EVALUATING AND MODERNIZING AWS INFRASTRUCTURE

Summary

The customer had several applications, implemented in PHP and .NET (C#), that were initially developed and deployed to AWS eight to nine years ago.   Since then, little work had been done to keep up with evolving technology and best practices. In addition, performance and reliability had degraded as load increased. The customer needed help from experienced AWS experts to help modernize their AWS infrastructure, identify any infrastructure causes for performance and reliability problems, identify security risks, and reduce AWS costs.

Corporation Type: SMS marketing
Industry/Sector: Technology
Project Type: Review and infrastructure improvements
Technology Used: Amazon Web Services (Elastic Beanstalk, EC2, RDS, CloudWatch, VPC)

Project Requirements

- Evaluate existing AWS infrastructure to find bottlenecks, reliability issues, security issues, potential cost savings, and non-conformance to best practices.
- Attempt to find infrastructure related causes for poor performance and down-time.
- Make recommendations for AWS infrastructure modernization improvements.
- Implement AWS infrastructure improvements.
- Optimize AWS costs.

The Solution

- Set up separate Staging and Production Virtual Private Clouds (VPCs).
- Move EC2, RDS, and Elastic Beanstalk environments into VPCs and make security group, network ACL, and peering connection changes to enable required connectivity.
- Enable log shipping to CloudWatch from Elastic Beanstalk environments.
- Create .ebextension configuration files for Windows and Linux to enable the CloudWatch agent to ship OS metrics (memory and disk usage) and Windows system event logs.
- Increase size of RDS instance and change from magnetic to SSD storage (made possible by moving it into a VPC).
- Made recommendations for additional logging to add to applications to help identify bottlenecks.

New challenges for FP Complete

- Working with Elastic Beanstalk in a hybrid Windows/Linux environment.
- Advanced configuration of shipping custom metrics and Windows system event logs to CloudWatch.

Conclusion

We improved security, reduced technical debt, and reduced AWS limitations due to EC2 Classic. We did not identify any issues with the AWS infrastructure that were directly related to performance and reliability for the customer's applications. However, the additional logging and metrics were used to identify some potential areas of application and database logic to look into. The additional metrics will make it possible to optimize AWS costs since there is now visibility into real-world utilization, but no changes to resourcing will be made until application performance and reliability are at a suitable baseline.