Tier 1 investment bank slashes tick-to-trade latency & implements monitoring & analytics

Highlights

Challenge

Improve tick-to-trade latency and measure the full business flow of network and third-party systems.

Arista Solutions

A joint solution with Arista as a packet broker, aggregator and timestamping engine and Velocimetrics monitoring and analysing the data.

Results

- Reduced latency by a factor of 10
- Improved network visibility
- Operational cost savings due to a rationalised infrastructure
- Real-time feedback into the bank's trading systems

Arista and Velocimetrics work together to enable a global investment bank to realise a more than tenfold improvement in tick-to-trade latency and implement an advanced monitoring solution to measure its entire network business flow. The bank can now make trading decisions significantly faster and realise network/operational cost savings due to a rationalised infrastructure and better incident management.

Project Background

Increasing competition and changes in the equities trading marketplace have led to new business requirements. The Tier 1 bank needed to adapt its practises to protect its position as a global leader. It wanted to gain full visibility of its internal and external network, systems and applications. This was essential to make the right business decisions and enable new investment initiatives.

An agile and reliable infrastructure was key. The bank stipulated that all future architecture should have an independent monitoring and tracking system in place to validate, benchmark, and provide real-time alerting and insight for network, applications, and trade flows. The aggregation of all visibility points was of utmost importance.

The Challenge

The bank needed to adapt its business processes in response to an increasingly competitive equities market landscape. On the one hand it was looking to significantly improve latency for tick-to-trade to keep up with faster trading speeds. On the other hand it was looking to implement an independent monitoring and analytics solution to measure such latency improvements and gain full visibility of its network, including its own infrastructure along with third-party applications to ensure reliability and flexibility.

The selection criteria included:

1. Ultra-low-latency of the network devices
2. Tried and tested timestamping / monitoring solution
3. Company credibility and strong industry reputation
4. Scalability and cost effectiveness
5. Flexibility & configurability of the solution to support all types of equity trading.

The Solution

The bank undertook an extensive, competitive RFP lasting approximately 18 months.

The bank rolled out several of Arista's 7130 E-Series devices running the MetaMux network application to reduce trading latency. The Arista 7130 provides market data fan out in as little as 5 ns and data aggregation in as little as 45 ns.

It also selected Arista 7130 K-Series, 96-port devices running the MetaWatch network application for high-precision timestamping and packet capture of all trade flows, which works hand-in-hand with the Velocimetrics VMX analytics solution.

In the latter scenario, Arista acts as a low-latency packet broker and timestamping engine. The bank is deploying these devices 'in the network' as opposed to 'tapped off the network' and they accurately timestamp, aggregate and conditionally route all packets to the Velocimetrics' high-volume and small form-factor capture and analytics technologies.

The Velocimetrics appliance receives the Arista data, decodes the on-the-wire information into a business object, correlates the data provided from the Arista device, and provides a complete end-to-end breakdown of the business flow and a complete audit trail. It then feeds this information in near real-time into the trading systems to allow low-latency trading decisions to be made.

All analysis happens in real time to provide time-accurate alerts, business insight and complete drill-down capabilities into individual packets as and when required. The bank decided to use the joint offering for a number of critical reasons, notably the ability to...

- Gain ultra-low latency trading connectivity
- Monitor a significantly higher number of ports at a much lower cost (using 96 port devices)
- Provide virtually lossless data capture by leveraging deep buffers
- Collect data closer to the network fabric/wire; for more time-accurate information
- Provide faster alerting, quicker drill down and root cause analysis; leading to less system downtime and the ability to alter trading strategies faster.

The seamless integration of both solutions which had been tried-and-tested by several customers, was a key selection advantage. The experience of both firms in the financial sector as well as their industry reputation and global coverage reflected positively during the vetting process.

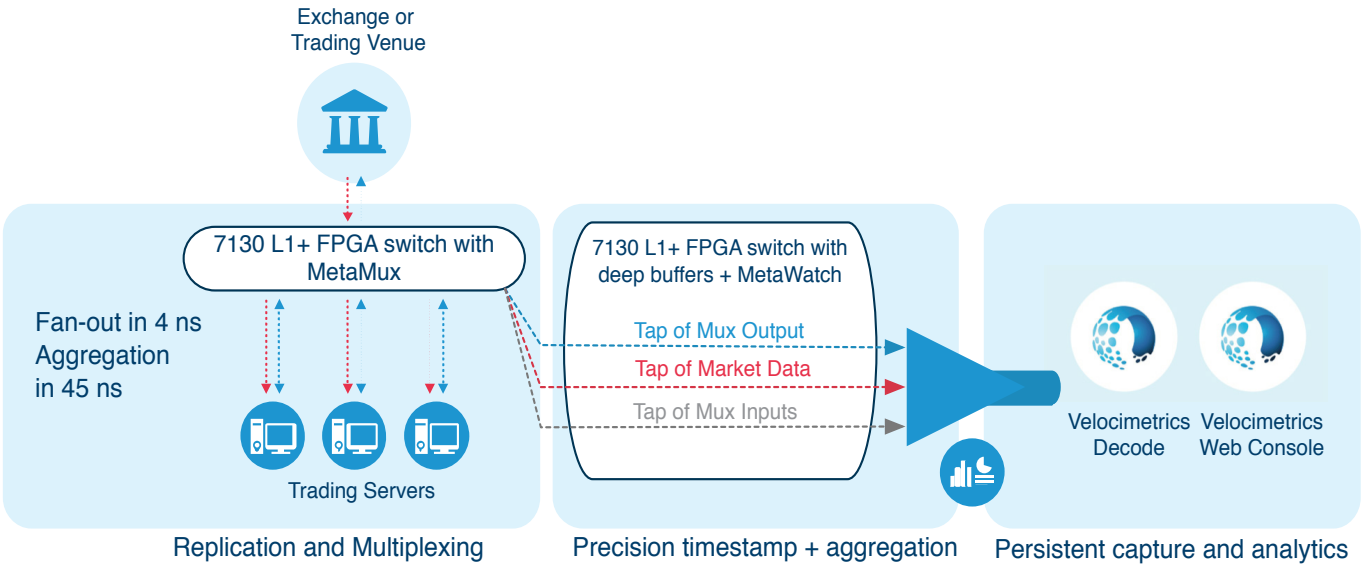

Figure 1: Architecture Diagram

Conclusion

The bank realised substantial operational cost savings through better network analytics and a rationalised infrastructure. It can now…

1. Offer its clients a more stable and reliable network to connect to global trading venues with the lowest possible latency

2. De-risk its infrastructure and business flows through independent monitoring and tracking of all trade flow data, including latency profiles

3. Provide updates to the equities pricing engines that will allow the bank to provide optimised pricing decisions in real time

4. Improve the capacity of its network through the use of dense 96 port devices, saving on rack space

5. Realise operational cost savings through better incident management and targeted investment in infrastructure

6. Reduce the need for expensive equipment by combining multiple functions within a single solution e.g. tapping, timestamping, aggregation and analytics, making it more cost effective and robust/less error prone

7. Obtain greater flexibility and configurability – the software-defined nature of the Arista devices allows for easy reconfiguration and dynamic patching of data flows, saving time and cost.

The investment bank is now looking to expand the use of the technology solution on a global scale, including markets in Asia, Europe and the United States.

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