RDS a Managed Service for Relational Database & EKS for Microservices

Executive Summary

Brightfield, through their Augmented Analytics Platform named Talent Data Exchange (TDX), provides a suite of analytical applications that help optimize both, extended workforce, and employee talent segments.

Brightfield wants to migrate their monolithic self-service application to a microservices infrastructure using Kubernetes for cluster management.

The Challenge

Work side by side with the Development Team to separate the base application into different microservices. Each microservice has its own code repository. A cluster configuration is needed for high availability and resiliency purposes. This solution will help Brightfield to improve:

- Security
- High availability
- High performance
- Scalable

The client has multiple large on-premise Oracle databases on legacy hardware, using a data center provider to host them. The client's IT strategy was to find a way to migrate their information to an agnostic platform that would allow them to have full control over their data. The database size was large, and the workload was highly transactional, both of which complicated migration planning. A more complex migration strategy was required to accommodate the nature of the platform.

Why AWS

AWS Services provides all the infrastructure needed for the entire system to make it easy to configure and managed.

About Costumer

Brightfield is an Artificial Intelligence and Big Data Analytics company that optimizes contract labor and performance for employers and staffing firms.

"Fully automated, highly available and secure architecture."

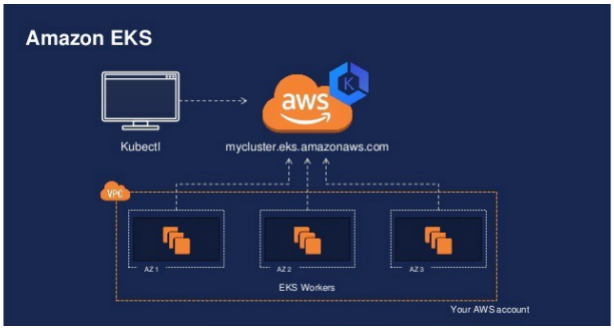
- 100% AWS based solution
- Auto scalable
- Secure
- EKS

Best features of AWS RDS

- Easy to administer
- Highly scalable
- Inexpensive
- Secure
- Available and durable

The Solution

The Development Team worked on separating the monolithic solution into microservices that will run in Docker containers hosted on Amazon ECS. By using AWS EKS as the Kubernetes cluster manager, the images are pulled and installed in EC2 nodes that are in a private subnet. The different microservice endpoints are being served through an AWS Load Balancer. Each node is managed by an autoscaling group making it elastic and highly available. Route53 masks the Load Balancer DNS to a more friendly name. The microservices share information using **RDS** as a storage system for different transactions. The solution uses CloudWatch to monitor the system and to alert about any issue or change in the application.



Results and Benefits

The result is a fast and secure application that implements the best practices and principles of microservices, all in a complete AWS managed service. By leveraging Amazon EKS, the solution optimizes maintenance and configurations. Besides, the system is ready to support high spikes of requests while being cost-effective, since you only pay for what is used.

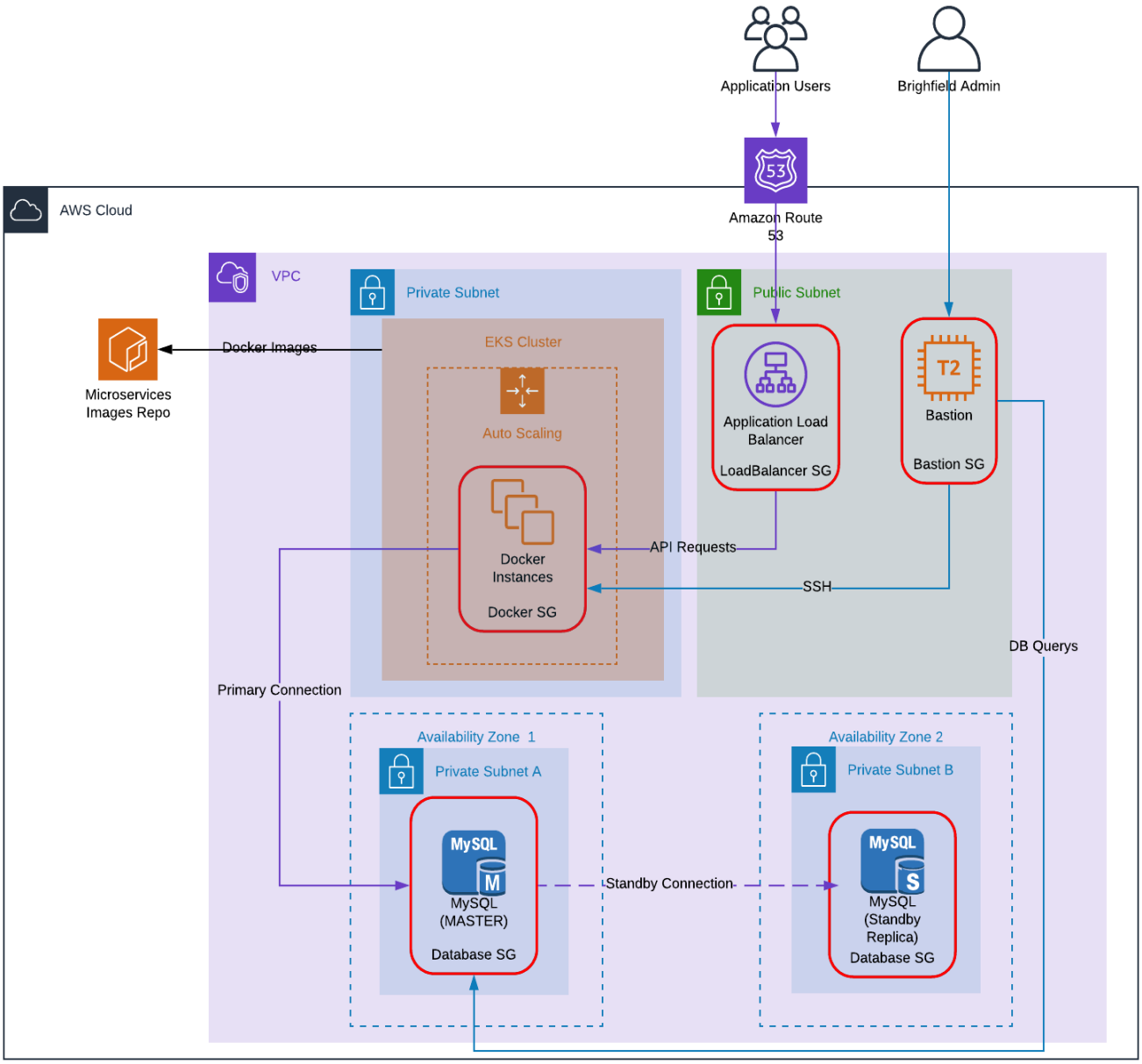
The solution benefits from the high availability aspect of EKS since it manages the Kubernetes infrastructure across multiple AWS Availability Zones. Also, it automatically detects and replaces unhealthy nodes, and provides on-demand, zero downtime upgrades, and patching. Moreover, EKS automatically applies the latest security patches to your cluster control plane.

Amazon Relational Database Service (Amazon RDS) makes it easy to set up, operate, and scale a relational database in the cloud. It provides cost-efficient and resizable capacity while automating time-consuming administration tasks such as hardware provisioning, database setup, patching and backups. It frees you to focus on your applications so you can give them the fast performance, high availability, security, and compatibility they need.

By switching from a local Oracle database solution to **Amazon RDS** that supports MySQL, Brightfield gained considerable capabilities for scalability, performance, and fault tolerance. Oracle's change significantly reduced checkpoints and the resulting network consumption. By moving to **Amazon RDS**, performance doubled.
Because **Amazon RDS for MySQL** offers such extensive automation, maintenance is now much easier and faster.

Brightfield is enjoying these benefits with cost and time savings. Also, new monitoring systems for the databases were implemented easily, thus avoiding the time it would have taken to build them from scratch. **Amazon RDS for MySQL** automatically adds storage as needed, which is helpful in the case of unexpected spikes, since you only pay for what is used.

AWS Solution Diagram



Next Steps

Although several microservices were created from the monolithic application, there are still other remaining components that need to be migrated eventually. The current solution can be used as a guide for any future migration.

Benefits

Speed Improvement

Microservices scheme provides a better speed performance for APIs, reducing code and memory utilization.

LOW TCO

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

Fully Managed

With fully managed resource provisioning, maintenance and backup, deployments are more efficient.

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 the NYC metropolitan area and we also have offices in Guadalajara, Mexico and Madrid, Spain.