

AWS ARCHITECTURE CONSULTING

MindCraft provided consulting services on leveraging AWS features for the client's web portal. The application architecture was changed from monolith to microservices-based.

CLIENT

The client is a new entrant in the e-commerce space and has tie-ups with several well-known brands across 100 countries. The client has grown at a fast pace and has added hundreds of customers with revenues more than doubling year over year.

CHALLENGES

The client wanted to redesign their currently monolithic web application to meet agility and scalability requirements imposed by growing number of customers and the resultant

increase in business volumes. Considering that the entire business model revolved around availability of the application, it was imperative that the application was hosted

on a robust platform. AWS was the automatic choice for hosting given the plethora of services it offers to deploy and scale such applications.

THE SOLUTION

- MindCraft proposed a microservices based architecture that would separate the user experience from the business logic and processing. Business functionality was spread across multiple Node.js based microservices, each contained in discreet docker containers.
- These containers were deployed to the Elastic Container Service (ECS), thereby providing the application unlimited scaling capabilities using the auto-scaling features of ECS clusters.
- The user experience part of the application continued to reside on an EC2 cluster. The integration between the front-end user interface and backend services were handled in two parts - synchronous invocation using direct calls and asynchronous invocation using SQS messaging. The asynchronous invocation model allowed the customer to receive orders even when the backend was shutdown for maintenance.
- An Elastic Load Balancer was used to spray load between ECS containers based on FIFO algorithm.
- Aurora database was secured using encryption and made highly available using master-slave configuration. A read-replica of the database was also maintained for reporting purposes.
- DNS services were moved to Route 53 and configured to switch traffic between highly available NGINX



reverse proxies in production and to route traffic to DR in case of a production outage.

- S3 buckets, mounted on EC2 NGINX instances were used to store static content such as images and videos.
- The entire pipeline was setup to move code from AWS CodeCommit repository to development environment on a continuous basis with code reviews, unit tests and functional tests built into

the pipeline. Releases were moved to higher environments on-demand.

- Elastic Cache (Redis) was used to ensure sequential processing of orders in a multi- instance setup.
- Each docker container was appropriately versioned (tagged) and uploaded to ECR and corresponding task and service definitions were updated as a part of the CI / CD process.
- Various other non-functional

requirements such as redundancy of database snapshots, DR environment in a different region, infrastructure and application monitoring using CloudWatch were also implemented.

- Several automation initiatives were handled by building custom Lambda functions.
- AWS data pipeline was used to extract data for reporting purposes.

AWS BUILDING BLOCKS USED FOR THIS SOLUTION

Lambda	ELB	Data Pipeline	Route 53
Elastic Cache	CodeCommit	CloudWatch	
EC2	ECS	S3	SQS
			RDS

KEY BENEFITS



Increased agility with an ability to quickly and continuously deliver changes



Highly resilient and robust platform to afford 24x7x365 operation despite some component level outages



Unlimited scalability using AWS auto-scalability



MindCraft is a Software Services, & Solutions organization that helps customers get competitive edge through technology services like Digital Transformation, Business Insights, DevOps, Cloud and Middleware services. We possess unparalleled technical skills in niche technologies and abundant experience across Banking, Insurance & Financial Services industries. Established in 2002, we are a team of over 650 across India, Singapore, USA, and Canada.



www.mindcraft.in

www.mindcraft.com.sg

www.mindcraftamerica.com

www.mindcraftcanada.com