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StoneEagle Migrates Mission-critical Application to AWS from Azure

StoneEagle

Executive Summary

Founded in 1987, StoneEagle is a Texas-based company that supports the retail automotive industry in key ways. The company's current major product offerings include three tools – one for finance and insurance (F&I) product administration, a second for customer sales presentation, and a third for reporting and analyzing dealership data. Together, these tools enable thousands of car dealerships, OEMs, and other businesses to operate, improve, and optimize their sales processes.

Recently, StoneEagle decided to go all-in on the Amazon Web Services (AWS) cloud. This included developing future solutions on the platform, as well as migrating an existing application from another cloud services vendor, Microsoft Azure. As an AWS Premier Tier Services Partner with the Migration Competency, ClearScale was identified as the right choice to help ensure a smooth migration and set StoneEagle up for long-term success on AWS.

> "Our StoneEagle team made the decision to consolidate our cloud footprint to AWS, and ClearScale was selected as a good partner to help us make that transition. They had a good track record and the expertise we needed in terms of AWS, migration efforts, and active collaboration. With their assistance, we made significant progress on a timescale that was much shorter than we expected to be possible relying on our internal resources alone."
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> **Damar Christopher,** Chief Operating Officer, StoneEagle

The Challenge

StoneEagle was leveraging a mixture of Azure and AWS across its application landscape. Having multiple cloud providers made building and maintaining its applications/services more complex and costly than necessary, and it restricted its ability to take advantage of the incentive programs that AWS had to offer.

StoneEagle decided it was time to consolidate its applications into AWS, which meant migrating its Product Administration application from Azure and then building new products on the platform. With respect to the migration, StoneEagle hoped to make the move before taking on several large customer accounts that were already queued up. Given the high-stakes nature of the project, it made sense for StoneEagle to search for a cloud services provider that could support the transition.

ClearScale fit the bill perfectly, thanks to its AWS Migration competency and more than a decade of cloud consulting experience. The migration would be complex, as StoneEagle's application consisted of multiple parts – an API gateway, App Services, email queue service, AD authentication, API document service, runbooks on Azure Automation, Azure Logic Apps, and more.

The ClearScale Solution

ClearScale thought it would be best to first migrate a subset of StoneEagle's core application as part of a migration proof of concept (POC). Taking this approach would enable ClearScale and StoneEagle to align on the migration process. It also allowed ClearScale to demonstrate its migration capabilities before executing such a large-scale project.

ClearScale and StoneEagle engineers worked together to design an AWS Elastic Beanstalk deployment and migrate the email queue service first as part of the POC. All went according to plan, setting the stage for the remainder of the Azure to AWS application migration.

ClearScale helped StoneEagle go through a Migration Readiness Assessment, prepare a Migration Readiness Plan, and define what an AWS Cloud Center of Excellence would look like for StoneEagle. Additionally, during the Discovery phase, ClearScale learned that the client's target application had some complexities that made it difficult to simply be rehosted or replatformed – several areas of the application had to be refactored to take advantage of AWS offerings.

StoneEagle was operating some Azure Automation Runbooks for repeatable tasks. ClearScale helped review and decompose these runbooks and prepared a number of Lambdas to implement the same logic.

Some portions of the application logic was implemented as Azure WebJobs. ClearScale offered a solution based on AWS Lambda and AWS Step Functions to implement the same logic.

StoneEagle was using Azure API Management service as an API interface for REST APIs that needed to be converted for the move. ClearScale utilized Amazon API Gateway and converted the configurations of the endpoints effectively.

During the process of refactoring, ClearScale successfully migrated customer services from Azure CosmosDB to AWS DynamoDB for key-value storage. Keys stored in Azure KeyVault were successfully moved to AWS Secrets Manager.

StoneEagle used Azure DevOps as a central point for managing the code and automation. Therefore, ClearScale prepared automation to deploy the services that were prepared and integrated with Azure DevOps.

To ensure that the transition from Azure to AWS appeared virtually transparent to applications, ClearScale made sure the configuration files for the applications were compatible with both Azure source services and AWS target services - including feature flags allowing for easy switching between platforms. ClearScale made sure that configuration files for services that were moved to AWS were thoroughly translated to reflect all required details and ensure operation in AWS.

ClearScale also helped define the steps needed for migration, identified key elements, and chose the AWS services that would cover the required functionality. Additionally, substantial effort was expended to ensure applications remained operational during the migration process. This was achieved by enabling them to work concurrently with both source and target data, while preserving their configurations and accommodating simultaneous modifications, as necessary.

ClearScale helped the business address its refactoring needs, prepared key automation tools, and helped execute the application in a non-production environment. Based on the outcomes of this intermediary step and existing documentation, StoneEagle determined that it had the capabilities to deploy the application to production. ClearScale was able to then focus on the following areas:

- Helping StoneEagle estimate the overall effort needed to complete the migration
- Identifying dependencies amongst portfolio components
- Handling the new Beanstalk deployment, WebJobs, and Azure runbook migration
- Maintaining configurations and feature flags across both source and target platform
- Migrating from API Manager to API Gateway

Architecture Diagram

The Benefits

Thanks to ClearScale's migration expertise and insight, StoneEagle had several areas of its applications and services closer to being ready for migration to AWS. ClearScale and StoneEagle collaborated effectively every step of the way, ensuring a smooth engagement.

ClearScale took care of the most demanding parts of the migration effort, such as refactoring, while StoneEagle was able to schedule resources ahead of time for daily operations and application support.