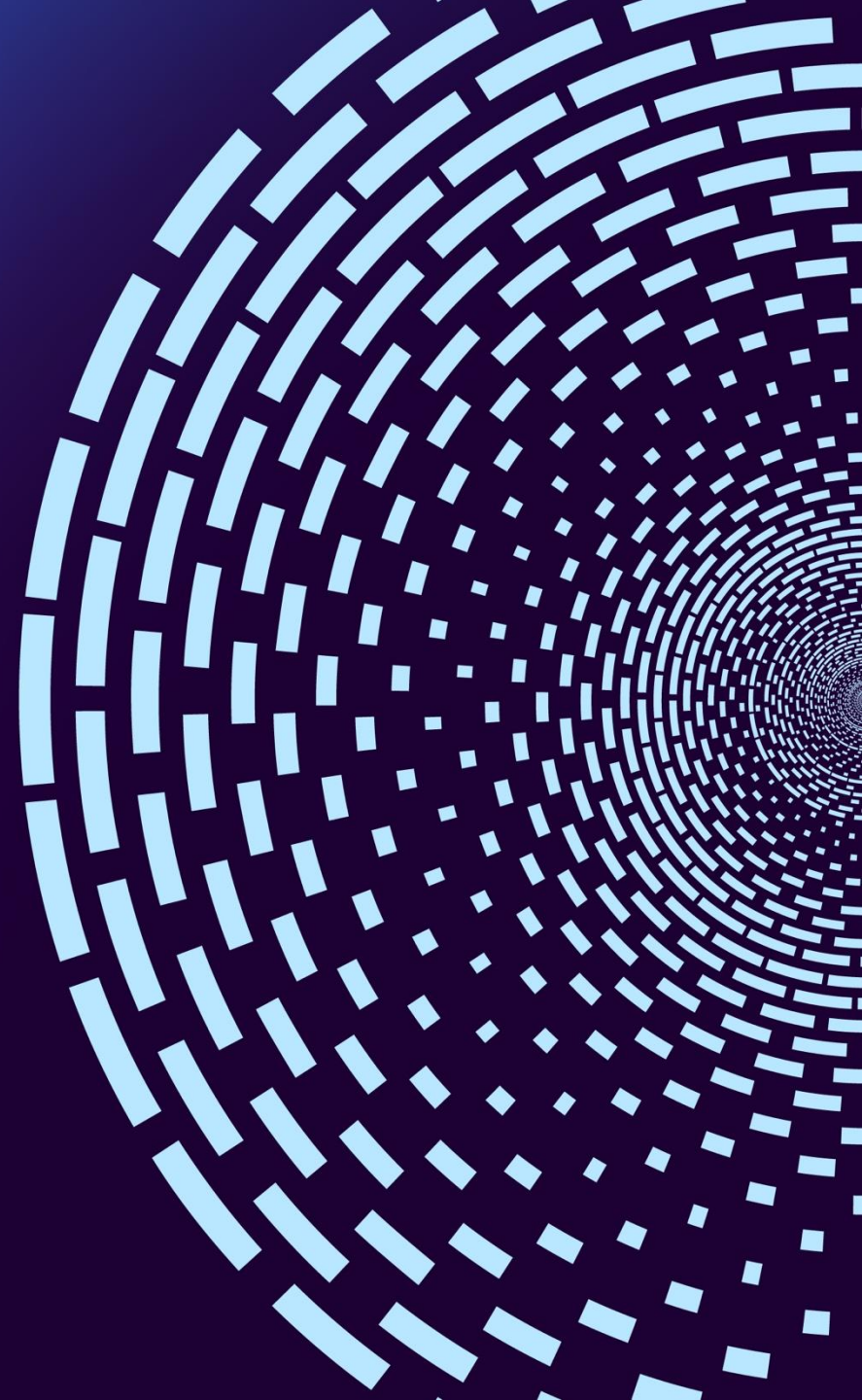
Improve resiliency using Amazon Aurora DSQL, multi-region serverless distributed SQL database

Nethravathi Muddarajaiah

Principal Database Solutions Architect
AWS India

Agenda

- **What is Amazon Aurora DSQL?**

- **Architecture**

- **Cross-region and scalability**

- **Demo**

"The first principle of successful scalability is to batter the consistency mechanisms down to a minimum, move them off the critical path, hide them in a rarely visited corner of the system, and then make it as hard as possible for application developers to get permission to use them"

James Hamilton

Amazon SVP/Distinguished Engineer

Traditional relational databases

Scale

Capacity limits of traditional databases results in significant effort to right-size workloads

Availability

Lower resiliency leads to unplanned downtimes impacting database availability

Functional challenges

Management overhead

Infrastructure management, patching, upgrades requires high engineering effort for maintenance

Complexity

Infrastructure setup, database installation, configuration, tuning and management is complex and high effort

Operational challenges

Amazon Aurora DSQL is...

Amazon Aurora DSQL - Fastest distributed SQL database

AVAILABLE IN PUBLIC PREVIEW

- A relational SQL database optimized for transactional workloads

- Virtually unlimited scalability

- No infrastructure management

- 99.999% multi-region availability

- Automatic failure recovery

- PostgreSQL compatible

Amazon Aurora DSQL

CLOUD-NATIVE, SERVERLESS DISTRIBUTED SQL DATABASE WITH VIRTUALLY UNLIMITED SCALABILITY AND HIGHEST AVAILABILITY

Virtually unlimited scaling

Instantly scales compute, read, write and storage resources independently, both up and down

Business continuity

99.999% availability with active-active access in a multi-region cluster

Serverless

No servers to provision, patch, or manage, and no software to install, maintain, or operate.

Fast and Easy

Create and query a database in less than a minute with familiarity of PostgreSQL

Amazon Aurora DSQL

CLOUD-NATIVE, SERVERLESS DISTRIBUTED SQL DATABASE WITH VIRTUALLY UNLIMITED SCALABILITY AND HIGHEST AVAILABILITY

Virtually unlimited scaling

Instantly scales compute, read, write and storage resources independently, both up and down

Amazon Aurora DSQL

CLOUD-NATIVE, SERVERLESS DISTRIBUTED SQL DATABASE WITH VIRTUALLY UNLIMITED SCALABILITY AND HIGHEST AVAILABILITY

Business Continuity

99.999% availability with active-active access in a multi-region cluster

Amazon Aurora DSQL

CLOUD-NATIVE, SERVERLESS DISTRIBUTED SQL DATABASE WITH VIRTUALLY UNLIMITED SCALABILITY AND HIGHEST AVAILABILITY

Serverless

No servers to provision, patch, or manage, and no software to install, maintain, or operate.

Amazon Aurora DSQL

CLOUD-NATIVE, SERVERLESS DISTRIBUTED SQL DATABASE WITH VIRTUALLY UNLIMITED SCALABILITY AND HIGHEST AVAILABILITY

Fast and Easy

Create and query a database in less than a minute with familiarity of PostgreSQL
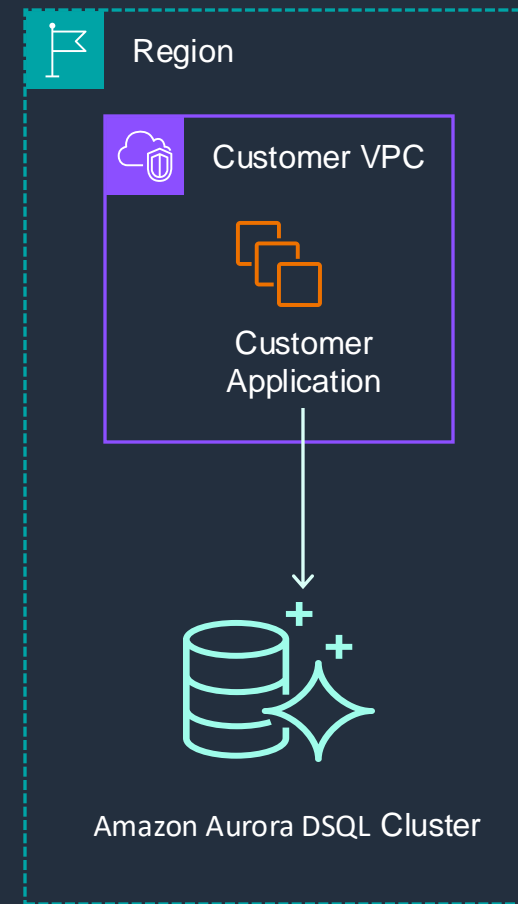
Amazon Aurora DSQL

SINGLE REGION CLUSTER

Multi-AZ active active

Designed for 99.99% database availability

Active-active data replication to 3 Availability Zones

Fully automated failure recovery with strong data consistency even during AZ-wide events

Region

Customer VPC

Customer Application

Amazon Aurora DSQL Cluster

Amazon Aurora DSQL

MULTI-REGION ACTIVE-ACTIVE CLUSTER

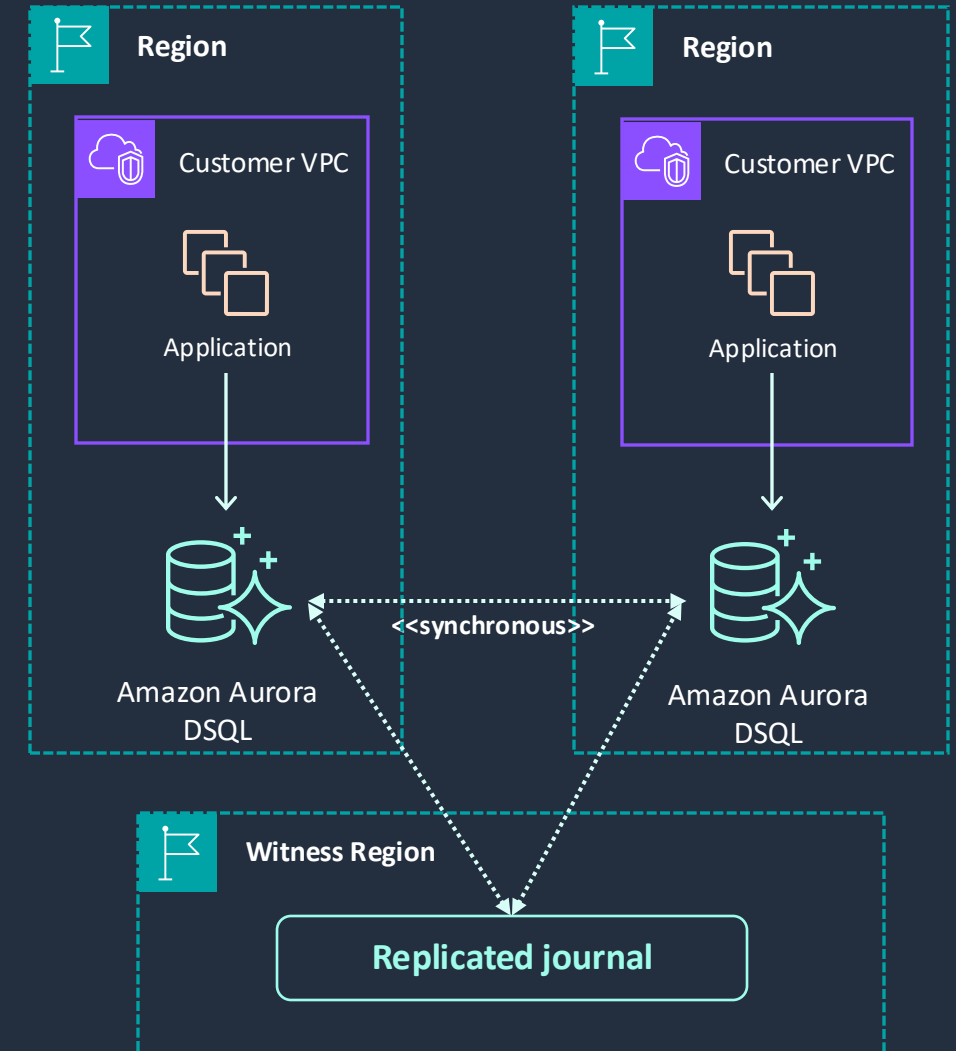**Extend the benefits of single region cluster across two AWS regions**

Designed for 99.999% availability

Active-active data access across both regions

Both regions are equal. No primary or secondary. Applications access the same data from any regional end-point

Fully automated failure recovery with strong data consistency even during Region-wide events

Cross-region replication with ACID transactions

Region

Customer VPC

Application

Amazon Aurora DSQL

Region

Customer VPC

Application

Amazon Aurora DSQL

<<synchronous>>

Witness Region

Replicated journal

Amazon Aurora DSQL

MULTI-REGION ACTIVE-ACTIVE CLUSTER

Extend the benefits of single region cluster across two AWS regions

Active-active data access across both regions

Both regions are equal. No primary or secondary. Applications access the same data from any regional end-point

Fully automated failure recovery with strong data consistency even during Region-wide events
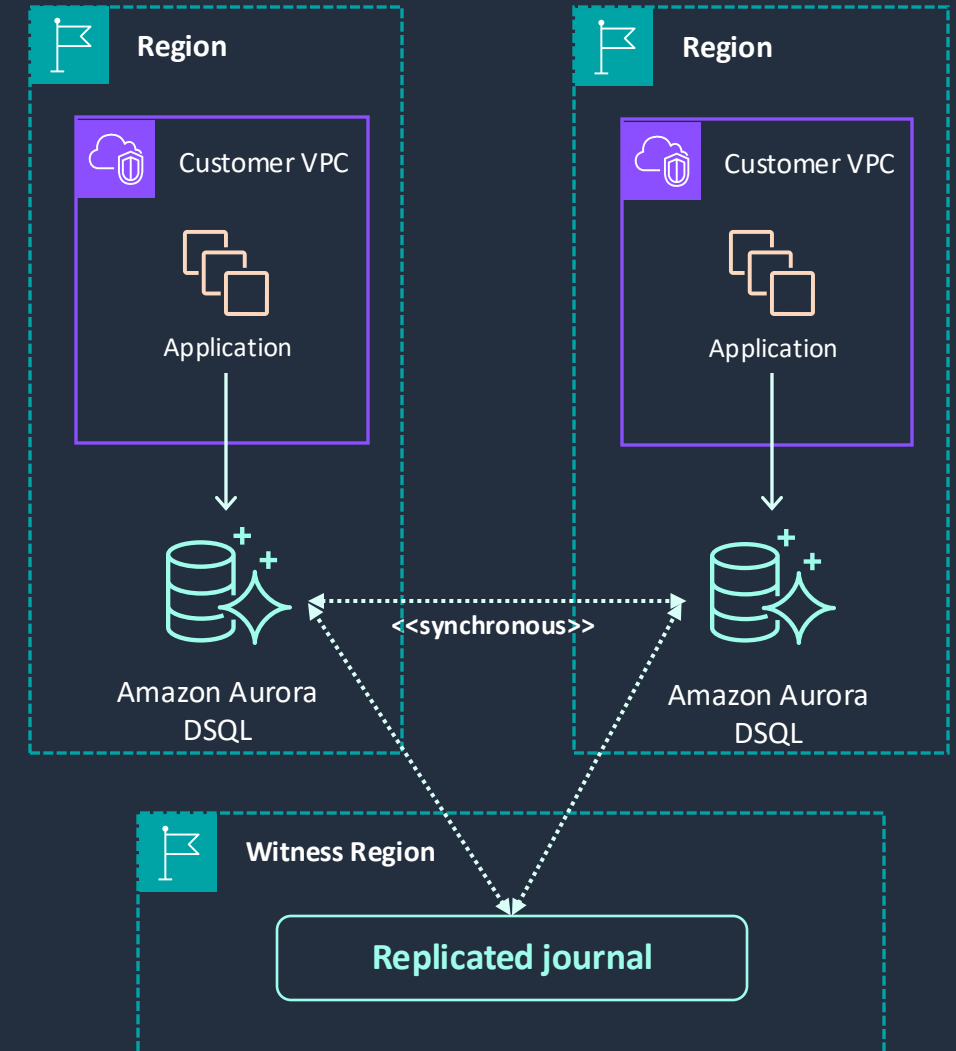
Designed for 99.999% availability

Elastic scaling with no planned downtime

Compute and Storage scale independently

No instances to size, scale, place, or manage

No patching or maintenance windows

Region

Customer VPC

Application

Amazon Aurora DSQL

Region

Customer VPC

Application

Amazon Aurora DSQL

<<synchronous>>

Witness Region

Replicated journal

Demo

aws

Thank you!

Nethravathi Muddarajaiah

Principal Database Solutions Architect
AWS India