MANTRA LABS

BUILDING A SCALABLE

CLINIC MANAGEMENT PLATFORM

USING **SERVERLESS** FOR A **$ 5B MNC**

CX CONSULTING   PRODUCT ENGINEERING   TECHNOLOGY MODERNIZATION

Client Overview

Alkem Labs is a $5B South Asian giant specializing in generic and specialty drugs. Spanning across 50+ countries, the company boasts 800+ product portfolio.

Committed to empowering healthcare providers, Alkem envisioned to develop a physician-focused clinic management platform. Opting for an off-the-shelf solution, the company soon encountered a series of challenges.

Key Challenges

Operational Issues

❌ Inefficiency in handling fluctuating patient load during peak hours led to scalability issues.

❌ Infrastructure Management was time-consuming and expensive.

Difficulty in Data Management

❌ Inefficient management of large volumes of sensitive patient records led to data security and storage issues.

❌ Data Integration from various sources (e.g., EHR systems, labs) was complex.

To address these challenges, Alkem engaged McKinsey to identify potential solutions. Based on McKinsey's recommendations, Alkem chose Mantra Labs as its technology partner.

Mantra's Approach

Through an in-depth analysis of their business and technical needs, we recommended adopting a serverless architecture to enhance the scalability of their clinic management system. This approach was designed to:

Accelerate Time-to-Market

Reduce development cycles and get the system up and running faster.

Optimize Costs

Eliminate unnecessary spending on idle resources.

Enable infinite Scalability

Handle fluctuating workloads with ease, ensuring optimal performance.

Boost Platform's Extensibility

New business modules can be built as independent functions, easily integrated into the platform.

Key Prerequisite

Building a Strong Foundation

To establish a robust development environment, a high-efficiency CI/CD pipeline was built, supported by reliable version control and project management systems.

Bitbucket streamlined code management and seamlessly integrated with Jira for efficient project tracking.

Jira served as a project management hub, facilitating agile workflows, issue tracking, and overall project visibility.

Core Platform

Components & Functionality

Serverless Computing

Serverless Lambda + Layers (Cold Start)

✅ Handle dynamic workloads without managing servers.

✅ Optimize resource allocation, reduce operational overhead, and scale seamlessly based on demand.

Serverless Lambda + Layers (Hot Start)

✅ Immediate execution of functions without startup delays.

✅ Eliminate cold start delays, ensure consistent performance, and enhance responsiveness for time-sensitive applications.

Core Platform

Components & Functionality

API Management and Security

API Gateway Rest (Authorization)

✅ Secure exposure and management of REST APIs.

✅ Enable controlled access, integrate effective authorization mechanisms, and ensure API security and compliance.

Core Platform

Components & Functionality

Database And Data Management

Postgres RDS Cluster (Master Configuration)

✅ High availability and scalability of relational databases.

✅ Ensure robust data management, support scalable operations, and facilitate seamless failover for reliability.

DynamoDB (NoSQL)

✅ Flexible and scalable storage of unstructured data like abha logs, reports, WhatsApp chats etc.

✅ Support high-performance queries, scale seamlessly, and ensure efficient storage and retrieval of diverse data types.

Core Platform

Components & Functionality

Infrastructure as Code (IaC) and Deployment Automation

Cloudformation + SAM template

✅ Implement Infrastructure as Code (IaC) for managing AWS resources.

✅ Ensure consistency in resource deployment, simplify management, and enhance scalability and reliability.

Codepipeline + Codebuild + Code Deploy

✅ Automate build, test, and deployment processes.

✅ Enable continuous integration and delivery (CI/CD), ensuring efficient and reliable deployment with minimal downtime.

Core Platform

Components & Functionality

Messaging & Notification

Amazon SNS

✅ Subscribe to SQS queues and send email notifications

✅ Facilitate real-time communication and event-driven notifications, enhance responsiveness and user engagement.

Amazon SQS

✅ Reliable message queuing system used for scheduling SMS (with Kaleria), Appointments schedules, etc.

Kaleria SMS

✅ Send transactional notifications via SMS.

Core Platform

Components & Functionality

Application Integration and Optimization

Amazon Lex

✅ Integrate chatbot capabilities with WhatsApp.

Cloudfront for media caching

✅ Caching media content and accelerate application delivery.

✅ Integrate with Amazon S3.

Core Platform

Components & Functionality

Security and Access Management

Secrets Manager

✅ Manage and rotate sensitive credentials like DB credentials, configurations etc.

Testing and Quality Assurance

Device Farm

✅ Test mobile applications across real devices.

✅ Ensure compatibility and performance across various platforms, enhance application quality and user experience.

![MANTRA LABS logo]

Outcomes

Technical Outcome

Overall delivery time reduced by **29%**.

New business modules can be effortlessly integrated and scaled on the platform.

Business Outcome

Website handles over **100K+ appointments** a month.

Trusted by Apollo Group that runs over **300+ clinics** and India's leading hospital- Breach Candy Hospitals amongst others.

Digital products, brands, and experience.

key Domains

BFSI, Health Care, Consumer Internet

www.mantralabsglobal.com/case-studies

Myntra

ADITYA BIRLA CAPITAL

Shell

SBI general INSURANCE
SURAKSHA AUR BHAROSA DONO

OLA

care
HEALTH INSURANCE

Hero
INSURANCE BROKING

TATA AIA
LIFE INSURANCE

ageasFEDERAL
LIFE INSURANCE

edureka!

ManipalHospitals
LIFE'S ON +

DCM SHRIRAM
Growing with trust

Canara Bank · HSBC
LIFE INSURANCE

greenbrilliance
POWERING A SOLAR FUTURE

STOCKX

ICICI Lombard
Nibhaye Vaade

edureka!

Miles
Education

CHANGE
HEALTHCARE

PATHOMIQ

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Thank You

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