![aws]

Effectual: Migrates Ginnie Mae to AWS GovCloud with Highly Available Database Modernization Solution

Case Study

Effectual Migrates Ginnie Mae to AWS GovCloud with Highly Available Database Modernization Solution

Ginnie Mae is a wholly owned U.S. Government corporation within HUD (Housing and Urban Development) and remains the primary financing mechanism for all government-insured or government-guaranteed mortgage loans. They are undertaking a multi-application migration from data center(s) infrastructure to AWS GovCloud. Wherever possible, Ginnie Mae is adopting AWS cloud services and leveraging the capabilities of that platform to achieve security and modernization goals. Due to the number and variety of application stacks, some configurations could not be mapped directly to AWS core feature sets. One of these configurations is a reliance on Oracle Real Application Clusters (RAC) to achieve the high availability requirements for the applications.

Looking to take significant steps to modernize, Ginnie Mae sought the expertise and help of Effectual, an AWS Premier Consulting Partner, to guide them along their modernization journey. Underpinning Ginnie Mae's business is a key financial database application used for servicing mortgages. This entire application stack needed to be migrated to AWS. As a federal government entity, Ginnie Mae must adhere to government compliance requirements as well as Financial Services compliance requirements. The importance of selecting the right database HA platform, FlashGrid Cluster, and the right solution integrator, Effectual, cannot be overstated.

Effectual Migrates Ginnie Mae to AWS GovCloud with Highly Available Database Modernization Solution

Ginnie Mae is a wholly owned U.S. Government corporation within HUD (Housing and Urban Development) and remains the primary financing mechanism for all government-insured or government-guaranteed mortgage loans. They are undertaking a multi-application migration from data center(s) infrastructure to AWS GovCloud. Wherever possible, Ginnie Mae is adopting AWS cloud services and leveraging the capabilities of that platform to achieve security and modernization goals. Due to the number and variety of application stacks, some configurations could not be mapped directly to AWS core feature sets. One of these configurations is a reliance on Oracle Real Application Clusters (RAC) to achieve the high availability requirements for the applications.

Looking to take significant steps to modernize, Ginnie Mae sought the expertise and help of Effectual, an AWS Premier Consulting Partner, to guide them along their modernization journey. Underpinning Ginnie Mae's business is a key financial database application used for servicing mortgages. This entire application stack needed to be migrated to AWS. As a federal government entity, Ginnie Mae must adhere to government compliance requirements as well as Financial Services compliance requirements. The importance of selecting the right database HA platform, FlashGrid Cluster, and the right solution integrator, Effectual, cannot be overstated.

Challenges

High availability of the Oracle databases was critical for achieving the required application uptime SLA. And not a single line of the application code was allowed to be changed.

Key Challenges:

- Strict database uptime SLA
- Application incompatible with Amazon RDS
- No application change allowed

Key Success Factors:

- Complete migration of Oracle RAC databases to AWS EC2
- Fast and easy automated deployment
- Pre-integrated HA infrastructure with 24×7 support

Solutions Considered

Amazon RDS service was sufficient for many applications. However, some applications had a requirement for active-active HA plus certain database server configuration requirements that were not feasible with Amazon RDS.

Running single-instance Oracle databases on Amazon EC2 with Oracle Active Data Guard Fast-Start Failover was another option. But it had to be disqualified because of the amount of labor required to deploy and constantly monitor the solution.

Since Ginnie Mae was already using Oracle RAC clustering for the databases in their on-premises data center, a complete migration of Oracle RAC to AWS was identified as the simplest and the lowest risk approach. The Effectual team turned to FlashGrid for a solution that would enable running Oracle RAC on AWS EC2.

Chosen Solution

FlashGrid Cluster was selected because it enables all the infrastructure required for running Oracle RAC active-active clustering. Multi-AZ deployment of the clusters allowed leveraging the EC2 uptime SLA of 99.99%. Use of standard EC2 instances and EBS volumes for storage made the architecture simple to deploy and manage. With FlashGrid Cluster, Ginnie Mae was able to achieve all the requirements for high availability as well as the requirements for application dependency. The cloud environment configuration closely matches the original on-premises systems. Automated deployment with FlashGrid Launcher and AWS CloudFormation allowed deployment of multiple clusters while saving time and manpower for the Effectual team.

The ease of deployment of FlashGrid proved to be what sealed the deal. FlashGrid Launcher creates an Oracle RAC cluster in the customer's AWS account with just a few mouse clicks. Saving time on configuring the network, storage, OS, and Grid Infrastructure software, the entire cluster configuration process is fully automated and repeatable and typically can be accomplished in under two hours. For Ginnie Mae, being able to deploy Oracle RAC clusters on AWS quickly without unnecessary overhead and complexity is the essence of modernization allowing them to instantiate Infrastructure-as-Code for improved consistency, providing their customers with a better experience, improved uptime capabilities, and being able to expeditiously respond to changing business needs.

FlashGrid Cluster for Oracle RAC on AWS offers a wide range of highly available database cluster configurations ranging from cost-efficient 2-node clusters to large high-performance clusters. The combination of the proven Oracle RAC database engine, AWS availability zones, and the fully automated Infrastructure-as-Code deployment provides high availability characteristics exceeding those of traditional on-premises deployments

Results

Effectual completed the migration project on time and within budget while using standard and familiar AWS infrastructure. Ginnie Mae now has modernized and secure infrastructure that runs the exact same application stack they had on-premises and meets the compliance requirements for both Government and Financial Services organizations. The migration approach and zero application change minimized project risks while providing a robust and flexible infrastructure foundation for future innovation.

For Ginnie Mae the journey to modernization has been transformational across the entire organization. It has helped drive structural changes across all departments within Ginnie Mae, improved the corporate culture and aligned the technology infrastructure with the business mission. With the support of Effectual, they have realized:

1. Modernization of Process – instantiating a Cloud Center of Excellence and modernizing cloud governance.
2. Cloud Architecture – moving underlying technology infrastructure to the cloud helps Ginnie Mae quickly and more easily adhere to Government and Financial Services compliance.
3. Implemented Infrastructure-as-Code – this has improved consistency and customer experience by dramatically increasing the speed with which technology can be deployed.

By providing Oracle database high availability on Amazon EC2, Effectual and FlashGrid helped Ginnie Mae's IT team meet their goal of delivering the best, most secure technology to the Ginnie Mae business to meet their mission and customers' needs every day.

AUTHOR: EFFECTUAL

aws

Thank you for downloading this AWS and Effectual Case Study! Carahsoft is the distributor for AWS public sector solutions available via GSA, NASPO, The Quilt and other contract vehicles.

To learn how to take the next step toward acquiring AWS's solutions, please check out the following resources and information:

For additional resources:
carah.io/AWS-Resources

For upcoming events:
carah.io/AWS-Events

For additional AWS solutions:
carah.io/AWS-Solutions

For additional public sector solutions:
carah.io/AWS.Solutions

To set up a meeting:
AWS@carahsoft.com
888-662-2724

To purchase, check out the contract vehicles available for procurement:
carah.io/AWS-Contracts