Case Study:
Citizens Bank Brings Digital Banking to the Cloud

Precisely Data Integration Solutions help improve digital experiences, response time, and reduces mainframe costs.

precisely

Overview

Citizens Financial Group, Inc. (Citizens Bank), is one of the nation's oldest and largest financial institutions and is known for providing an integrated customer experience that includes mobile and online banking, 24/7 customer support, and the convenience of 3,400 ATMs and 1,100 branches across the U.S.. Like many financial institutions, Citizens deals with a large amount of data and it's crucial that this data be accurate, consistent, and secure. While Citizens is keeping up with modern banking – i.e. digital banking – they still face challenges when it comes to dealing with on-premise mainframe data.

The Challenge

Citizens Bank stores large amounts of data on their mainframe and although this has worked well for years, its environment and customer (both internal and external) needs evolved. While the rest of the business innovated to support the ever-growing, real-time needs of digital banking, the engineering team ran into inefficiencies with moving front-end experiences to the cloud from its on-premises servers.

"Because Citizens is moving to the cloud – which is supported by AWS – it makes sense for us to have data that resides closer to where the applications are. Since this isn't the case, whenever the team needs the data, they get it from the mainframe and then bring the data to the cloud, which is a time-consuming roundtrip that leaves room for accidental errors," explained Babu Kilaru, Director of Engineering, Citizens Bank.

Challenges around the mainframe became clearer as new roadblocks emerged, including issues involving network stability and prolonged efforts to move data to cloud platforms. These technical issues led to business challenges such as long response times and high operational costs. When customers expect top-tier banking services at their fingertips, there's no time for delays or error-fused data.

Citizens needed a solution to improve their digital banking experience that satisfied four requirements: 1) reduce timeframe for batch delivery of mainframe data to 60 minutes; 2) have 99.99 percent of changes on the mainframe reflected in cloud applications within four seconds; 3) ensure reliability and accuracy of the mainframe data; and, 4) lower operational costs by reducing mainframe use.

Client
Citizens Bank

Company Overview
- Headquartered in Providence, Rhode Island, USA
- Over 26,000 employees
- 1,100 branches across the U.S.
- 3,400 ATMs
- $226.7 B in assets
- $179 B in deposits

> "The team is happy with response times because they give our customers a better digital experience because the data is available quickly," shared Kilaru.

The Solution

To achieve the project requirements, the internal team developed the concept of the "Operational Data Cache" to extract the mainframe data to the cloud in a seamless manner without changing the legacy applications in the mainframe. The data flow requires a tool to support the migration from the mainframe log stream to the AWS cloud, which is where Precisely stepped in to help. "Precisely provides the ability to write scripting language that can convert MF data to custom JSON structures," explained Kilaru. "There are very few solutions that can work with mainframe VSAM files, which is why we selected Precisely Connect."

Connect helps organizations take control of their data from mainframe to cloud and integrates data through batch and real-time ingestion for advanced analytics, comprehensive machine learning, and seamless data migration. In this data cache project, Precisely is integral to the process as it captures information from the mainframe log files and streams it to the Linux box (a PC running a version of LINUX, an open operating system). From there, the data is converted to a JSON format and streamed in real time to Confluent.

Built by the original creators of Apache Kafka®, Confluent Cloud provides a fully managed, highly scalable data streaming platform to capture real-time change data from Precisely Connect and other disparate legacy systems on the mainframe. With Confluent, Citizens is able to integrate all of this data into a unified, event-driven architecture running in the cloud that allows for easy, real-time data exchange across all business platforms. With high-throughput, low latency data streams, Citizens is able to process large volumes of financial transactions, account updates, and customer interactions in real time. This has resulted in improved operational efficiencies, enhanced customer experiences, and preparation for future innovations.

Together, Connect and Confluent Cloud allow the Citizens team to see all their data in different derivations that are stored in MongoDB, starting the digital channels migration to AWS, which is where the data is needed.

The purpose of this cache is to minimize platform maintenance rather than spending millions of dollars on production support. Ultimately, the primary goal of the Operational Data Cache project is to improve the response times and reduce the trips to and from the mainframe, so that internal teams and customers can access reliable data in near-real time
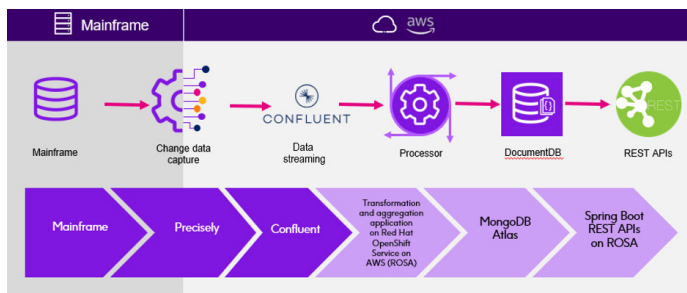
Citizens Bank's dataflow process from mainframe to cloud.

The Results

Citizens started workshopping the concept of the Operational Data Cache quickly and within a year, the project was deployed and running smoothly. Sh ortly after, the team started experiencing great results. Although this project doesn't have a goal in terms of response from the bank's clients, Kilaru sees his internal digital teams as the customers. "The services are running smoothly and the teams that are using them are very happy with the response times now that it's faster," said Kilaru.

In the year since Operational Data Cache went live, user adoption has grown across all the self-servicing channels, and it's become the primary source of data. Citizens has experienced positive results in four key areas, including:

- **Cost Reduction:**
  - Six percent overall cost reduction (on target to save roughly $1.5 million a year)
  - 80 percent reduction of MIPS on inquiries
  - Shifting from batch to stream processing with Confluent translated into a 30% reduction of IT costs and 50% improvement in data processing speeds from cloud adoption.
- **Mainframe Optimization**
  - Shorter response times
  - Improved connection stability
  - Reduced manual and redundant system processing
- **Speed of Delivery**
  - Batch Data available within 60 minutes
  - 99.99 percent of changes on the mainframe are reflected in cloud applications in under two seconds
  - Faster time to market for delivering new APIs
- **Client Experience**
  - Implemented in self-service channels that have adopted the Operational Data Cache, enabling customers to access data without going to the mainframe
  - Improved customer experience due to faster response times, more stability, and better data quality
  - Reduced customer churn rate and improved NPS score
  - Increased trust from internal teams around replicating data to the cloud

Next steps

As the Operational Data Cache program continues, the goal is to expand by adding more data. With more users adopting digital channels across the business to use cache-based inquiries, Citizens will continue to see more cost savings on mainframe operations.

"We've learned a lot throughout this journey and we're doing a lot of trial and error – but it's working out. This project has been about incremental improvements and we're seeing how it all comes together. It's resulted in an improved digital experience for our customers and more reliable data," explained Kilaru.

Additional Resources

Precisely is available on AWS and delivers the flexibility and agility that organizations need to align real-time data delivery with business demands. Working together, Precisely and AWS support a variety of data driven-use cases that help companies extract the most value from their data. **Precisely's partnerships extend to Confluent,** as Connect, the data integration solution helps organizations deliver the changes they need in real-time to Confluent without overloading networks or affecting performance.