

Case Study

Clinical Survey Platform for Real-Time Health Monitoring and Compliant Research and Data Management for a Fortune 500 Pharma Leader

About the Client

The client is a renowned name in pharmaceutical research, biotechnology, and the biologics domain. With many medical breakthroughs and industry firsts in its portfolio, the company is a member of the elite Fortune 500 cluster. Today, the organization maintains a strong global presence, and its products are available in over 120 markets across the planet. Backed by a broad technology landscape, the business seeks to maintain its competitive edge through a culture of innovation that can facilitate improved healthcare outcomes and recovery rates among the end-users.

Engagement Snapshot

Portfolio: Pharmaceutical

Headquarters: Indianapolis, USA

Geographical Impact: USA

Duration: 10 months

Technology: JAVA, Android, iOS, Amazon Web Services (AWS)

Client Landscape: Agile & DevOps Methodology



- Public Sector
- Immersion Day
- Solution Provider
- Amazon EMR Delivery
- SAP Services Competency
- Amazon Kinesis Delivery
- Amazon Redshift Delivery
- DevOps Services Competency
- Well-Architected Partner Program

Business Need

Known for their medical breakthroughs and industry-first innovations, the client needed a platform for conducting medical surveys and real-time monitoring for research purposes. They required the ability to create custom surveys, events, and active tasks for studies, with participants using their iOS and Android devices. Additionally, their machine learning application is needed to access survey response data securely.

Key requirements included:

- Ad hoc and fixed cadence surveys.
- Customized surveys and questions.
- Stringent data security measures.
- Compliance with HIPAA and GDPR.



Solution

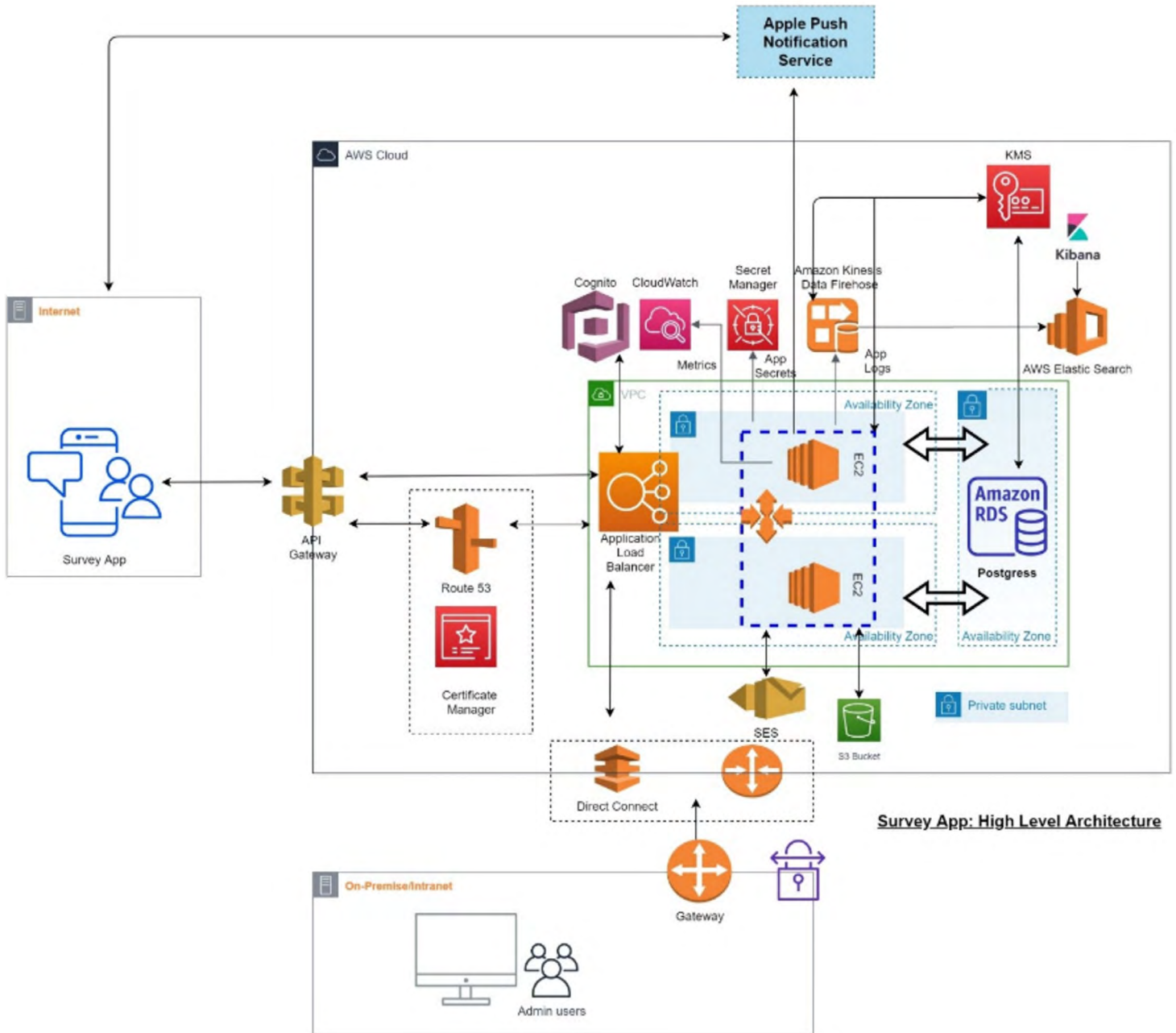
YASH Technologies provided a comprehensive solution suite comprising the following components:

- **Web-Based Admin Application:** To empower admin users to author tailored studies, events, and active tasks. Furthermore, it allows for the inclusion of cohorts, customized questions with skip and jump logic, and a playground mode for content verification.
- **Enterprise-Grade Mobile Applications:** iOS and Android apps were developed to provide a seamless user experience. Features include QR code-based authentication, an intuitive survey interface, robust event logging, proactive notifications, reminders, and offline functionality with synchronization capabilities.
- **AWS-Powered Infrastructure:** Key AWS services, such as EC2, VPC, Cognito, Secret Manager, ELB, RDS, and API Gateway, were utilized. EC2 instances hosted the UI and backend applications, managed through Auto Scaling Groups (ASG). An Application Load Balancer ensured efficient load balancing, while Amazon Cognito handled user authentication. RESTful APIs for mobile apps and machine learning components were exposed via AWS API Gateway.

For Security and Access Control:

- Created dedicated Cognito app clients with API access governed by client IDs through API Gateway
- Managed AWS infrastructure provisioning via CloudFormation templates
- GitHub Actions facilitated continuous integration and deployment, automating job triggers.
- Performed log analysis using Kibana
- Secret Manager managed database credentials and APNS certificate passwords.
- Employed Firebase and APNS for Push Notifications on Android and iOS platforms
- All services used adhered to HIPAA guidelines for project compliance.

Architecture Diagram



Survey App: High Level Architecture

Technical Stack

- Angular 15
- JAVA 8
- RDS PostgreSQL
- Spring
- Native Android
- Native iOS
- GitHub Actions
- Swagger
- AWS (API Gateway, Cognito, EC2, ALB, S3, KMS, Route 53 etc.)

Business Benefits

The implemented solution yielded significant business benefits:

Real-Time Health Monitoring

The platform enables real-time monitoring of trial subjects, enhancing healthcare research.

Efficient Lab-to-Market Movement

Clinical products move faster to market through efficient data collection, storage, aggregation, and analysis on a cloud-based platform.

Scalability

Easy configuration and on-the-fly expansion provide scalability as needed.

User Onboarding

QR-code-based authentication streamlines the onboarding process, ensuring a coherent experience.

Potential cost savings

Around \$3 Million over 5 years of span.

For more information contact YASH today at aws_info@yash.com or visit www.yash.com

About YASH Technologies

YASH Technologies focuses on customer success. As a leading technology services and outsourcing partner for large and fast growing global customers, the company leverages technology and flexible business models to drive innovation and value throughout its customer's enterprise. YASH customer centric engagement and delivery framework integrates specialized domain and consulting capabilities with proprietary methodologies and solution offerings to provision application, infrastructure and end user focused Right-Sourcing services. YASH is a SEI CMMI (Level 5) and an ISO 9001:2015 certified company with U.S. and India headquarters and regional sales and development offices globally with customers spread across 6 continents.

Global Presence

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