Story Title: Optimizing Risk Data Access with the Risk Warehouse API

Story Intro:

Our team has significantly improved scalability and enhanced efficiency by developing the Risk Warehouse API, a solution that creates substantial functional value for the business. By consolidating multiple query endpoints into a single, powerful interface, we have streamlined risk data access and empowered users to retrieve precise information quickly and securely.

Group: ESFHOF2024

Tags:

Award Categories: HOFBusinessOutcome, HOFInnovator, HOFStrategicTech

Functional Area: HOFDerivs

Collaborators: [Our dedicated development team]

The Problem/Opportunity:

We faced the challenge of providing a large number of users with access to an immense volume of risk data generated from risk runs. These runs produce billions of data points per execution, with hundreds of runs occurring daily—amounting to trillions of data points that need to be stored, processed, and accessed efficiently. The specific challenges included:

Storage Limitations: The need to store trillions of data points per day without incurring prohibitive costs.

Performance Issues: Processing vast amounts of data without degrading the user experience.

Redundancy: Avoiding wasteful storage and CPU usage due to redundant data and computations.

Data Management: Developing a strategy to manage and archive data effectively over time.

User Accessibility: Enabling users to navigate, aggregate, and drill down into data efficiently for analysis and decision-making.

Business Area/Function: Risk Management and Data Analytics

Solution Summary (50 words):

We developed the Risk Warehouse API—a unified, powerful query endpoint backed by a robust data dictionary and a generic JSON query language. This allows applications, UIs, and users to fetch precisely the data they need without direct access to BigQuery, optimizing performance and reducing costs.

Asset Class & Pod Name: Derivatives | Risk Warehouse API Pod

Business Outcome (story/nomination):

The Risk Warehouse API revolutionized risk data access by consolidating multiple endpoints into one, enhancing performance, and reducing costs. Users can now retrieve and analyze large datasets quickly, leading to better-informed decisions and a significant competitive advantage. The solution aligns with our strategic goals of innovation and operational excellence.

Key Business Outcomes and Impact:

Enhanced Performance: Users can display large reports within 20 seconds, significantly improving the speed of data retrieval and analysis.

Improved Scalability: The system efficiently handles trillions of data points daily without degrading user experience, ensuring it meets current and future demands.

Cost Reduction: By eliminating redundant data storage and optimizing compute resources, we've reduced operational costs associated with data processing.

User Empowerment: The powerful JSON query language and comprehensive data dictionary enable users to fetch exactly what they need, improving productivity and satisfaction.

Data Management Strategy: The API supports near-line and cold-line data archiving, providing a sustainable approach to long-term data management.

Supporting Evidence or Metrics:

Performance Metrics: Report generation times reduced from several minutes to under 20 seconds.

Cost Savings: Significant reduction in storage and CPU costs due to optimized data processing.

User Adoption: High adoption rates among users, with positive feedback on improved efficiency and ease of use.

Data Volume Handled: Successfully managing trillions of data points per day without performance degradation.

Additional Information:

The Risk Warehouse API not only addresses current operational challenges but also positions us strategically for future technological advancements. By providing a flexible and efficient data access solution, we've laid the groundwork for enhanced analytics capabilities and sustained business growth.
