HEXAWARE

Data Platform Modernization for Zero Downtime Cryptocurrency Trading with Google Cloud

Modernized Data Architecture for a provisional liquidity platform

Case study

Client

Our client, a global leader in online payment systems, provides secure and versatile payment solutions to millions worldwide. Their unmatched user experience has revolutionized online transactions, making payments faster, simpler, and more convenient. Anticipating future trends, they've integrated cryptocurrency into their digital wallets and expanded to offer cryptocurrency exchange services on their platform, securing their place as a relentless leader in fintech.

Available in

200+ Countries

Challenge

This narrative exemplifies a prime instance of a digital trailblazer proactively strategizing to sustain its leadership in the industry while staying true to its core competency: Unparalleled customer satisfaction. Its initiative to introduce a modernized data platform to support a fresh business venture also underscores the pivotal role of cloud modernization in unlocking new data capabilities.

In 2020, our online payment systems client introduced cryptocurrency services to empower its US user base, investing significantly in creating a platform for buying, selling, and holding top cryptocurrencies while enabling them as a funding source for purchases. The initial lineup included Bitcoin, Ethereum, Litecoin, and Bitcoin Cash, highlighting their dedication to diversity and accessibility in the crypto market.

To create this innovative platform, they utilized a leading crypto brokerage as a service product built on a regulated blockchain infrastructure platform. This investment elevated our client's position in financial markets. However, a challenge arose when they discovered that the platform's maintenance downtime prevented customers from conducting crypto transactions for however long it was carried out.

This downtime began to be associated with our client's Fully-Reserved-for-Business (FBO) cryptocurrency trading offerings, impacting its reputation for exceptional customer satisfaction, a competitive advantage established over years of offering digital payment services. A solution existed but required intricate data orchestration to implement.

Our client could honor customer buy or sell requests even during downtime by using its reserves of crypto assets, known as its liquidity pool. However, this strategy involved fulfilling customer transactions during the platform's maintenance phase and adjusting FBO transactions once the platform resumed normal operations. To get started on this solution, they required a partner with the right expertise in data architecture that would help support their fix.

Solution

Zero Downtime with a Provisional Liquidity Platform

Our client's pressing challenge was downtime in its cryptocurrency platform. Any service interruption could mean missed opportunities, frustrated users, and, potentially, a loss of market share. Understanding these concerns, we looked to develop an innovative solution to ensure seamless trading experiences for its users.

To accomplish this, we leveraged our client's capability to facilitate provisional liquidity trades (buy/sell) from its liquidity pool whenever its primary platform underwent maintenance and was inaccessible to users. We began by analyzing the existing data architecture and identifying potential bottlenecks contributing to downtime.

Our strategy had a clear direction: Build a provisional liquidity solution to take over during maintenance or downtime periods seamlessly. Consequently, we chose the Google Cloud Platform for this modernization project, identifying its cutting-edge cloud technologies that would help us design and implement a robust data infrastructure to handle our client's huge data orchestration requirements with minimal latency.

We envisioned the solution as a platform at the heart of our strategy. It involved creating a parallel system that could process buy and sell orders, execute transactions, and maintain liquidity when the primary platform was affected. This required real-time data synchronization, advanced algorithms for order matching, and seamless integration with the existing trading infrastructure.

For this, we enabled data event-driven data orchestration between a finance integration system, paid securities lending mechanism, and event container compute system to ensure the cryptocurrency platform's resilience and continuity, during downtime, liquidity crises, or market volatility. Seamless integration facilitates transaction processing, fund management, and liquidity maintenance, while event-driven computing optimizes scalability and safeguards against downtime risks.

We built architecture to facilitate data flow between these systems, optimizing performance and operational stability, using the Google Cloud platform.

Google Cloud for the Provisional Liquidity Platform

Through rigorous testing, optimization, and collaboration with our client's team, we successfully deployed the provisional liquidity solution. The results were transformative; downtime became a thing of the past, user satisfaction soared, and our client retained its competitive edge. Google Cloud technologies played a pivotal role in ensuring the success of this solution.

To build a comprehensive solution for our client's cryptocurrency platform, we first established an efficient ingestion framework. This framework was designed to seamlessly extract source reconciliation data from the crypto database and load it into the Google Cloud Platform (GCP) storage service. By ensuring a smooth flow of data ingestion, we laid a strong foundation for subsequent data processing and analysis.

Google Cloud Data Lakes provides a scalable and secure platform for efficiently storing, processing, and analyzing vast amounts of real-time trade data.

Google Cloud Storage Buckets offered a scalable and cost-effective solution for storing and accessing data in the cloud, ensuring seamless data management and accessibility across different layers of our modernized data platform.

Next, we implemented a sophisticated scheduler mechanism using a Control M instance. This scheduler was instrumental in automating and orchestrating the entire Extract, Transform, Load (ETL) pipeline and the ingestion framework. By setting up triggers based on predefined schedules and events, we ensured timely and accurate data processing, automating holistic operational aspects.

Solution

Powering Extensive Big Data Analytics and Dataflow Automation

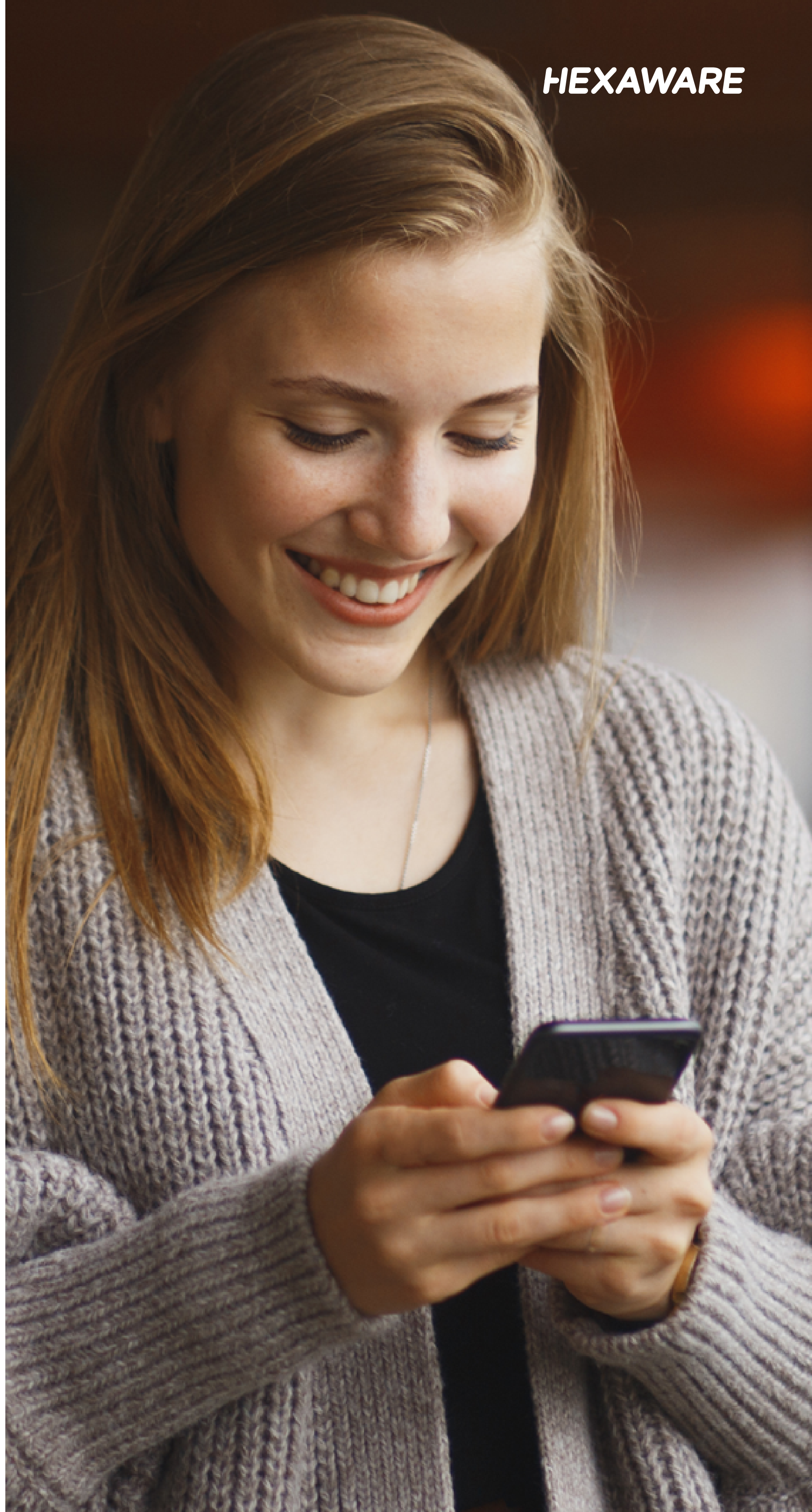
Additionally, our solution incorporated a Python-based orchestration framework tailored specifically for the finance core data layers. This framework streamlined processes and facilitated seamless communication between different components of the solution we built. Moreover, we leveraged advanced data processing components to conduct ETL activities and implement complex data processing logic. This allowed us to populate the various layers of BigQuery effectively, utilizing services like DataProc and BigQuery for efficient data handling and management.

Google Cloud Dataproc is a fully managed cloud service that efficiently runs Apache Spark and Apache Hadoop clusters, enabling the processing of large datasets using popular big data frameworks. It ensured that our platform could handle extensive data processing requirements quickly.

Google Cloud Dataflow is a serverless system that plays a crucial role in processing unified stream and batch data quickly and cost-effectively. This allowed us to manage data flows seamlessly and efficiently, ensuring smooth operations and timely data processing for our client's platform.

Google Cloud BigQuery, being a serverless and highly scalable cloud data warehouse was crucial for our provisional liquidity platform, where real-time data processing and analysis are paramount. The SQL-like querying capabilities of BigQuery allowed us to write complex queries, perform aggregations, joins, and other operations efficiently, leading to insightful data-driven decisions and optimizations within our platform.

Overall, these tools played a pivotal role by enhancing the speed, efficiency, and effectiveness of data analysis for our provisional platform.



Benefits

Our data engineering services solve a specific business problem and demonstrate the benefits of Hexaware's Data & AI strategies, technical expertise, and collaboration in driving meaningful outcomes for our client and their users. It showcases how we commit to innovation and deliver tangible value. The benefits for our client being:

Zero Downtime Cryptocurrency Platform

Our client achieved a zero-downtime digital cryptocurrency platform by leveraging Google Cloud's platform and data stack. This achievement ensures uninterrupted digital services, enhancing reliability and trust. The cloud also supports the platform during high-demand periods or unexpected surges.

Cloud-powered Provisional Liquidity Platform

Built to scale indefinitely, our implemented data architecture backs our client's cryptocurrency platform with a provisional liquidity platform to manage activity during downtime. This capability enables smooth and efficient trading, minimizing delays and maximizing opportunities in cryptocurrency transactions.

Right-fit, Flexible, Scalable Data Platform

Adopting Google cloud-native data platform and flexible data services results in a right-fit, scalable data architecture. This platform-based architecture supports big data analysis, automation, and seamless data flow between systems, enhancing operational efficiency and end-user experience.

Optimized BigQuery Compute Pricing Models

With a flat-rate pricing model for BigQuery and optimized compute pricing models, our client benefits from cost-efficient data processing. This allows them to scale data analytics operations without budget constraints or performance bottlenecks, focusing on deriving insights and value.

Safeguarding its Business Value Proposition

Our client maintains its distinct advantage as a reliable online payment systems provider across 200 countries while innovating with the right data services and cloud infrastructure for cryptocurrencies. Their optimized, GCP-based data architecture supports their vision for service quality and market leadership.

Summary

In addition to successfully modernizing its data architecture through Google Cloud services, our client experienced several key benefits. A provisional liquidity platform formed the core of our client's strategy, which we seamlessly integrated with its existing trading platform. This integration was based on effective assessments of our client's operations and the intricacies of cryptocurrency trading, and we augmented their teams with the technical expertise needed for effective execution.

The extensive suite of Google Cloud Platform, including advanced tools for data analytics and machine learning, provided our client with the capacity to extract valuable insights from both real-time and historical data. As a result, they achieved enhanced operational efficiency, optimized resource utilization, and improved overall business performance.

Overall, this case study highlights the efficacy of Google Cloud Platform in facilitating transformative shifts in data architecture and the broader impact of cloud adoption on driving innovation, improving the experience with big data, and unlocking the full potential of valuable data assets across its newest business endeavors.

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About Hexaware

Hexaware is a global technology and business process services company. Our 30,000+ Hexawarians wake up every day with a singular purpose; to create smiles through great people and technology. With this purpose gaining momentum, we are well on our way to realizing our vision of being the most loved digital transformation partner in the world. We also seek to protect the planet and build a better tomorrow for our customers, employees, partners, investors, and the communities in which we operate.

With 50 offices in 19 countries, we empower enterprises worldwide to realize digital transformation at scale and speed by partnering with them to build, transform, run, and optimize their technology and business processes.

Learn more about Hexaware at https://www.hexaware.com

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