improving

Centene Case Study

PROJECT

Transforming Data Operations Through Kafka and Real-Time Streaming

OVERVIEW

Centene, a prominent healthcare enterprise, embarked on a transformative journey to overhaul its data operations by leveraging Kafka and real-time streaming technologies. The project aimed to unify disparate data streams from various subsidiaries into a coherent platform that enhanced data accessibility and compliance with regulatory requirements. Over several years, Improving collaborated closely with Centene to develop and implement a robust, scalable solution that transitioned from on-premise to cloud infrastructure, significantly optimizing the company's data management processes.

BUSINESS PROBLEM

Centene faced a significant challenge in managing and integrating data from its numerous healthcare subsidiaries, each operating with its own data formats and systems. The lack of a unified self-service data platform resulted in inefficient batch processing, slow data access, and regulatory compliance issues. Centene needed a solution that could streamline data ingestion, transformation, and real-time processing to meet regulatory requirements and enhance operational efficiency.

OUR APPROACH

Improving adopted a phased approach to address Centene's data challenges. Initially, we developed a self-hosted Kafka-based platform to manage real-time event streaming, transforming disparate data into a common format. As the project evolved, we transitioned the solution to the cloud using Confluent Cloud, enhancing scalability and performance. The implementation included building a management tool for data transformation and enrichment, ensuring seamless data integration and real-time processing.

As a result of our team's innovative work using Confluent Platform and Confluent Cloud, we were able to provide Confluent with significant insights and improvements to their platform.

BUSINESS BENEFITS

- **Improved Data Accessibility**: Real-time data processing enabled timely access to claims data for providers and clients, meeting regulatory requirements.
- **Enhanced Operational Efficiency**: The self-service portal allowed users to manage data ingestion and transformation independently, reducing the need for IT intervention.
- **Cost Savings**: Consolidation of redundant systems across subsidiaries resulted in significant cost reductions.
- **Scalability**: The cloud-based solution provided a scalable framework to handle increasing data volumes efficiently.
- **Business Agility**: The unified data platform facilitated quicker data-driven decision-making and innovation.
- **Regulatory Compliance**: The solution ensured compliance with regulatory mandates by providing real-time access to critical data.

TECHNOLOGIES AND METHODOLOGIES USED

- **Kafka**: Core messaging system for real-time data streaming.
- **Confluent Cloud**: Managed Kafka service for enhanced scalability and reliability.
- **MongoDB**: Document store for easy metadata retrieval.
- **Spring Boot**: Framework for building Java-based microservices.
- **Kubernetes**: Container orchestration for scalable deployment.
- **Neo4j**: Graph database for managing complex data relationships.
- **FreeMarker**: Templating engine for data transformation rules.
- **Terraform**: Infrastructure as code for automated cloud resource management.
- **Ansible**: Automation tool for deploying and managing infrastructure.
- **Prometheus/Grafana**: Monitoring and alerting tools for system observability.
- **Dynatrace & Splunk:** Utilized both platforms for application monitoring.
- **Elastic Stack (ELK)**: Log management and analytics.

PARTNERSHIPS

Collaborations with Confluent and MongoDB were pivotal to the project's success. Confluent provided essential support and introduced Improving to Centene, facilitating a strong working relationship. MongoDB assisted with the integration and optimization of their database solutions. Additionally, the project's AWS migration leveraged expertise in cloud infrastructure, further enhancing the solution's scalability and performance.

CONCLUSION

The collaboration between Centene and Improving demonstrates the transformative power of leveraging Kafka and real-time streaming technologies to modernize data operations. By migrating to a cloud-based solution and implementing a robust data management platform, Centene achieved significant improvements in data accessibility, operational efficiency, and regulatory compliance. This case study highlights Improving's expertise in delivering scalable, innovative solutions tailored to meet complex business needs, setting the stage for continued success in the healthcare industry.

GET STARTED

Learn more about how Improving can help you get started by contacting us today at sales@improving.com.