CASE STUDY

DEVELOPED BIG DATA TECH-BASED REAL-TIME RISK SENSING SOLUTION FOR A LEADING AUDITING FIRM

Enabled monitoring and analysis of real-time risk data using an intelligent dashboard integrated with big data and noSQL technologies.

Client Background

Our client is a leading auditing firm offering Third-Party Risk Management (TPRM) services. Earlier, the risk monitoring software did not provide real-time information and the monitoring parameters were limited to financial data of third-party businesses. The client needed a new-age solution for supporting auditors with real-time alerts on risks associated with an entity so that they can quickly initiate responses based on the projected impact level of the risk. Xoriant's technical expertise was needed to realize the client's vision of developing a real-time monitoring system with capabilities to monitor geo-political risks for third-party suppliers from different countries. The key objectives included:

- Provide top- and bottom-line benefits with a solution to identify global supplier geo-political risks in real time.
- Provide the ability to subscribe for the events/news feeds from third-party feed aggregators by adding keyword filters based on a pre-defined taxonomy of words.
- Retrieve and process the relevant events from third-party feed aggregator in real time and generate a risk model based on time-series for each country.
- Create big data visualization capabilities to quickly identify risks.

Xoriant Solution | Key Contributions

Xoriant's real-time stream processing, big data technologies-based solution was built to listen to events, social media feeds, web feeds and news feeds. It looks for a taxonomy of keywords for events that can trigger risks in a region in the near future. Based on the frequency of occurrence of relevant keywords, increase in the risk factor is highlighted by the system as per the

KEY BENEFITS

- Enabled auditors to monitor and analyze big data flowing in from thousands of third-party suppliers across 80+ countries in real-time with cutting-edge Data Science algorithms along using a proven Machine Learning Model creation approach.

- Accelerated go-to-market from concept ideation to pilot/beta stage with industry's best practices across variety of Big Data and NoSQL technologies.

- Empowered client to gain a competitive advantage by including risk monitoring parameters (geo-political risks) beyond financial data.

risk threshold. The solution generates a risk score for each country as per pre-defined socio-economic, political and geographical factors.

Our key contributions included:

- Developed the message consumer components using WSO2 to receive the events/news feeds from third-party feed aggregators.
- Developed real-time stream processing components using Apache Spark Streaming to process the events/news feeds.
- Generated the snapshot of risk data based on time-series into Apache Cassandra data store and used D2.js to develop Graphical User Interface. The interactive big data visualizations on the dashboard enabled users to view the performance of an entity as per the pre-defined risk parameters. The risk parameters vary from entity to entity and the available source data. Big data visualization includes multiple visual representations of data using heat maps, Mercator maps and Sunburst Coffee Wheel.
- Managed benchmarking and performance tuning for Apache Cassandra, Apache Spark Streaming as well as RabbitMQ cluster. Spark Streaming was chosen to achieve micro batching, MapReduce computation, support for computation state, windowing and sliding window abstraction, aggregation support, and Machine Learning support. Spark was preferred as it works seamlessly with numerous disparate sources including HDFS, Cassandra, HBase, and S3.

KEY BENEFITS

- Enabled sales by triggering timely alerts that allow immediate setting up of highly available pilot environment for entities where response to geo-political risks depends on limitations such as country-specific regulations.

- Provided users the capability to access the solution across multiple user interfaces via desktop app and mobile app.

- Improved usability on both mobile and web platforms with powerful big data visualizations consisting of bar charts and heat maps – enabling faster identification of events that can be potential business risks for entities.

Project Diagram

RISK FACTORS		DATASOURCES		ANALYSIS		USER INTERFACE		IMPACT
Financial Risks, Geo-Political Risks…	KEYWORDS	Social Media (Twitter, Facebook), News Feeds, Websites..	NEWS	Remove Outliers, Generate Signal Strength, Generate Risks…		Desktop App, Mobile Apps		Service Line Impact, Financial Impact..

Technology Stack

Apache Spark Streaming 1.3.0| R | Python 2.7 | Apache Cassandra 2.0 | Mongo DB | PostgreSQL | WSO2-Enterprise Service Bus | ActiveMQ | Message Broker | D3.js | Angular JS

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