TradeView™: High-Performance Monitoring of Market Data Feeds

The Need for Real-Time Monitoring

Rapidly detecting degradation in the quality of data feeds is a considerable challenge for any market participants who use or transport real-time market feeds. Market data transport technology is primarily based around the use of multicast, which does not have any error correcting mechanisms at the network layer. This means that any packets containing key trade data that have been lost cannot be detected until they are passed through a feed handler system at the end user site. This has a number of issues:

- Application teams may be aware of the problem, but the tools they use may not be available to the network operations teams who are responsible for diagnosing and resolving the issue.

- Many feed handlers use feed arbitration (between A and B feeds) to autocorrect message drops, so application teams may neither be aware of problems nor quickly pass-on details to their network operations teams.

- Detecting a problem at the feed handler does not tell you where the problem occurred. Was it a problem with the Exchange or Market Data Vendor's ticker plant? Was it a problem in their internal network? Was there a problem in the third-party network carrier or extranet provider used to transfer the market data? Was there a problem in a firewall? Was the problem in the end users internal network?

All these questions lead to slow decision-making and long fault repair times that can be measured in days and not minutes.

Much of the technology used to monitor this infrastructure today is either not up to the task or involves expensive data capture, storage, and analytic technologies that have remained more or less the same for twenty years. These technologies are expensive, and consume valuable power and real estate within expensive data centers.

Key Features

- **High Performance**. Uses advanced ASIC and FPGA technology for ultra-high performance. Real-time gap detection of up to 1000 simultaneous multicast channels. Total data analysis rate of 60 million market data messages per second. Detailed traffic statistics available on a feed by feed basis streamed off the device.

- **Cost Effective**. 1/2 the price and 5x faster than other traditional monitoring tools. Easily deployed across a network.

- **Smart Filtering**. Reduces the time to set up monitoring and capture tools.

- **Integrated with Geneos Netprobe™ from ITRS**. Delivers a simple, consolidated view of multicast sequence gaps and microburst events on any Geneos dashboard.

- **Super Reliability**. Not dependent on error prone, expensive servers. Wide range of predefined market data feeds.

- **Channel Health**. monitors channel performance and alerts to anomalies, simplifying feed troubleshooting

TradeView™ Solves These Challenges

TradeView is ideally-suited to wide-scale deployments and the cost-conscious customer that are not currently addressed by existing solutions.

TradeView is a new type of device from Ixia that combines the most up-to-date ASIC and FPGA technologies to deliver high-performance monitoring of market data feeds. It almost-instantly detects multicast sequence gaps or microbursts. It can provide such analysis simultaneously on up to 4 x 10GE communication links or LAN segments, and at a price point approximately half of alternative approaches. In addition, TradeView can detect the absence of market data messages and stream a summary of traffic statistics and gaps to storage devices and management systems.

One single TradeView alone has the capacity to monitor 60 million trade messages a second, 3 times more than the entire US equities and options markets combined.

TradeView is one of a series of Ixia products designed for the financial industry. These products are specifically designed to provide wide-scale instrumentation of critical trading infrastructure.

Key Functions

- Multicast gap and out-of-sequence detection with SNMP and Syslog alerts
- Integrated with Geneos Netprobe from ITRS, delivering a simple, consolidated view of multicast sequence gaps and microburst events on any Geneos dashboard
- Microburst detection – down to 100 µs intervals and user-selectable thresholds
- Feed health monitoring – detect and alert on the absence of data feed traffic
- Streaming of traffic statistics broken down by feed or even channel with down to 100 µs resolution
- Channel Health – monitors channel performance and alerts to anomalies, simplifying feed troubleshooting
- Smart Feed-Aware filtering – via drop down menus
- Copying of data – e.g. an input port can feed two or more output ports
- Switching of data – any input port can be switched to any output port
- Aggregation of data – multiple input ports can feed a single output port; not recommended for latency-sensitive applications.
- Graphical display of last 24 hours of feed anomalies
- Full help functions on every screen for ease of use
- Any multicast IP address can be searched for exact feed and channel name
- Compatible with Ixia Indigo Pro software to facilitate easy update of feed decoders
- Can be fed from either network taps (preferred) or SPAN ports on Ethernet switches, or via static IGMP joins
- High reliability – 100% solid state device; no hard disks to fail

The Results

- 50% reduction in cost compared to traditional, server-based solutions
- 4x10Gbps input ports
- 5x estimated improvement in speed to process transactions compared to other, server-based, monitoring tools
- Average input to output port 650ns latency

Specifications

Feature	Detail
Input (Network) Ports	4 (either 10Gbps Fiber, 1Gbps Fiber/Copper, 100 Mbps)
Output (Monitoring) Ports	4 (used to feed data capture devices if required). From 10 Gbps to 100Mbps
Time Stamping	Events time stamped to one microsecond accuracy
Timing Inputs	PTP – IEEE1588 or PPS (to sync with external clock source) or NTP
Timing Output	PPS (used to sync an external capture device if required)
Maximum Number of Multicast Feed Channels Monitored on Each Input Port	1000
Aggregate Maximum of Multicast Feed Channels Monitored	1000
Maximum Data Rate of Monitored Messages per Port	15 M messages/second
Aggregate Maximum Messages Monitored	60 M messages/second
Event Reporting	Syslog, SNMP, and ITRS Geneos
Meta Data Streaming	Gap Alerts and Traffic Statistics
Power Supply	110/220/240V AC, with average power consumption less than 125W per TradeView device
Compliance	RoHS, EN61000, IEC61000, IEC 60950, and UL60950
Security Authentication	RADIUS and TACACS+
Dimensions	1U height Inches: L:17.5 W:17 H: 1.75 (CM: L:44.5 x W: 43.2 x H: 4.4)
Weight	11.25 lbs (5.1 kgs)
Transport	Ruggedized D handles on front to ease fitting and protect connectors and cables
Supported Feeds	Over 200 feeds are supported, including Alpha, AQUIS, ASX24, BATS BYX and BZX Equities, BZX Options, BATS CBOE, CBOT, CFE, Chi- X Canada, Chi-X Europe, BM&F Bovespa, Borsa Italiana (Main and TAH), CME (BM&F, BMD, COMEX, CTA, DME, Green Exchange, Hong Kong Exchange(Orion), JSE, KCBT, KOSPI, KOSDAQ, KRX, MICEX, MexDer, NYMEX) Edge A, Edge X, Eurex, Euronext Cash Markets, ICE, ISE, LSE, MICEX, NASDAQ OMX, NLX, NYSE, OPRA, OTC, SIX, STRIKE Microwave Network, TMX, TMXV, TMX Select, Tokyo Stock Exchange, Turquoise, UTP, and Xetra. Check with your Ixia sales representative for the latest list of supported feeds.

Ordering Information

Number	Description
TradeView 1000	TradeView 1000 - AC Power Realtime Market Data Multicast Gap and Microburst Monitoring Tool (952-0001)
DTSP–TRADEVIEW 1000	TradeView 1000 Standard Feed Decoder Subscription – Yearly subscription with updates (909-5006)