



PHILADELPHIA STOCK EXCHANGE

The first securities exchange in the U.S., trading more than 2,200 stocks and 1,180 equity options.

Industry: Financial Services
Geography: United States

Deployment Summary

- System replaces homegrown point-to-point messaging infrastructure with seamlessly integrated TIBCO messaging infrastructure.
- Integration unifies all trading-related systems that are responsible for generating, displaying, and distributing quotes; routing orders; and executing and reporting trades in real time.

Benefits

- System scales to accommodate massive growth in trading volume.
- High system reliability ensures smooth operations.
- Messaging solution gives traders real-time notification of trading activity.
- The messaging solution reduced development cycles by 20 to 30 percent and decreased time to market.



“When every second counts, we employ only the technology that optimizes our business in a real-time network computing environment. The TIBCO solution provides a more open and far more advanced technology for the high performance and scalability we require as the trading volume on our options trading floor increases.”

William Morgan, Executive VP and CIO, PHLX

Real-Time Trading Helps PHLX Reach New Heights

The Philadelphia Stock Exchange (PHLX) was the first securities exchange in the U.S. and is among the nation’s fastest growing sectors index option exchanges. It trades options on more than 2,200 stocks and indexes, which equates to more than 75,000 products that must be priced and traded daily. This number continues to increase at a dramatic rate as decimalization – the transition from fraction pricing to decimal pricing – drives data volumes to historic levels.

PHLX must receive and process approximately 300 million quotes per day because each option quote reflects a combination of many more variables, such as different strike prices and maturity dates. PHLX must also update each quote with every tick of the underlying equity. In addition, it is required to send all options prices generated on its exchange – up to 47 million quotes per day – to the Options Price Reporting Authority (OPRA).

In 1997, PHLX was faced with increased options trading and new industry requirements that would cause trading volume to increase. The company quickly realized that it was outgrowing its homegrown options trading system – a point-to-point messaging architecture with limited

scalability and lengthy development cycles. This system was at the core of PHLX’s most fundamental business activities and was responsible for generating, displaying, and distributing real-time quotes internally and externally; routing orders to traders’ electronic order books; and executing and reporting trades.

“To effectively compete and capitalize on new opportunities in the future, we needed to re-architect our system to provide scalable real-time performance, accelerated application development cycles, and mission-critical fault tolerance,” says Douglas Schafer, first VP of options trading systems development at PHLX.

PHLX opts for scalable integration

After an exhaustive evaluation of business integration vendors, PHLX chose TIBCO Software Inc., a leading enabler of real-time business, and decided to use TIBCO’s messaging solution as the infrastructure on which to build its next-generation Options Trading System. TIBCO’s solution provides rich application programming interfaces (APIs) and class libraries to enable the rapid development of real-time, highly distributed applications.

Today, PHLX has fully deployed TIBCO's solution across its entire options trading floor, successfully achieving its goal of full architectural deployment in just three years and bringing measurable results.

Scalable real-time performance accommodates growth

The PHLX options trading floor moves at a speed few businesses can match, requiring a system capable of handling high-performance applications that exchange messages in real time – at the same extraordinary speed that occurs on the trading floor.

Speed and scalability will become even more critical as industry initiatives such as decimalization drive quote volumes higher. Securities regulators mandated a reduction in trading increments beginning in 2000 from fractional sixteenths, or 6.25 cents, to nickel increments and, today, to penny increments, fueling higher quote volumes and frequency.

As a result, compared to the 300 messages per second that the PHLX system handled in 1997, PHLX will need to handle a potential 72,000 messages per second – an increase of 24,000 percent. Using TIBCO's solution, PHLX has scaled to such record-breaking volumes without compromising real-time performance or application development time.

Mission-critical reliability ensures smooth operations

Nothing is more essential in the high-stakes world of financial options trading than system reliability; the direct and indirect costs of downtime are enormous. If the PHLX Options Trading System

experiences a significant failure that affects trading and quoting for longer than 15 minutes, it must notify the Securities and Exchange Commission (SEC) about the outage. Since the TIBCO implementation, PHLX has experienced high system reliability, ensuring that traders do not miss a beat in the real-time game of finance.

"With industry message volume continuing to explode and communication networks becoming faster and more efficient, it is absolutely critical that our interprocess communications be stable, fast, and efficient," says William Morgan, executive VP and CIO at PHLX.

TIBCO's solution has proved reliable. But if the Options Trading System goes down for any reason, option orders and trades will be automatically recovered and delivered to the receiving application when the system comes back online. The system's notification feature then would alert traders with confirmation that their messages arrived at the right place and have been processed successfully.

TIBCO and its solutions deliver over the long term

Understanding that it needed a long-term strategic partner, PHLX chose TIBCO for its technically superior messaging infrastructure product and also for its willingness to establish a long-term relationship with PHLX. Since the implementation, TIBCO has helped PHLX achieve its business goals year after year.

Scaling from a system that could handle only 300 messages per second in 1997 to one that handles more than 25,000 messages

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Douglas Schafer, First VP of Options Trading Systems Development, PHLX

per second today, PHLX is setting record equity option trading volumes with the help of TIBCO's solution. In the future, PHLX will use The Power of Now® to scale to even greater volumes without compromising real-time performance, reliability, or time to market.

"When every second counts, we employ only the technology that optimizes our business in a real-time network computing environment," Morgan says. "TIBCO's solution provides a more open and far more advanced technology for the high performance and scalability we require as the trading volume on our options trading floor increases."

"Without TIBCO, we wouldn't be where we are today," Schafer adds. "Implementing it as part of our new architectural paradigm has proven to be the cornerstone of our success. We have no doubt TIBCO's solution will continue to play a critical role in helping us grow our systems and infrastructure to meet new demands and requirements as the financial trading world continues to evolve."



TIBCO Software Inc. (NASDAQ: TIBX) is the leading independent business integration software company in the world and a leading enabler of real-time business, helping companies become more cost-effective, more agile and more efficient. TIBCO has delivered the value of real-time business, what TIBCO calls The Power of Now®, to thousands of customers around the world and in a wide variety of industries.

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