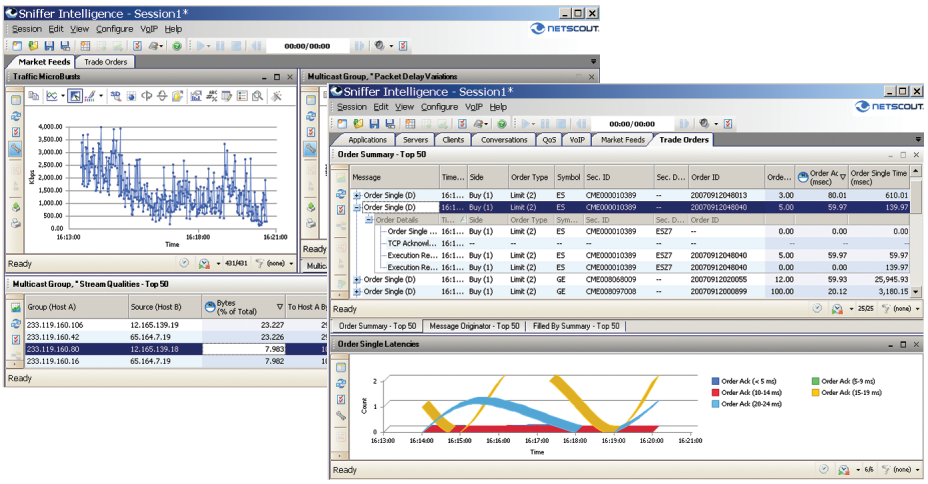
SNIFFER
FINANCIAL INTELLIGENCE

NETSCOUT

Analyze Critical Financial Trade and Feed Applications

Benefits

- Leverages the vast packet storage capabilities of Genius InfiniStream
- Speeds forensic analysis of financial applications and feeds
- Filters by trading stations, time, Order ID, efficiencies, and hundreds of other dimensions or metrics
- Understands Order Single components such as Symbol, Security Type, Order Ack,, etc.
- Analyzes market feed data for loss, out of sequence, inter-packet delay variations, and retransmissions
- Isolates S,G pairs for capacity planning and feed analysis
- Utilizes the flexible user interface of Sniffer Intelligence
- Provides industry-leading decodes if and when required



Sniffer Financial Intelligence provides unprecedented packet-flow analysis for exchange and market flow applications. The solution leverages the vast capture storage capabilities of nGenius InfiniStream.

Speed is money. One of the most pressing issues impacting financial firms is how to increase speed and reduce latency when accessing market data and trade execution venues. To quickly adapt to changing market conditions, financial firms must manage ever increasing volumes of data and respond to transaction speeds counted in milliseconds. Price volatility, trading volumes and market velocity coupled with expanding use of derivatives, automated trading, and increased market feeds makes it imperative that firms establish a robust, real-time network. Even more complex are the applications running in these environments.

FIX Protocol-based Applications

Over the past few years, many major exchanges, trading houses, and mutual funds running electronic trades have standardized on applications utilizing the Financial Information eXchange (FIX) protocol. FIX is a broadly adopted trade messaging standard used to facilitate real-time electronic communications. Because it is platform independent, it works on multiple computer types and is built to quickly and securely deliver financial messages such as those used to make trades. It supports different currencies and is flexible enough to work on exchanges around the globe. To enhance speed, FIX utilizes multiple small transactions to complete each order. Unfortunately, this complex infrastructure is difficult to troubleshoot.

Financial Market Data

In addition to the actual trades being placed, financial firms must be privy to multiple information sources tracking the ever-changing market. Have interest rates moved up or down? What are the latest production forecasts? Where do unemployment numbers stand? All this has an impact on the market, so it is critical that financial market data services such as Bloomberg and others be utilized to get data quickly. The key is to take advantage of data while it is fresh and revenue potential is at its highest point. Stale data is worse than useless; it can cost clients and firms millions.

But nothing comes for free. Financial market data contributes significantly to network utilization. It would not be practical for every trader (or automated trading station) to have a dedicated, unicast feed. The duplication of data alone would have a negative impact on performance. So once again, consolidation has taken place in the financial industry. IP multicast is commonly used to distribute financial data. Instead of individual conversations required for every endpoint, multicast allows sensitive data to be economically distributed to a number of subscribers simultaneously.

But how does one keep up with the dailyflow?

What to do when issues are encountered?

The Benefits of Packet-Flow Analysis

High level monitoring tools such as NetFlow or SNMP are severely limited when working with financial applications. All the important data is hidden. Even specialized financial tracking tools can only go so far when troubleshooting day-to-day issues. To really get to the crux of a problem, one needs to properly analyze the conversation flow. The only way to truly get this level of detail is to start with the packets traversing the network. But packets are far too granular. Something (or somebody) needs to organize the packets into practical information such as: What stocks were traded? How fast were they acknowledged? Did they complete? Was the order only partially filled? Did microbursting negatively affect performance? Were the transactions received in the proper sequence? These are intelligent questions that require intelligent answers. Sniffer® Financial Intelligence is uniquely positioned to provide these answers and more.

How it Works

Sniffer Financial Intelligence leverages the vast packet storage capabilities of nGenius InfiniStream. These infrastructure devices are strategically placed in the network to collect, store, and index terabytes of packets quickly and efficiently. In addition to statistics being continually forwarded to nGenius Performance Monitor, these packets can be utilized for retrospective analysis. When issues arise, complex algorithms automatically stitch the packets together into financial records that are easily interpreted by people that understand trading and market data.

Key Features

Uses Trade Order terminology

- Order Type
- Price
- Filled by
- Symbol
- Execution ID
- Currency
- Client Order ID

Automatically recognizes a variety of financial market data and ticker protocols, including

- OPRA FAST
- NSX Depth of Book
- ARCA Book for Equities
- NASDAQ Based Feeds
- Protocols such as LBM, TIBCO, LBM, and CME-MDP

FIX and TradElect functionality

- Dozens of financial-specific measures
- Granular details and statistics for individual trades
- Latency and transaction delay distributions
- TCP Ack calculations for either direction of Order Transactions
- Supports FIX and TradElect Message Types

Financial feed statistics

- Traffic rates across {S,G} and per {S,G} channel
- Multicast IPDV, retransmission rates, Out of Sequence, and messaging efficiencies
- Data feed loss and microburst activity
- Incorporates market data feed customization

Ease of use

- Leverages the Sniffer Intelligence troubleshooting workflow
- Provides Multidimensional views
- Includes HyperLock™ filtering and drill-down analysis
- Flexible charts and graphs

Sniffer Financial Intelligence Minimum Console Specifications

- **Operating System:** Microsoft Windows XP Professional w/ Service 2; Windows Server 2003; Windows 2000 Professional w/ Service Pack 4
- **CPU:** Intel Pentium M 1.2GHz, or equivalent
- **RAM:** 1 GB RAM available system memory (2 GB recommended)
- **Storage:** HDD 5400 RPM, 1 GB free hard disk space, CD-ROM Drive
- **Monitor:** VGA color monitor w/ 1280x1024 resolution

NETSCOUT®

About NetScout Systems

NetScout Systems provides advanced network and application service assurance solutions that deliver complete visibility into real-time, packet/flow-based operational intelligence. IT operators at the world's largest enterprises, government agencies, and service providers use the Sniffer and nGenius solutions to troubleshoot service degradations faster and more efficiently in order to reduce MTTR.

Our world-renowned Sniffer and nGenius solutions include:

- Intelligent Data Sources for high capacity, deep-packet recording and monitoring
- Analysis Software for real-time and historical network and application performance management, troubleshooting, capacity planning, and reporting
- Advanced Intelligence for early detection and in-depth analysis of complex or specialized application services
- Comprehensive, global support, consulting and training services

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