



## Main Client Challenge

The client is a Global Tier 1 Investment Bank operating across multiple colocation sites worldwide. The Futures & Options division faced a critical challenge; when latency spikes, outages or incidents struck, there was no fast, effective way to identify and troubleshoot the root cause across multiple third-party stakeholders. Fragmented visibility meant time was lost firefighting between vendors rather than resolving issues, directly impacting client experience and putting high-value buy-side relationships at risk.

## Beeks Provided:

- Beeks Analytics for Markets (BAM) & Market Edge Intelligence® for DMA within the low latency Futures & Options division for low touch clients (Global Tier 1 Investment Bank)
- A fully managed service including managed hosting, connectivity and analytics services starting across multiple key liquidity colocation sites
- Enhanced monitoring and observability across the division with integration to internal and external 3rd party software and applications
- The opportunity to expand to new markets, serve cross asset class departments and support new use cases within the bank's broader trading operations

## Benefits

Improved visibility and immediate key insights in comparison to existing reporting and metrics



Maintain & increase execution flow with large buy side clients by further added value. Potential to attract new flow and new clients through transparency

Ability to identify and troubleshoot outages and incidents with faster client resolution



Shifted focus from client stakeholders to time analysing data and trends, not troubleshooting with multiple vendors

Ability to simply expand services to new use cases and markets



Gain competitive advantage on other brokers in the marketplace with Market Edge Intelligence®



## Technical Overview & Edge Intelligence

### Capture Everything

- 200Gbit guaranteed packet capture to disk with nanosecond hardware timestamping
  - ◊ Leading edge NVMe storage and FPGA acceleration
- Normalised decode of every market data and order entry protocol to time series DB
  - ◊ QuestDB - high cardinality, high performance, open database platform

### Correlate Anything

- Correlate order entry lifecycle events - Round Trip Latency
- Correlate application and network hop latency - One Way Latency
- Always on - stored back into QuestDB
- On the fly - run your own correlation queries directly in SQL or in custom dashboards

### Measure what's important from the infrastructure

- Slice and dice metrics into meaningful dimensions
- Group metrics by customer, session, asset class, trading system, protocol, message types
- Latency distribution metrics, message rates
- Transport quality metrics - underlying metrics about the TCP or other transport sessions - loss, congestion, sequencing

### Derive what's important for the business

- Calculate fill ratios, pricing spreads, reject analysis
- Integrate with external sources of data - market calendars, customer metadata and application internals

### Train ML models on any of this data

- Establish an adaptable understanding of normal behaviour in all conditions
- No ML expertise needed - self-tuning with minimal steering required
- Anomaly detection at scale - be informed about signal from the noise
- Long term trend analysis
- Implement forecasting models once cause and effect relationships have been discovered

### Central oversight

- Manage global estate from a single location

### Integrate without constraints

- Open platform with modern interfaces - Parquet, Arrow, Kafka
  - ◊ Be alerted when important
  - ◊ Archive anything
  - ◊ Stream data or inference from ML to ops or trading applications for additional signal
- Grafana UI for ease of use
  - ◊ Collection of pre-built dashboards
  - ◊ Beeks Analytics and Market Edge Intelligence® embedded applications
- Jupyter Notebooks for interactive analysis for quants, data science and forensic inspection

## Why Beeks?

- Significant cost savings versus comparable solutions, institutional grade capability without legacy vendor pricing
- Built exclusively for capital markets, not a generic platform adapted for trading; every feature reflects deep domain expertise
- Open architecture that integrates with internal systems and third-party applications without disruption to existing workflows
- Designed to scale, from a single division today to new markets, asset classes and use cases across the bank's broader trading operations

## Success Criteria Completed

- Data visibility dashboards in daily use with key stakeholders
- Tested the architecture workflows with all vendors to provide the actual data visibility
- Agreed proposed operational workflows post PoC
- All client order data validated to ensure everything captured

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