



The Network Environment

SIAC runs the computer systems and communications networks that power the NYSE and the Amex and disseminates U.S. market data worldwide. When the financial markets close, SIAC's work continues, operating clearance and settlement systems on behalf of the Clearing Corporations. SIAC's Secure Financial Transaction Infrastructure (SFTI) is the communications network for Wall Street and the financial industry that allows access to the services SIAC provides.

Challenge

To transform SIAC's network into a distributed, more efficient configuration, leveraging carrier hotels around the country. Prior to SFTI, SIAC's network resources were concentrated in its data centers, fully staffed with a team of technicians on a 24/7 basis.

Solution

Sniffer Distributed devices, located at multiple points on the network, allow SIAC to remotely monitor and manage every line on its network from central monitoring locations.

Benefits

Using Sniffer Distributed's remote access capabilities, SIAC can connect anywhere to monitor any link in the network, and troubleshoot any issues that may arise. One centrally located SIAC technician can respond to any issues with the same immediacy as multiple teams of technicians deployed in the field.

SIAC — At the Heart of the Financial Industry's Evolving Technology Infrastructure

Introduction

"Efficiency" and "fast access to information" have been the principles upon which financial markets and their participants operate. Today, these concepts are being realized anew in the Secure Financial Transaction Infrastructure (SFTI, pronounced "safety"), the communications access network for Wall Street and the rest of the financial industry, built and operated by the Securities Industry Automation Corporation (SIAC), and enabled by Sniffer® Distributed network troubleshooting and monitoring tools. Sniffer Distributed allows SIAC to monitor, validate, and evaluate its entire network infrastructure operations, from troubleshooting and baselining, using realtime and historical analysis.

The Lifeblood of the Financial Industry

Founded in 1972 as a subsidiary of the New York Stock Exchange (NYSE) and the American Stock Exchange, (Amex) SIAC runs the computer systems and communications networks that power the two exchanges and it disseminates U.S. market data worldwide. When the financial markets close, SIAC's work continues. The organization operates clearance and settlement systems on behalf of the Clearing Corporations. More than a trillion dollars' worth of trades are cleared and settled through SIAC's network on a daily basis.

SIAC is responsible for providing the highest quality, most reliable, and cost-effective systems to support the current and future business needs of the NYSE and Amex. The organization's work spans all aspects of technology, from research and development, to software development, programming, communications, operations, and facilities management. SIAC's Shared Data Center alone is linked to the securities industry by more than a thousand communication lines over which an average of 70 billion bytes of data are transmitted daily.

Launched on Sept. 4, 2002, SFTI was developed in response to the infrastructure damage and trading disruptions caused by the Sept. 11, 2001 terrorist attacks on the World Trade Center that resulted in damage to the convergence of service provider circuits in the area. SFTI was designed with business continuity planning (BCP) in mind, providing financial institutions with a new way to connect to SIAC services at designated

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**Vice President of Communications Engineering,
Planning, and Development at SIAC, SFTI Product Manager**

access points; it replaced point-to-point circuitry with a highly redundant, IP-based infrastructure that provides distributed pathways.

"As the financial industry has evolved in response to world events, so have we," says Andrew Bach, vice president of communications engineering, planning, and development at SIAC and product manager of SFTI. "SFTI allows financial markets to operate without interruption, enabling quick recovery in the event of a crisis."

Building a Highly Efficient Network

Reliability and uptime are absolutely essential for the SFTI network, which moves about 40 megabits of data per second via pure Internet protocol (IP). In addition to the massive quantity of trades SIAC settles, much of SFTI's volume is multicast traffic—online "broadcast" information. SIAC has been using multicast technology since 1997 to distribute real-time stock market quotes to more than 200 parties, including news and wire services that redistribute them to thousands of corporate clients.

Prior to SFTI, SIAC's network resources were concentrated in fully staffed data centers, which operate on a 24/7 basis. The SFTI network is far more distributed, with network connections housed in "carrier hotels" (independently owned and operated telecommunications data centers used by large numbers of providers) around the country. Bach attributes the new, more efficient network to his use of Sniffer Distributed devices: "With Sniffer Distributed, we are able to remotely monitor and manage every line on our network from our central monitoring locations, just as if we had a team of technicians on site," he says. "Sniffer Distributed is a critical enabler of SFTI."

"Using the equipment's new remote access capabilities, we can connect from anywhere to monitor any link in the network, and troubleshoot any issues that may arise," he continued. "We receive the same benefit as if we had many teams of technicians deployed in the field."

Fast Access to Network Information Improves Service Quality

The network monitoring devices have improved SFTI network's service quality. Bach says, "Now we can monitor every line across our vast network. If a customer is having a communication problem, we can focus all of our resources on that customer's line to quickly pinpoint and resolve the problem." In situations like this, Bach and his team use Sniffer filters for advanced diagnostic purposes. The filters allow them to observe individual data streams coming in from a customer, with a very fine level of granularity, and monitor individual conversations with SIAC's application systems.

Across the board, Bach says that using Sniffer devices is critical to fast problem resolution. An avid user of Sniffer devices since the late 1980s, he now has more than 250 of them deployed on the SFTI network. "A 'Sniffer file,' is the lingua franca of the networking industry. It is ubiquitous among equipment manufacturers and service providers alike. If we are having problems on a network link, we send a Sniffer trace file to one of our dozens of vendors for analysis. This benefit is just one of the reasons that keeps us standardized on Sniffer products. The trace file format is the industry standard."

In addition to using Sniffer Distributed's diagnostic tools, built-in performance monitoring, and reporting, SIAC plans to extend the value of its Sniffer investment by implementing the Network Performance Orchestrator™ (nPO™) solution, which comprises nPO Manager and nPO Visualizer. The nPO solution will enable SIAC's network, security and application professionals to strategically and effectively manage, secure, and plan the growth of their global networks and applications.

Sniffer Exceeds Expectations

Bach speaks enthusiastically about the contribution Sniffer Distributed has made to his organization. "Sniffer Distributed exceeded our expectations because it's not just an invaluable technology tool, it's a business enabler. It allowed us to move our connectivity points outside of our buildings because we were able to remotely control our interfaces and monitor them. It sounds elementary, but that's the foundation of SFTI. If it weren't for Sniffer Distributed, we wouldn't have been able to cost-effectively implement SFTI.

"It's also a critical part of our business continuity planning," he continues. "Once freed from having to operate in a particular location, we acquired new flexibility with business continuity options. With our remote network monitoring capabilities, we are well-positioned to keep Wall Street working."

Both of these benefits, as well as SIAC's ability to provide enhanced customer service, have helped the industry utility to significantly cut costs. "At the new remote access centers, we do not need a permanent staff. Instead, we can dispatch a technician when there's a significant problem. Sniffer Distributed has helped us maintain a lower operating point and pass that on to the industry," Bach says.

Evolving to a Higher Level of Performance and Efficiency

Bach sums up by reiterating that Sniffer Distributed devices are an integral part of SIAC's success, "Sniffer Distributed devices have helped us evolve the financial industry's network infrastructure to a new level of power, flexibility, and efficiency. Having these devices on our network means we have fast access to the network information we need—information that's required to keep our customers up and running smoothly, every day."

Epilogue

According to Andrew Bach, vice president of communications engineering, planning, and development at SIAC and general manager of SFTI, "Sniffer Distributed exceeded our expectations because it's not just an invaluable technology tool, it's a business enabler. It allowed us to move our connectivity points outside of our buildings because we were able to remotely control our interfaces and monitor them. It's also a critical part of our business continuity planning. Once freed from having to operate in a particular location, we acquired new flexibility with business continuity options. With our remote network monitoring capabilities, we are well-prepared to keep our customers up and running every day."



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

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