CASE STUDY

Garden of Life implements secure Oracle Service Cloud (OSC) using CloudFront

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Garden of Life, L.L.C., is the recognized leader and innovator in whole food, science-based, Certified USDA Organic, and Non-GMO Project Verified nutrition. The Garden of life is passionate about Empowering Extraordinary Health, proudly pioneering and promoting the cleanest nutrition for over 10 years.

Executive Summary

Garden of Life was looking for a low cost, secure solution for integrating Oracle Service Cloud (OSC) with their On-Prem Oracle E-Business Suite environments. The proven, historical method for accomplishing this integration is typically done by using a very expensive product from Oracle called Oracle Integration Cloud (OIC). The solution to this challenge was to utilize Garden of Life's existing AWS footprint in combination with CloudFront, Elastic Load Balancing and Web Application Firewall to create the desired, low cost, secure and reliable integration.

Environments

Garden of Life has four On-Premise Oracle E-Business Suite environments (PROD, UAT, DEV1 and DEV2) that user's access while in the office or when at home via the company remote access solution. In addition to the On-Premise environment, they also have an AWS VPC that's connected back to the primary and secondary On-Premise locations. OSC is used to enable users to pull Order and Discount details from Oracle E-Business Suite.

Driving Factors

Security and cost were the overarching themes throughout the solutioning process.

- **Security** – The main security requirement was to avoid exposing the Oracle E-Business Suite directly to the internet. Using Oracle Service Cloud on its own would have required Oracle E-Business Suite to be exposed in this undesirable fashion. The only two options available to avoid this were to use Oracle Integration Cloud or something more creative using native AWS connectivity solutions. At a high level we were confident the use of Web Application Firewall (WAF) IP configured with custom IP sets attached to either an Application Load Balancer (ALB), CloudFront, or a combination of both would offer a secure way for Garden of Life to limit access to the integration components in the way in which they desired.

- **Cost** – Since Oracle Integration Cloud is known to cost north of $100K to implement and license, it was quickly decided that we would attempt the AWS approach in a POC fashion to determine feasibility to reproduce the functionality of OIC. If successful, this would ensure a solution that would be approximately 1/10th of the cost of OIC.

High Level Steps of Implementation

Since Garden of Life has an existing AWS footprint consisting of a VPC with redundant VPN connections back to their On-Premise locations, the main implementation steps involved setting up the following services for each Oracle E-Business Suite environment:

- ALBs to be used with each CloudFront distribution
- CloudFront distributions mapped to each load balancer
- Single WAF used for whitelisting trusted Garden of Life source IP addresses and then attached to each CloudFront distribution
- CloudFront functions for special handling of Cross-Origin Resource Sharing (CORS)
- Lambda functions for keeping the ALB security groups up to date with the latest CloudFront service IP addresses

Challenges

There were two main challenges faced during implementation. First was around the use of CORS and second around keeping security groups up to date without manual intervention.

At first it was thought the core integration could be accomplished by using only an ALB and WAF. However, it was discovered rather quickly that ALBs were not sufficient alone, not supporting CORS. CloudFront however does support CORS making it central to the integration solution.

Once the integration was operational using CloudFront, the next step was to lock down access to the ALBs. To do this, we added all the AWS published CloudFront service IP addresses to the ALB security group. However, since this list of known IP addresses could change at any time, we needed a way to keep the security groups up to date in near real time without any user manual intervention. We turned to Lambda to monitor the published list of IP addresses for changes and when a change was noticed, Lambda automatically updates the security groups.

Benefits realized after implementing CloudFront, Elastic Load Balancing and Web Application Firewall

- Tremendous cost savings over Oracle Integration Cloud
- Support for CORS
- Reliable, redundant, secure VPN connectivity
- Automated security group management via Lambda functions

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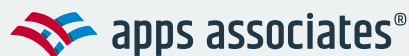
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