



# Stock Exchange Case Study

**Operational risk reduction;  
faster time to market; operational  
cost savings; added flexibility;  
future-proofed business processes**

Faced with changing market structure from regulation, competition from multiple execution venues and compressed settlement processes, a major stock exchange group sourced a new enterprise architecture that accommodated newly acquired assets and evolving legacy systems.

## Project Background

The Chief Architect of a major stock exchange group faced new market structure challenges brought about by regulation (Reg NMS) and competition in terms of speed and transparency required change across the securities life cycle processes of the group's operations.

The exchange needed to improve communication and data exchange across a population of approximately 30 legacy systems that had grown organically over many years in a heterogeneous manner with no common definition of data. The systems' lack of interoperability was hindering evolution to new business processes.

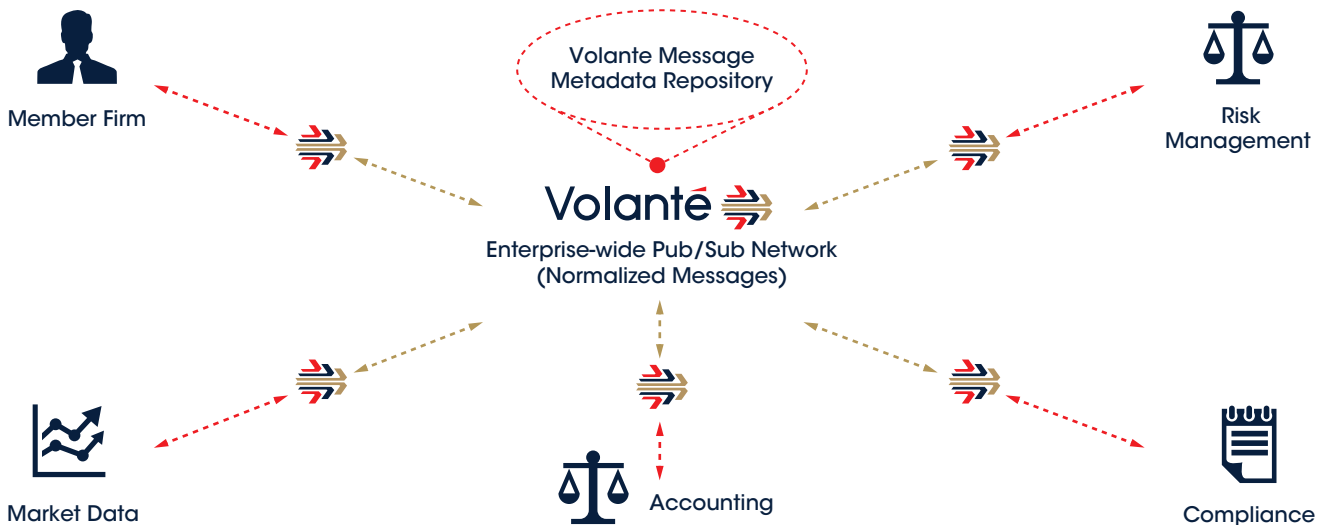
## The Challenge

Several options presented themselves. To "build" with in-house development, "buy" through the purchase of packaged software, or create a combination of toolkits off-the-shelf with outsourcing to deliver a durable ongoing business information platform for the exchange.

## The Solution

Volante Designer was the selected product to create and transform exchange-specific securities data. Training to internal staff was provided to enable rapid and flexible response to the changing requirements of market structure in the future.

The entire project was implemented in just 18 months. By using off-the-shelf components and offshore development with Volante, costs were reduced when compared to an in-house solution based on planned manpower overheads. Without Volante, the in-house cost would have been 60 man months. With Volante it was 12 man months for message mapping and six months of Volante effort and expertise. Three exchange staff mapped the message flows between the legacy systems across the exchange and migrated the applications' data import-export functions to a new architecture that accommodated their heterogeneous data nomenclatures. Once the exchange mastered the Volante toolkit, development cycles and exposure to operational risk of delivery were reduced, and flexibility was built into the exchange's overall data architecture.



## The Customer Experience

As part of the process to source a new enterprise architecture that accommodated new assets and evolved legacy systems, the exchange planned to roll out a new high-speed central backbone as an information bus and integrate onto it message-based data from approximately 30 different systems so that group-wide functions could be centralized and shared with attendant economies. Organic evolution of systems and expansion by acquisition meant that no common data formats existed – representing a fundamental blockage to the concept of interoperability and concentration of life cycle processes.

Data from multiple legacy systems, including the core trading and market data systems, as well as post-trade processing had to be translated into a newly defined standard message format.

Comments the Chief Architect: “We met with Volante after we saw them at a conference. Following several meetings we became convinced that there was significant merit in working with a firm whose core capability was message-based integration – which we had already realized was central to our direction. With the increasing move to industry standards we thought we could benefit from pre-written code – and where we were totally proprietary we thought we could apply the same concepts to our specific circumstances. The Volante team – from CEO to product development -- impressed us and inspired us to go down this route with them.”

The business case was based on cost, reduced risk and appreciation of the sheer scale of the task, which required innovation and sustainable adoption of technology. The Volante solution used by existing IT operations and development dovetailed well with existing technical skills within the IT department.

“By moving into ‘standards,’ we tapped into industry-wide economies of scale in the ongoing evolution of data and interoperability between in-house systems and between new counterparties.”

The exchange was a native C++ user and chose not to use Volante’s standards Java code generator. Volante accommodated this preference and built prototypes that showed they could generate high-quality C++. Once this fundamental architectural question was addressed, Volante Designer was able to become the factory for developing the interface gateways between the exchange’s legacy systems and the enterprise service bus backbone.

“Volante Designer revolutionized our approach to data in the project – and above all commoditized a technical process which could have been a major cost to the project – and at the same time built in flexibility for the future,” the Chief Architect said. Volante generated code by providing incremental releases of Designer that over the lifecycle of the project from beta to production improved the latency of the message transformation by up to 20 times. “This served to educate us that Volante’s message skills were an engineering science in their own right,” he said. On average, more than 800 million messages a day are processed through the Volante-based gateways onto the enterprise service bus backbone. Peaks of well over a billion messages a day are not uncommon and the translations implemented in the gateway do not impede the business process.

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The whole project took about 18 months. “Like all good projects, all of the players grew together and we became like one company,” the Chief Architect said. “The Volante team was there with us each step of the way, including nights and weekends to help us accomplish this important implementation. Ultimately, they taught us their vocabulary and with training in the highly intuitive Volante toolkit, we became self-sufficient,” he added.

“Across the exchange it is now widely viewed that Volante was instrumental in the success of this major project – and now Volante Designer is firmly a part of the exchange’s ‘data DNA.’ I can honestly say that without the support received from Volante, we could not have completed all of the work necessary to provide a complete enterprise architecture solution to the exchange,” the Chief Architect said.

For more information about how Volante can help your firm with operational risk reduction; time to market; OPEX cost savings; flexibility and future-proofing business processes, please call us at the numbers below or email us at [info@volantetech.com](mailto:info@volantetech.com)