

Leading Provider of Global Market Data Deploys Real-Time Multicast Gap Detection Monitoring Solution

Organization

- A leading provider of global market data and colocation services for the capital markets industry

Challenges

- Detect market data quality issues in real time
- Speed up the identification and resolution of issues in North American markets
- Automate and streamline the process of analyzing packet data across hundreds of multicast feeds

Solutions

- Deployment of Keysight TradeVision packet brokers across New York metro datacenters
- Installation of physical network taps to monitor all ingress U.S. market feeds

Results

- Achieved real-time detection of multicast gaps in all U.S. market data feeds
- Reduced troubleshooting time from hours to minutes
- Became first to market with portfolio-wide market data gap detection

Real-Time Multicast Gap Detection Improves Quality of Market Data Monitoring

Amidst volatile pricing and trade conditions, profit from electronic trading depends on the timeliness and speed of trade execution. For this reason, thousands of the world's leading global investment banks, hedge funds, funds of funds, proprietary trading firms, market makers, brokers, dealers, private equity houses, and exchanges rely on global market data feeds to support latency-sensitive trading across all major liquidity venues. Financial services organizations depend on managed colocation platforms to provide ultra-low latency environment and real-time market data feeds from over 100 exchanges in addition to connectivity and hosting services for their business applications.

The global market data provider runs more than 30 colocation sites and offers over 400 market data and order entry feeds. To maximize uptime, improve quality, and resolve issues quickly, the data provider uses a state-of-the-art network visibility architecture.

Keysight TradeVision Identifies Issues Before Customers Do

Ensuring the continuity of market data in today's complex, highly dynamic financial markets means DevOps teams need to isolate and address operational issues in real time. This requires near-instant identification of the root cause of data errors as well as contributing factors.

Is the issue linked to the exchange venue, the data distribution network, or the buy side network where the feed handlers are? What went wrong and why? To answer such questions, the data provider's operations team required the ability to detect multicast gaps in real time. Prior to deploying TradeVision from KeySight, the provider used switched port analyzer (SPAN) ports on upstream switches to copy traffic for analysis. Then, the provider inspected packets manually using Wireshark when suspected gap events occurred.

Now, Keysight TradeVision is a key part of the provider's infrastructure for troubleshooting global market data gaps. Deploying Keysight TradeVision resulted in a significant reduction in reactive troubleshooting, which has allowed the operations team to spend more time working on proactive measures. Using the Linux tool tcpdump to take pcap capture files from any colocation globally and replay them through the Keysight TradeVision device was a useful, unexpected benefit of the solution. Thanks to this benefit, local deployment of Keysight TradeVision in the New York metro area advanced to a sitewide design.

"As a fully managed service, we have a responsibility to our trading clients to deploy the most innovative, latency-sensitive technologies on the market," said the firm's global head of account management. "With the adoption of Keysight TradeVision, we are proud to be the first provider in the industry to offer clients a true, platform-wide, market data gap detection solution to minimize the impact on production systems and accelerate problem remediation."

After conducting a three-month proof of concept demonstration, the provider launched Keysight TradeVision real-time monitoring services commercially and made it a standard feature of their managed colocation solution. The provider noticed a significant reduction in the time required to pinpoint the root cause of gap events, whether at the exchange handoffs or closer to client server interfaces.

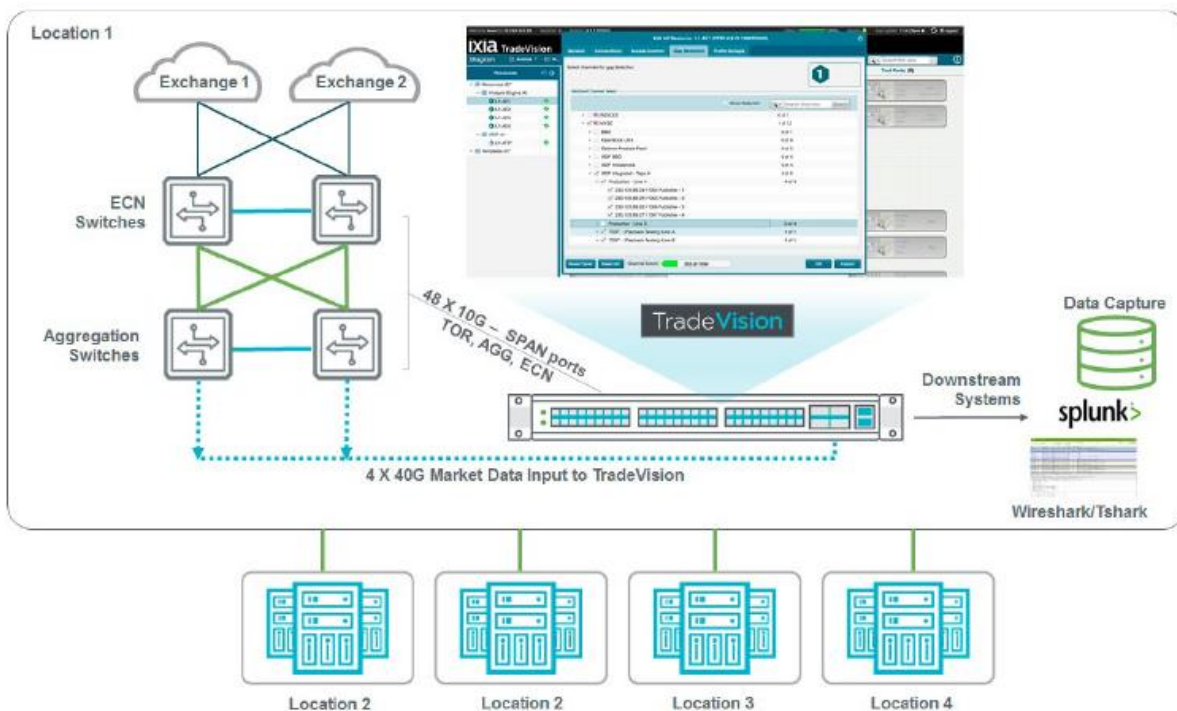


Figure 1. A diagram of the data provider's deployment using Keysight TradeVision

By deploying Keysight TradeVision at each colocation facility, the provider's operations team stays a step ahead, proactively alerting clients and application teams of multicast gaps. This helps the team resolve potential issues in real time as they occur.

How It Works

Keysight TradeVision delivers a unique combination of advanced network visibility and market feed monitoring. It supports more than 1,300 data feeds pre-configured for hundreds of worldwide trading venues. The platform:

- Provides high-accuracy gap detection, feed and channel health statistics, high precision time stamping (accurate to within UTC ~100 nanoseconds), microburst detection, tap aggregation, and detection, and out-of-band monitoring data filtering from a single, easy-to-manage platform
- Monitors high volumes of data and sends system-wide alerts on the source of dropped packets and mission-critical data feed errors
- Enables the provider to detect and resolve issues in market data delivery across all U.S. and most international exchanges by analyzing multicast gaps on every channel of every feed at 160-Gbps

The provider deployed Keysight TradeVision at multiple U.S. data center locations in the greater New York area. Each appliance interconnects to the aggregation switches in the local network infrastructure via 40-Gbps links, with two ports connected to national exchange market data feeds, and another two to local exchanges. Each location also uses four 10G tool ports for feeding downstream capture devices, while the remaining 10G ports on TradeVision are used for patching through to other switches, such as aggregation, Top-of-Rack, and Explicit Congestion Notification (ECN) solutions.

Results

By offering clients a true platform-wide market data gap detection and network visibility solution, the provider achieved a compelling and sustainable differentiator. In an industry driven by accuracy and speed, adopting Keysight TradeVision helped the provider identify multicast gaps in real time, reduce resolution times, and ensure high-caliber service.



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