CWAN

Case Study

Real-time risk: Improving margins, reducing risk, and providing data transparency

Introduction

This top-10 super-regional U.S. bank, with more than $500 billion in assets and over $20 billion in annual revenue, offers a broad portfolio of consumer and commercial services. Its commercial and capital markets teams aim to deliver advisory and funding solutions that help clients grow their businesses, manage capital, and mitigate financial risks.

To advance these goals and strengthen its market offerings, the bank is looking to differentiate its capital markets' services, enhance hedging capabilities and efficiency, and improve overall profitability. Achieving this, however, requires taking on additional balance-sheet risk and shifting from batch, end-of-day risk analytics to a real-time operating model.

Regional U.S. bank at a glance

- Over USD 500 billion in total assets.

- More than USD 20 billion in annual revenue.

- Looking to differentiate capital market services and bring risk in-house.

- Want a more accurate, real-time view of risks and exposure.

Challenge

The first step in this project was to move away from the riskless matched-book model for customer trading to one that provides greater flexibility.

For example, if the bank provided deal financing to a Canadian client in CAD, they would immediately need to offset the FX transaction via a corresponding USD swap with a large bank counterparty. Executing this swap hedges the risks but adds costs that reduce the profit on the deal. Eliminating the swap cuts costs but puts the FX risk onto the bank's books.

Taking on additional risks gives the bank greater flexibility to find the best hedging solutions for its clients. But they need full transparency of risk models, the ability to customize formulas with their 'secret sauce', and real-time risk reporting for this transition to be successful.

The bank's legacy tech stack only runs risk reports at the end of the day. Building these risk reports involves consolidating data from multiple disparate systems and using yet another system to produce a daily risk snapshot. While the risk aggregation system provided some data and calculation capabilities, it was a black box with proprietary models, with no ability to review the code or customize them.

To move the risk in-house, the bank wanted to use their own models that have passed independent price validation, can be adapted to specific circumstances, and open up the ability to customize the models based on changing market conditions and their requirements. They also must provide full transparency of the risk model algorithms to their price valuation team. Other incumbent systems offered some customizability, but changes to the models were just patches applied over the trading system front end and were not passed downstream to other parts of the tech stack.

Enhanced risk management objectives

- Full transparency of models and analytics.
- Ability to customize formulas and algorithms based on experience and the client's scenarios.
- Easily ingest and aggregate data from multiple legacy systems.
- Deliver real-time views of asset valuations, risk models, and exposure hedging.

Solution

Using the data integration capabilities of Beacon by CWAN and a Kafka message bus, the bank connected their legacy trading and treasury management tools to the platform's high-volume, real-time data-loading pipelines.

This setup delivers the necessary data and performance for Beacon to calculate valuations, visualize exposures, and manage the resulting risks in real time.

Next, the bank unlocked the black-box models from their legacy risk management system and customized them to their needs, in the languages of their choice. The Beacon platform includes a complete Python-based SDLC providing quants with a highly productive environment to develop or modify financial models. Legacy models built on other systems in languages, such as C++, Java, and R can be integrated to provide consistency of cross-platform calculations. Version management and governance tools provide the desired mix of innovation and control for the bank to move at their own pace.

Using Beacon by CWAN's cloud-native compute resources, the bank is moving faster with better information about their risk and exposure. The platform's unique dependency graph data structure keeps track of changes and only recalculates models and valuations when an input has been updated. Combined with the elastic nature of cloud compute resources, the resulting computational efficiency enables the bank to determine and display valuations, Greeks, P&L, P&L explained, and other desired analytics live and on demand, with direct control over cloud costs.

Finally, they connected Beacon to their downstream data warehouse and delivered the data and details necessary across the bank for ongoing management, reporting, and compliance.

Essential deliverables

- ✔ Effective data integration tools with wide range of pre-built connectors
- ✔ High-volume, real-time data pipelines for data ingestion and results.
- ✔ Unlock black-box models and support a range of programming languages.
- ✔ Efficient data architecture and cloud compute capabilities to optimize performance and cost.

Results

Beacon is enabling the bank to transform their services and gain greater control over the business by bringing risk calculations in-house using transparent valuation models.

Equipped with these capabilities, they were able to complete the initial goal of moving away from the matched-book model of managing FX risk. With risk reporting available in real time, the quant team is deploying optimized hedging strategies, reducing the cost of offsetting these risks while also improving overall visibility.

Customizable definitions of financial assets make if faster and easier to buy, sell, and innovate around new financial products. Quant teams can now analyze and respond to market effects and their potential impacts faster, unlocking both profit opportunities for the bank and higher-value services for clients.

Model, monitor, and manage risk with clarity.

See how top-tier financial firms succeed with Beacon by CWAN.

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