Swift Banking: Turbocharging Transaction Flows for a Leading Bank

Background

A prominent bank faced challenges with its primary transaction hub, which processes all incoming transactions including securities, bonds, and assets. The bank's transaction hub acted as the central point for all incoming transactions, necessitating robust preprocessing to ensure data integrity and efficiency. Transactions, particularly those linked with external vendors such as Bloomberg, required extensive preprocessing — data stripping, label removal, and format transformation — before they could be seamlessly integrated into the bank's main transaction system. This not only slowed down the transaction processing system but also obscured transaction visibility, making it difficult to track and manage transactions effectively. The system's heavy reliance on third-party vendors for troubleshooting and resolving transaction discrepancies further heightened operational risks for the bank.

Users Affected

The primary users impacted by these inefficiencies were investment managers and brokers who depended on a smooth, transparent transaction process to manage assets effectively and make timely decisions.

Core Areas

The bank's transaction hub was inefficient due to several critical issues:

- **Data Preprocessing Requirements:** Transactions required extensive processing efforts (data stripping, label removal, and reformatting) to meet the specific input requirements of the transaction hub. This was particularly cumbersome for transactions received linked with external entities such as Bloomberg, which had to pass through an additional microservice for preprocessing.
- **Lack of Transaction Visibility:** There was no end-to-end visibility of the transaction lifecycle, making it difficult to track transactions from initiation to completion, especially challenging during issues or delays.
- **Over-reliance on Third-Party Vendors:** The system's dependency on external vendors for troubleshooting transaction discrepancies led to increased resolution times and operational vulnerabilities.

Approach

Creospan adopted a structured approach to address these issues, focusing on three key areas:

- **Technical Evaluation:** Conducted a comprehensive review of the existing technology stack and identified the need for a more robust and integrated system.
- **User-Centric Development:** Engaged with investment managers and brokers to understand their needs and incorporated their feedback directly into the development of new system features.
- **System Redesign:** Planned and designed system improvements, focusing specifically on automating data preprocessing and enhancing system integration to reduce manual interventions and dependencies.

Solution

To address the identified challenges, Creospan implemented a comprehensive, step-by-step solution leveraging a modernized technology stack:

- **System Architecture Overhaul - Java and Spring Boot:** The bank opted for Java and Spring Boot to develop backend services, chosen for their robust capabilities in handling complex, high-volume data processing tasks efficiently. This choice ensured that the system could manage the intricate requirements of data transformation and integration seamlessly.

- **Scalable Cloud Deployment - Pivotal Cloud Foundry (PCF):** PCF was deployed to host the application, chosen for its ability to scale dynamically in response to the bank's transaction volume variability. This ensured that the system remained efficient and responsive under different load conditions.

- **Advanced Messaging System - Solace Messaging:** Solace was implemented to enhance the messaging infrastructure, ensuring reliable and efficient data transfer between the transaction hub and external systems like Bloomberg. This upgrade was crucial for maintaining data integrity and timeliness in transaction processing.

- **Automated Data Processing - Development of Preprocessing Microservices:** A new set of microservices was developed to handle the data preprocessing work in an automated and scalable manner. These microservices were specifically designed to strip unnecessary data, remove labels, and reformat transactions according to the hub's specific requirements. By leveraging microservices architecture, the system gained not only in scalability—adapting easily to varying volumes of transactions—but also in maintainability, allowing for easier updates and enhancements without impacting other components of the transaction processing system.

- **Real-Time Monitoring and Logging - Kibana:** Kibana was integrated into the system for enhanced logging and real-time monitoring capabilities. This tool enabled the bank to have a comprehensive view of the transaction lifecycle, providing end-to-end visibility from

transaction initiation through to completion. This feature was pivotal in reducing the reliance on third-party vendors as it allowed internal teams to quickly identify and resolve issues.

- **Enhanced System Integration - Concourse for CI/CD:** The integration of Concourse facilitated continuous integration and delivery, allowing for smoother updates and quicker deployment of new features. This ensured that any necessary adjustments or enhancements could be rolled out efficiently without disrupting the system's operations.

By carefully aligning each step of the solution to the specific challenges identified in the transaction processing system, Creospan helped the bank effectively enhance its processing efficiency, operational transparency, and reduced external dependencies, leading to a more robust and reliable transaction management system.

Benefits

The revamped system brought about substantial improvements:

- **Increased Processing Efficiency:** Automated data handling and enhanced system integration reduced transaction processing times and minimized errors.
- **Enhanced Operational Transparency:** Real-time monitoring capabilities allowed for immediate tracking of transaction status from initiation to clearance, improving operational visibility and control.
- **Reduced External Dependencies:** With enhanced internal capabilities and more autonomous troubleshooting tools, the bank significantly cut down its reliance on third-party vendors.

Conclusion

This case study demonstrates the role of the holistic system modernization process in resolving operational inefficiencies within a bank's transaction processing system. By focusing on automation, integration, and real-time monitoring, Creospan not only helped the bank streamline its transaction processing but also enhanced the overall transparency and reliability of its operations, greatly benefiting its key stakeholders.