

Migration of Retail workload onto AWS by Using DynamoDB as Memory Cache System

AWS Re-factor Migration Case Study

Executive Summary

FullBeauty Brands has some workloads running on the MuleSoft cloud, Anypoint Platform. These workloads are mainly used to synchronize data between different on-prem and SaaS data sources. They realized they were paying too much for an enterprise license of MuleSoft products. **IO Connect Services** assessed the migration effort, laid a roadmap for all the activities needed, and led the realization from re-design to development, testing, and production rollout. Moreover, these new re-designs accounted for all the lessons learned at **FullBeauty Brands** and implemented more robust and resilient mechanisms to support these business flows. All the new workloads were designed following a serverless, cloud-native approach to take advantage of PaaS services available in AWS.

The Challenge

FullBeauty Brands was spending almost \$300,000.00 a year for an under-utilized MuleSoft license. Moreover, the renewal cycles of the MuleSoft licensing were hard due to the number of legal activities involved in reviewing all documentation and agreements.

FullBeauty Brands use an expensive and robust memory cache system in their previous on-premises implementation, which can be easily replaced for AWS DynamoDB tables to significantly reduce costs without impacting application performance.

Why AWS

FullBeauty Brands tested AWS services and determined that AWS has all the necessary components to create robust, highly available, highly scalable, and secure Serverless solutions.

About Customer

FULLBEAUTY BRANDS®

At FULLBEAUTY Brands, we believe that size is just a number and every number counts. We believe in embracing who you are, just the way you are. And we believe that women and men of every shape and size deserve the total package: fashion, fit, style and comfort. Proprietary brands under the FULLBEAUTY Brands umbrella include Woman Within®, Roaman's®, Jessica London®, Ellos®, Swimsuits For All, KingSize®, Brylane Home® and fullbeauty.com®, an online marketplace offering a curated collection of styles from renowned brands – the premier fashion and lifestyle destination for men and women sizes 12+.



“AWS Serverless”

Modern applications are built serverless-first, a strategy that prioritizes the adoption of serverless services, so you can increase agility throughout your application stack. AWS has serverless services for all three layers of your stack: **compute, integration, and data stores.**

The Solution

All the new **FullBeauty Brands** workloads were designed following a serverless, cloud-native approach to take advantage of PaaS services available in AWS.

FullBeauty Brands requires that all IT assets be deployed in a secured, private VPC that establishes a point-to-point connection to the on-prem data center via a VPN. All the deployed API endpoints must also be private; therefore, the deployed API Gateway has a VPC endpoint accessible through VPN only.

Two data access patterns were identified: 1) read requests, which delegate the execution to a proxy lambda that has read access to the target system of record to query for information, and 2) write requests, which acquire the request data persistently and queues it for further processing ensuring no data is lost. This pattern followed an event-driven architecture to ensure the business flows' reliability, resiliency, and fault tolerance. Because of the usage of SNS topics, the solutions are now prepared to accept more business flows using the pub-sub mechanism built into them, allowing flexibility to grow in other areas not accounted for initially.

AWS DynamoDB tables are used as a replacement for the memory cache system now when the code is running in Lambdas, using TTS (time to live) enabled in the Dynamo Table items Lambdas can use them as cache without compromising performance, and this approach is extremely cheapest than other cache systems.

All events going through the different pipelines can be traced thanks to the joint usage of AWS CloudWatch Logs and AWS X-Ray, whereas all the deployed services are audited with CloudTrail.

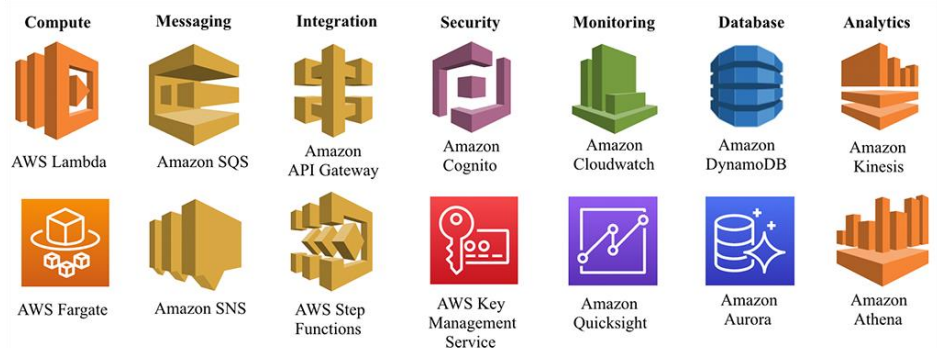


Figure 1 - AWS Serverless Services

Features of the AWS Serverless Solution

- Reduced Cost
- Elastic Scalability
- Faster Releases
- Multi-Language Support
- Available and Durable

Results and Benefits

Because all workloads were designed following a serverless approach, all the code generated focuses solely on business needs rather than infrastructure or other non-business-related functions. Also, thanks to PaaS-based services, all workloads have the inherent capability of scaling at an almost unlimited rate whenever needed without compromising any agility to produce more solutions. The core aspects of the FBB Serverless solution are listed below:

Reduced Cost – Serverless computing pricing model is pay-as-you-go. It costs for resources one consumes and nothing when the application doesn't run. Also, AWS takes care of infrastructure maintenance and updates so developers can spend more time on software development.

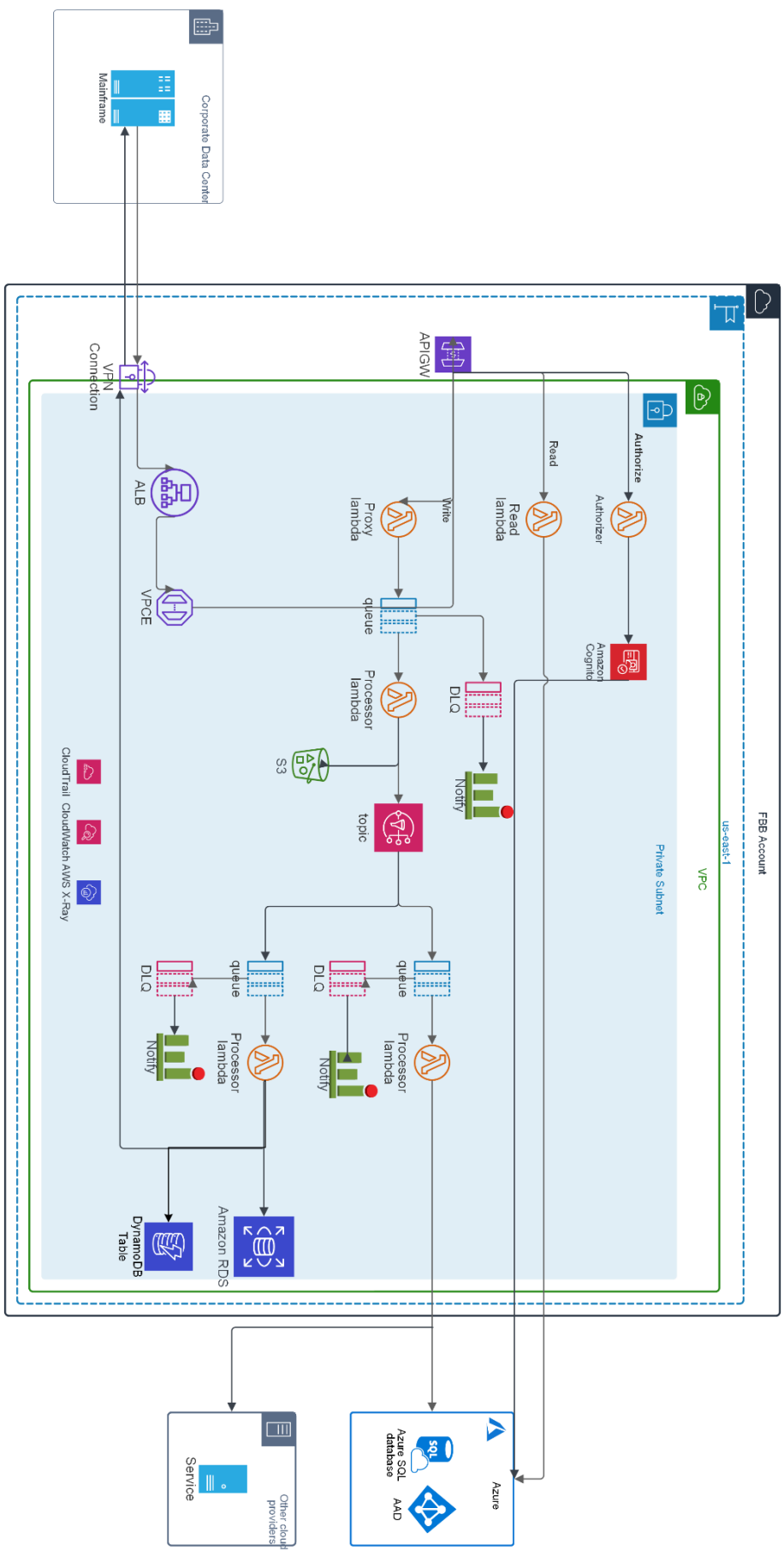
Elastic scalability — A serverless architecture in AWS has the potential to scale up and down according to application workload.

Faster releases — Developers don't need to worry about resource distribution, scaling, application deployment, and workload intensity. AWS handles these issues for serverless architecture. Developers should only compile their code, zip it, and upload it to the new serverless platform to deploy new functions.

Multi-language support — AWS serverless platforms support multiple programming languages like Node, Java, Python, C#, Ruby, Go, etc., so developers can choose the most convenient option for themselves.



FBB Serverless Solution Diagram



Next Steps

Due to the success at migrating these workloads, **FullBeauty Brands** now considers migrating onto AWS from other platforms, such as Microsoft Azure, and take advantage of the mature services AWS provides as well as simplified billing in a single account.

Superior Performance

This Serverless approach provides a fast, resilient, and high availability environment for the application.

LOW TCO

Save money by replacing physical hardware with expensive license fees. With AWS you pay for what you use.

Fully Managed

Deployments are more efficient with fully managed resource provisioning, maintenance, and backup.

About IO Connect Services

IO Connect Services is a company specializing in Information Technology Consultancy Services. All our team members have one thing in common: our enthusiasm for technology and our passion for customer service excellence. We provide services in all North America, LATAM and Europe. Our headquarters are in NYC metropolitan area, and we also have offices in Guadalajara, Mexico and Madrid, Spain.

