nClouds Client Story
Genability

How nClouds helped this new energy-tech to design and execute data migration to support their rapid business growth and supercharge product performance

GENABILITY

Industry

Cloud Software, New Energy, Energy Management and Procurement, Renewable Energy, Building Energy Management Systems

Location

San Francisco, CA

Challenge

Support rapid business growth by supercharging the performance, reliability, availability, and replica management of SaaS energy optimization products.

Featured Services

Data migration and optimization

About Genability

Founded in 2010, Genability provides solutions to suppliers and distributors of "new energy" – Smart Utilities and Retail Electric Providers (REPs). They help solar, storage, electric transportation, energy procurement, connected home, efficiency, and other businesses understand their customers' energy costs, determine what their products are saving, and turn insight into opportunity. Genability has the industry's only accurate and comprehensive cloud-based retail tariff database and rate engine. To learn more, go to https://www.genability.com.

Benefits Summary

5x data throughput performance	Actionable insights	1000x data replication speed

CHALLENGE

Challenge: Support rapid business growth by supercharging the performance, reliability, availability, and replica management of SaaS energy optimization products.

Genability was an existing AWS customer and needed to improve the performance of their SaaS products. They wanted to migrate from the MySQL database engine on Amazon RDS to the Amazon Aurora database engine on Amazon RDS to tap Aurora's superb performance, reliability, availability, and replica management. nClouds applied their migration expertise to help Genability design and execute the data migration.

> " We were impressed by nClouds' approach and execution on this project. They truly partnered with us as an extension of our team, sharing our goals, focusing on our success, and applying their deep data migration experience and expertise."
>
> **—Sheena Carswell, Senior Software Engineer, Genability**

Why AWS and nClouds

Genability reached out to the AWS team for data migration help. AWS brought in nClouds, a Premier Consulting Partner in the AWS Partner Network with AWS-certified Migration Competency, for a technical deep dive session with Genability. Based on nClouds' experience and proposed migration process, Genability selected nClouds to help them perform the data migration.

Genability leveraged several Amazon Web Services:

- **Amazon Aurora** — Delivers the speed and reliability of high-end commercial databases simply and cost-effectively. It is fully managed by Amazon Relational Database Service (Amazon RDS), which automates time-consuming administration tasks like hardware provisioning, database setup, patching, and backups.
- **Amazon Elastic Compute Cloud (Amazon EC2)** — Services that are part of the environment run on Amazon EC2 instances and are organized using AWS instance tags.
- **Amazon Virtual Private Cloud (Amazon VPC)** — Enables Genability to provision a logically isolated section of the AWS Cloud where they can launch AWS resources in a virtual network that they define.
- **AWS Database Migration Service** — Facilitates the migration of data from one data store to another quickly and securely.

aws partner network

Premier
Consulting
Partner

DevOps Competency
Marketplace Seller
Migration Competency
MSP Partner
Well Architected

nClouds' Solution Architecture for Genability

Genability engaged with nClouds for help designing and implementing the data migration. Here is the step-by-step process that nClouds took to perform the migration from the MySQL database engine on Amazon RDS to the Amazon Aurora database engine on Amazon RDS:

- **Before data migration:** Below is how Genability's Amazon RDS for MySQL was set up. The Amazon EC2 instance was connected to Amazon RDS for MySQL, and asynchronous replication was set up between that database engine and a Read replica.
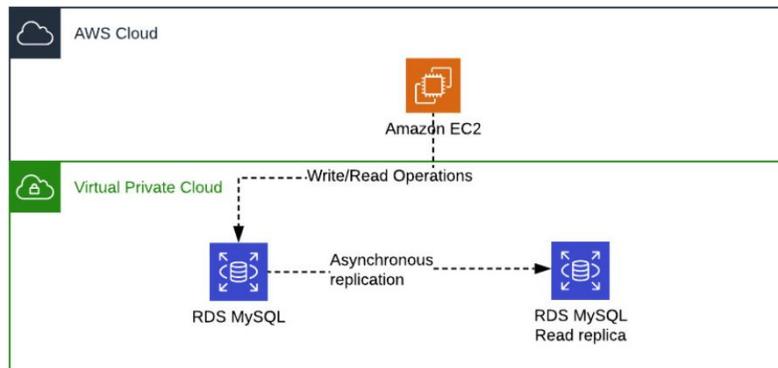

- **Step 1:** Create an Amazon Aurora Read replica cluster and set up binary replication between Amazon RDS for MySQL and the Amazon Aurora Read replica cluster.
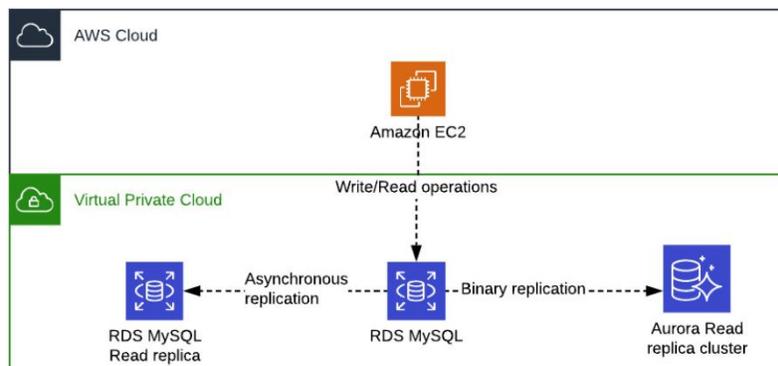
- **Step 2: Point the Amazon EC2 instance to the Amazon RDS for MySQL Read replica** (instead of pointing it to Amazon RDS for MySQL).
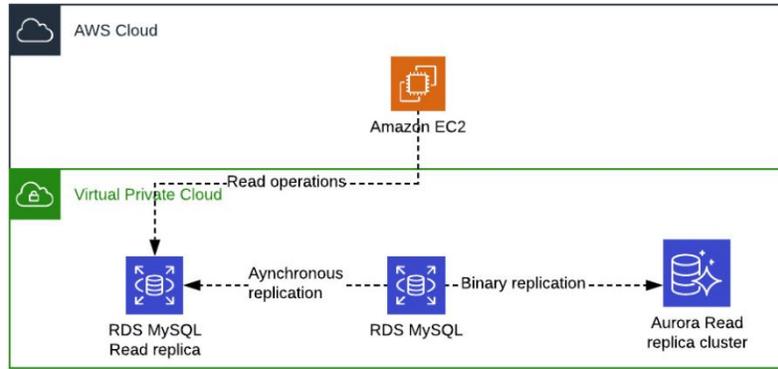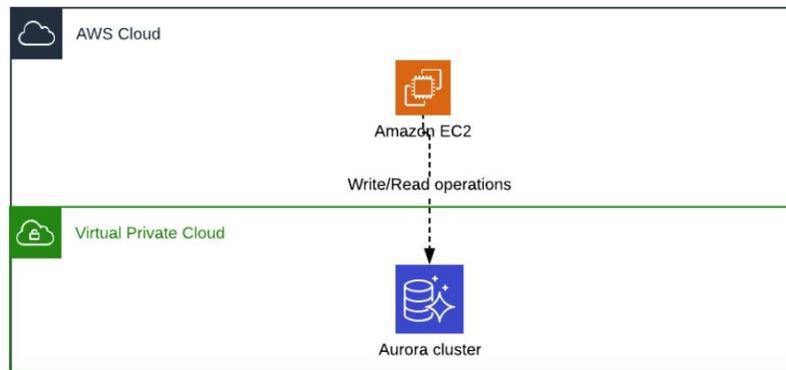

- **Step 3:** Cancel the binary replication between Amazon RDS for MySQL and the Amazon Aurora replica cluster.
  Promote the Amazon Aurora Read replica to a standalone cluster.
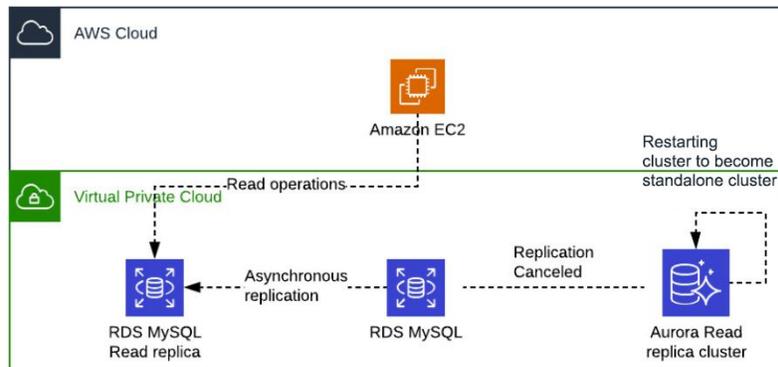
- **Step 4:** Point the Amazon EC2 instance to the standalone Amazon Aurora cluster.
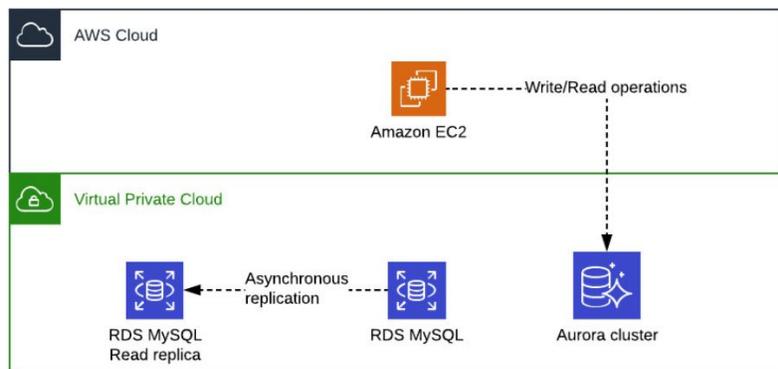
- **Step 5:** Validate that everything is working correctly, and then remove the Amazon RDS MySQL databases.

The Benefits

Teaming with nClouds, Genability now has a database strategy with superb throughput performance, reliability, availability, and replication speed. **The database migration was accomplished with zero read operations downtime.** The project has yielded numerous benefits:

5x data throughput performance

Amazon Aurora delivers five times the throughput performance of MySQL by tightly integrating the database engine with an SSD-based virtualized storage layer designed for database workloads, reducing writes to the storage system, minimizing lock contention, and eliminating delays created by database process threads.

Improved data reliability and availability

With Amazon Aurora's automatic storage scaling, cluster volumes automatically grow as the amount of data in the database increases, to a maximum size of 64 tebibytes (TiB), with no impact on database performance. Amazon Aurora increases availability by replicating data six ways across three Availability Zones so that a database cluster can tolerate a failure of an Availability Zone without any loss of data and only a brief interruption of service.

1000x data replication speed

Amazon Aurora's asynchronous replication speed is in milliseconds, while MySQL's asynchronous replication speed takes seconds to complete. This makes a big difference for Genability's energy products.

About nClouds

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