

flex.

Calculation Engine



Flex – Calculation Engine is a SaaS product powered by **AWS** that is driven by AWS Serverless technologies to deliver, scale, and secure product lifecycle. The calculation engine guarantees penny-accurate calculations at all stages of the contract life cycle.



Company Name

UNITY Flex



Industry

Financial Services



Status

Public



Size

500+ Employees



Location

United States



Website

flexengine.io

Challenge

1. Lack of scalability in infrastructure
2. Manual deployment

Solution

1. Use of AWS Managed services to increase Security, Scalability and High Availability
2. Enabled one click deployment to automate infrastructure provisioning

Results

1. Performance improvement with reduced latency
2. Staff productivity through automation of infrastructure

New Services Added



AWS Lambda



Amazon
API Gateway



Amazon
ElastiCache

Problem Statement

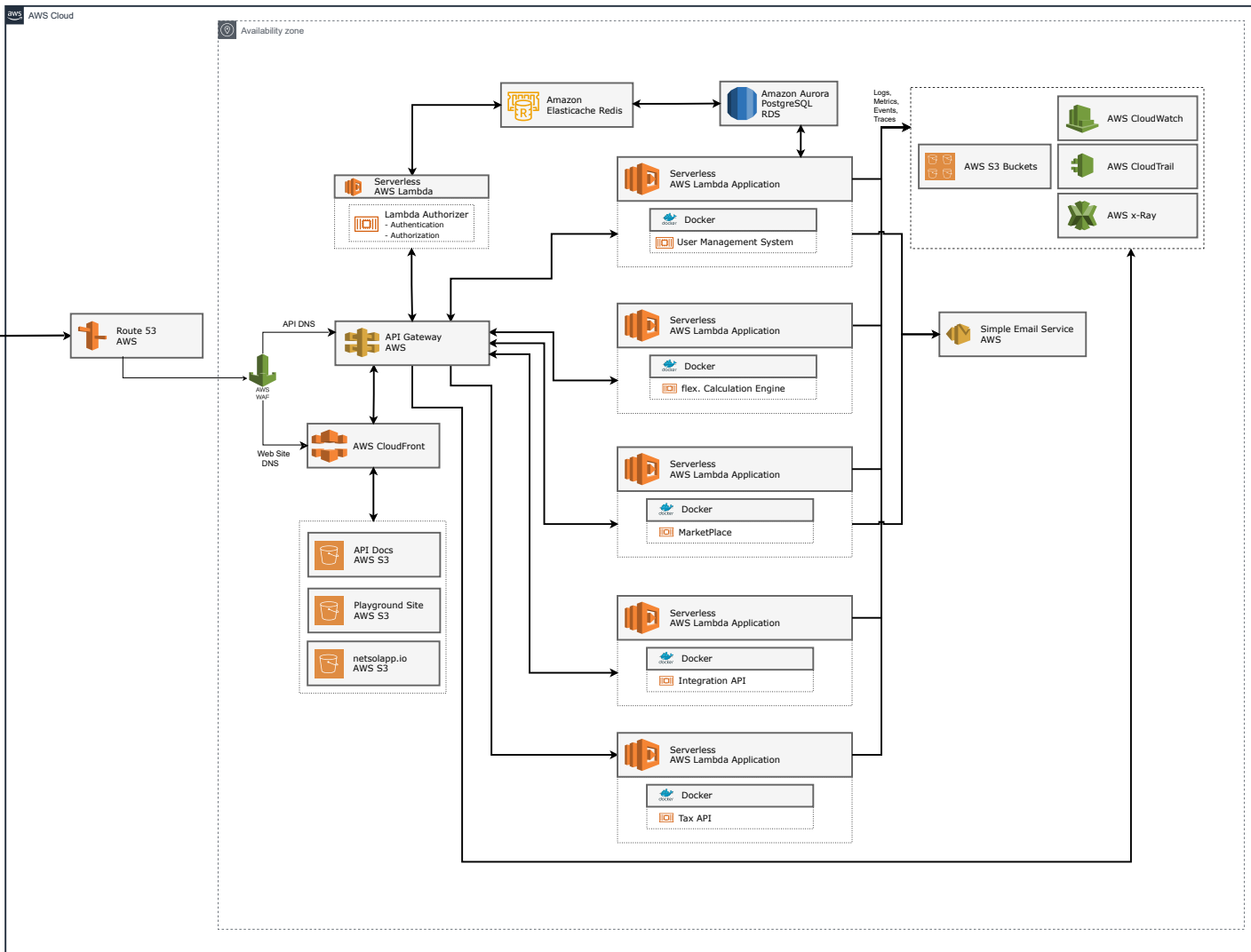
Flex – Calculation Engine is a newly launched product that required utilization of AWS pay-as-you-go model by leveraging Serverless Architecture followed by best practices. During assessment, improvement areas identified are Infrastructure Automation, Application Deployment, Security, Scalability and High Availability. Securing API Gateway and AWS CloudFront against web attacks was one of the critical requirements.

Proposed Solution Architecture

Flex calculation engine makes use of the AWS Managed services including Route53, Lambda, CloudFront, S3, SES, and RDS. Route53 receives requests and after identifying the request type routes it to CloudFront for Web Based Request and API Gateway for API request. API Gateway handles the REST APIs requests and route it to associated service provided by Lambda Functions. Enable one click deployment to automate infrastructure provisioning along with CI/CD Pipeline for Application Deployment. AWS WAF ensures the security of the API Gateway and AWS CloudFront.

Solution

By using API Gateway REST Regional and Private Docs endpoints with resource-based policies, NETSOL Technologies was able to achieve the required functionality. NETSOL used API Gateway private integrations to use NLB, as well as exposed private endpoints to certain VPCs by whitelisting them via resource-based policies.



Outcomes of Project & Success Metrics

AWS Managed Services were used to successfully develop and launch SaaS application. With AWS Serverless services, all functional and non-functional requirements were met. Seamless API integration with API Gateway and Lambda functions. One-click deployment ensured automated infrastructure deployment and provisioning. AWS WAF was used to protect the API Gateway and AWS CloudFront from web attacks.

Describe TCO Analysis Performed

Following key services used in the solution.



AWS Lambda



Amazon API Gateway



Amazon Aurora PostgreSQL



Amazon Inspector



Amazon CloudWatch



Amazon S3



AWS X-Ray



Amazon ElastiCache



AWS WAF

Lesson Learned

ElastiCache with RDS offloaded read requests and improved performance.

By integrating AWS WAF with API Gateway and AWS CloudFront web application attacks such as Cross-Site Scripting (XSS), SQL injection were stopped and helped to block or rate-limit traffic from a specific source.