

Case study – Transforming Customer Service with AWS Generative AI and Enhanced Cloud Security



About Safaricom

Safaricom is a leading telecommunications company in Kenya, providing a wide range of communication and technology services to individuals and businesses. The company is committed to delivering excellent customer service and continuously seeks innovative solutions to enhance customer experiences.

Problem Statement

Safaricom faced challenges in providing efficient and cost-effective customer service while ensuring the security and resilience of its cloud infrastructure and AI/ML models. These challenges included:

- **High Average Handling Time:** Traditional customer service channels often lead to long wait times and delayed issue resolution.
- **Limited Customer Engagement:** Customers could not receive support outside regular business hours.
- **High Operational Costs:** Maintaining an extensive customer support team to handle many inquiries was expensive.
- **Cloud Security Concerns:** It was paramount to ensure the security of AWS accounts, identity management, network traffic, and data encryption.
- **AI/ML Model Performance Management:** Monitoring and maintaining the health of AI/ML models, particularly with services like Bedrock, was essential.
- **Deployment Challenges:** Automating the deployment process and leveraging infrastructure-as-code tools for Glue, EMR, and Bedrock was crucial for efficiency and consistency.
- **Disaster Recovery Preparedness:** Safaricom needed a well-defined disaster recovery plan to minimize downtime and data loss in the event of a disruption.

Proposed Solution

Mactores partnered with Safaricom to implement a comprehensive solution that addressed these challenges, with a particular emphasis on leveraging the power of AWS Generative AI:

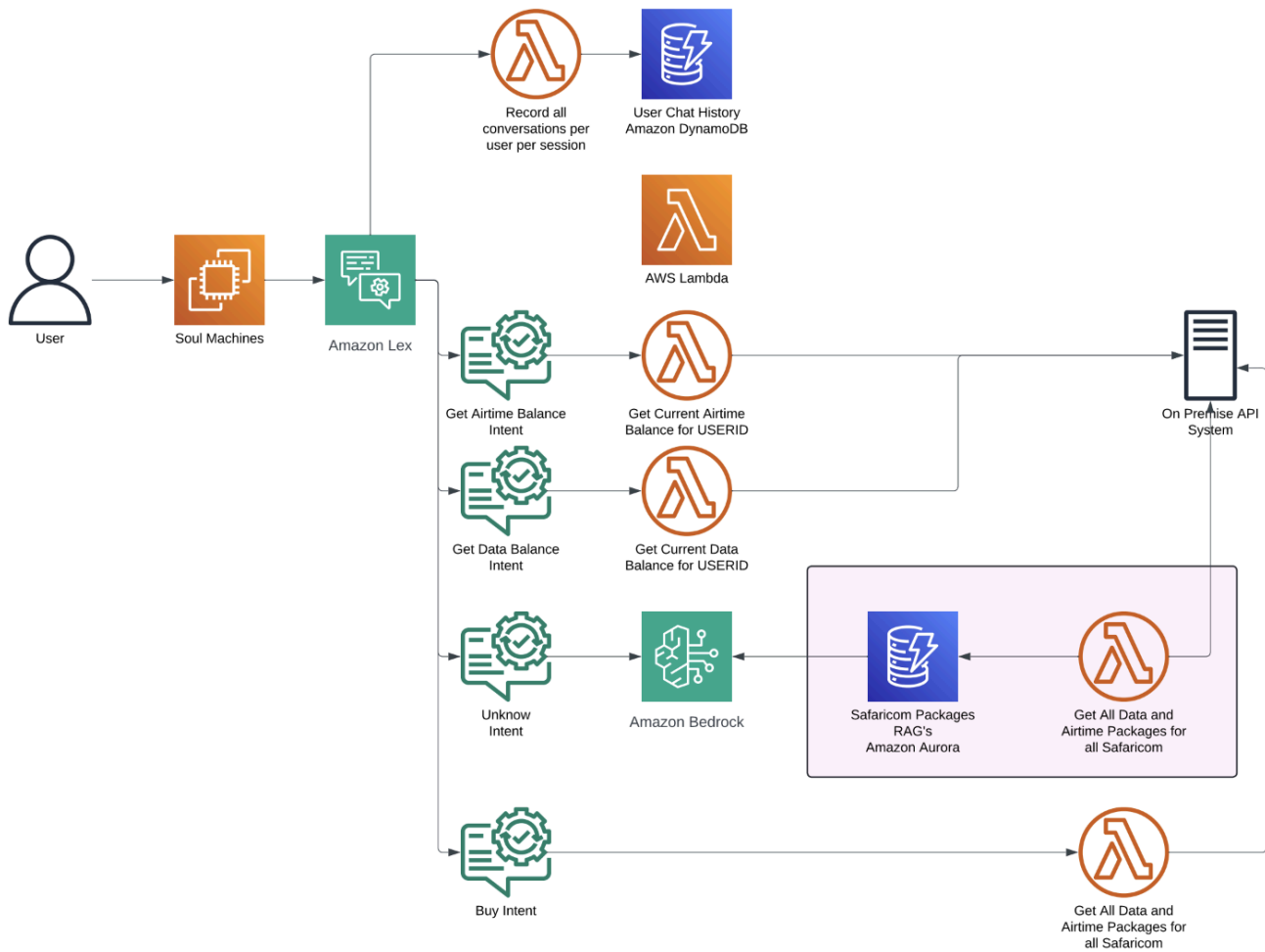
- **Zuri Bot Deployment (Powered by AWS Generative AI):** Deployed the Zuri Bot, a cutting-edge chatbot built on AWS Generative AI, to handle routine customer inquiries, provide 24/7 support and improve overall customer engagement. This AI-powered solution leverages advanced natural language processing and understanding capabilities to provide intelligent and contextually relevant customer responses.
- **Cloud Security Implementation:** Established a robust security framework for AWS account governance, identity management, network security, and data encryption.
- **AI/ML Model Monitoring:** Developed a comprehensive framework for monitoring and analyzing the health of AI/ML models, including the AWS Generative AI-powered Zuri Bot, using various AWS services and tools.
- **Deployment Automation:** Implemented deployment automation using Helm charts and GitHub Actions to streamline the deployment process for Glue, EMR, and Bedrock, ensuring consistency and reliability.
- **Disaster Recovery Planning:** Defined RTO and RPO targets and established clear disaster recovery procedures for critical workloads, ensuring minimal downtime and data loss in case of disruptions.

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Architecture Diagram

Zuri App Architecture



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Solutions Used

- **Generative AI:** Amazon Bedrock (powering the Zuri Bot)
- **Cloud Security:** AWS IAM, AWS CloudTrail, Security Groups, Network ACLs, AWS WAF, AWS Shield, AWS PrivateLink, VPC Flow Logs
- **AI/ML Monitoring:** AWS CloudWatch, AWS X-Ray, Datadog
- **Deployment Automation:** Helm charts, GitHub Actions
- **Disaster Recovery:** AWS S3, Amazon EMR snapshots, model checkpoints

Outcomes & results

The solutions implemented by Mactores, particularly the use of AWS Generative AI for the Zuri Bot, resulted in significant improvements for Safaricom:

Enhanced Customer Service Efficiency:

- 40% reduction in average handling time for customer inquiries, thanks to the Zuri Bot's ability to quickly address common questions and issues.
- There was a 35% increase in the first-contact resolution rate, which showcases the effectiveness of the AI-powered chatbot in providing accurate and timely information.

Increased Customer Engagement:

- 50% increase in off-peak engagement due to the Zuri Bot's 24/7 availability, enabling customers to get support anytime.
- 25% improvement in customer satisfaction scores, highlighting the positive impact of the AI-driven chatbot's quick and helpful responses.

Operational Cost Optimization:

- 30% reduction in customer service operational costs due to automation of routine tasks and reduced reliance on human agents.

Enhanced Cloud Security:

- A robust security framework was implemented for AWS account governance, identity management, network security, and data encryption.

Optimized AI/ML Performance:

- Effectively monitoring and maintaining the AWS Generative AI-powered Zuri Bot's performance and health.

Streamlined Deployments:

- Automated deployment processes using Helm charts and GitHub Actions.

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Improved Disaster Recovery Preparedness:

- Well-defined RTO and RPO targets.
- Established disaster recovery procedures for critical workloads..

Lessons Learned

- **AWS Generative AI as a Game-Changer:** AWS Generative AI empowers businesses to build intelligent applications like the Zuri Bot, revolutionizing customer service and driving significant efficiency gains.
- **Proactive Cloud Security:** A comprehensive security framework is essential for protecting cloud infrastructure and sensitive data.
- **Continuous Monitoring and Improvement:** Regularly monitoring and optimizing AI/ML models and cloud resources is crucial for maintaining performance and reliability.
- **Automation for Efficiency and Consistency:** Deployment automation and infrastructure-as-code tools can streamline processes and minimize errors.
- **Disaster Recovery Planning is Key:** A well-defined disaster recovery plan is critical for ensuring business continuity and minimizing downtime.

This case study demonstrates how Mactores's AWS Generative AI and cloud security expertise helped Safaricom transform its customer service operations and achieve significant business outcomes. The deployment of the Zuri Bot, powered by AWS Generative AI, showcases the potential of AI to drive efficiency, engagement, and cost savings in customer service.

About Mactores Cognition Inc

Mactores quickly solves core business problems and drives disruptive change by applying the latest automation technologies and leveraging our Data Analytics, AI/ML, and DevOps competencies and experiences. Mactores designs, deploys, integrates, and manages rapid migration, and end-to-end data platform transformations. Mactores also offer ongoing managed services and on-demand Concierge Services as needed to support customer success. We help customers achieve their business transformation, save costs, and define their path forward through our automation-first approach, our extensive collection of accelerators, and our result-oriented business outcome approach.