

Client Overview

This ZEMA client operates some of the largest exchanges and electronic trading platforms in the world. Operation of these exchanges require extremely complex yet well-coordinated processes in order to quickly track, calculate, and publish data such as: transactions, volumes, price quotes, volatilities contract settlements in both liquid and illiquid markets, numerous daily reports, and clearing. This client handles 3 billion contracts, worth \$1 quadrillion annually.

Business Problems

- This client needed to derive proxy settlement prices from similar products, historical pricing and external market data source evaluations (exchanges and brokers) in order to publish settlement prices for illiquid markets.
- Manual spreadsheet data entry and complex calculation methodologies led to frequent human errors, security concerns, and a lack of transparency.
- Settlement price calculation and validation took too much time and manual effort, often delaying publishing times.
- Lacked a data warehouse that stores all of their market data and Big Data.

Base Requirements

- Wide range of commodities data – Oil, Gas, Electricity, Metals, Derivatives, Coal, Agriculture, Weather, Carbon, Currencies, and others.
- Multiple data inputs - 127 data providers, totaling over 350 data feeds.
- Publication of over 13,000 curves, resulting in 46000 final values for liquid and illiquid markets each day.
- Integration with downstream systems including settlement systems and R
- Validation of results through curve analysis, including percent error, standard deviation, threshold, completeness, timeliness and more.
- Rapid publication of curves to meet stringent regulatory and internal requirements.
- Publication of data into their internal Big Data repository.

ZEMA Applications Licensed

Data Manager
Data Validation
Admin Console
Market Analyzer
Data Direct
Curve Manager
Web Services



Solution Implemented

This client concluded that ZE had the requisite versatility, industry expertise, and sophistication to quickly and accurately reproduce the clients' business processes and logic. ZEMA was operated in parallel to the client's internal processes to verify the result sets. ZEMA provided this client with several benefits, including:

- Identification of additional and alternative data sources as curve inputs.
- Refactoring of curve logic to become more efficient and accurate.
- Automation of data collection from publication to a centralized data repository.
- Audit capabilities, documentation and replication in ZEMA of client business logic, processes, validation methods and modelling techniques.
- Security, entitlement and administration setup according to internal governance structure.
- Automation of curve definition, construction, production, validation, permissions, staging and mappings.
- Automation of data persistence to client's downstream systems, including settlement, internal modelling programs, and Hadoop distributed file system hosted on Amazon S3.

Fully Managed and Hosted:

ZE hosts and manages this client's instance of ZEMA on the state-of-the-art ZE Cloud. Having the solution on a ZE-hosted platform means that the client can focus on increasing their operational efficiency, while ZE manages the day-to-day running of the system, with service quality guaranteed through aggressive Service Level Agreements, Recovery-Point-Objectives, and Recovery-Time-Objectives.

Beyond the standard ZE Managed and Hosting services, they also included the following for their peace of mind:

- Disaster Recovery: the client has sufficient geographically disperse redundancies across Canada for their peace of mind.
- Curve Monitoring: the client leverages real-time curve monitoring, data monitoring, curve validation, and troubleshooting, to ensure that any curve issues that arise are resolved as soon as possible.

Given the on-going long-term relationship this client has had with ZE, client satisfaction is of the highest priority to ZE.



Big Data Integration:

A master data warehouse is becoming more and more indispensable for businesses, especially those in the financial sector, where new regulatory requirements mean collection, analysis, and reporting on all inputs into market practices are required. Given that Big Data is the superset of both unstructured and structured data, the ability for structured data to be pushed into this clients' Hadoop distributed file system became necessary. ZE developed a method of using a Data Manager Action to push market data to Hadoop in the Apache Avro file format via Java API.

Result

The end result is a ZEMA system that has greatly increased the client's operational efficiency and the accuracy and timeliness of their published curves. This system is hosted and managed by ZE with full functional control by the client, supported by industry-leading Service Level Agreements. ZEMA improved the client's ROI while decreasing resource expenditure through timelier automation of intraday and end-of-day processes, increasing their ability to adapt to changes in data sources and adjust to market place variation.

