"How Technology is Changing Securities Processing"

William B. Aimetti
Chief Operating Officer, The Depository Trust & Clearing Corporation
Annual Technology for Securities Operations Conference
New York, N.Y. April 18, 2007

Good morning. I'm delighted to be here today to discuss "How Technology is Changing Securities Processing."

From the time we automated the very first manual process in the financial services industry – whenever that was in the 20th Century – technology has changed and continues to change the way we process securities. It changes the speed of processing as well as the breadth of instruments that are processed. Sometimes technology leads the process; other times our customers or our regulators help drive the process and often originators & traders at your firms invent new instruments that require new technology. Technology, like the markets it serves, is affected by the same factors that constantly buffet and reshape our financial markets.

The landscape of the securities industry market – both in the U.S. and around the globe – has changed dramatically in the last few years. New, sophisticated investment products, globalization, algorithmic trading, and the velocity and volume of hedge fund trading – even the everyday volumes of equities trading – are impacting markets across much of the world, and in turn, impacting our customers and the way they do business.

Earlier today, it was announced by Project Turquoise that DTCC's European subsidiary, EuroCCP, has been selected to be the clearing, settlement and risk manager for Project Turquoise. Project Turquoise is a consortium made up of seven (7) major financial institutions (DB, GS, ML, UBS, CSFB, MS, & Citi) that are working to develop a new pan-European trading platform. We selected Citi's global transactions services as our settling agent, leveraging its extensive pan-European securities network, its strong links with the European central securities depositories and its global expertise.

Globalization is one of the areas that I want to touch upon today and explore how it is changing the marketplace and technology. And I also want to discuss the other forces that are helping to shape our technologies, including:

- Customers and their expectations
- New financial instruments
- Industry needs
- The markets themselves
- Regulatory issues
- Partnering and outsourcing, and lastly,
- Business continuity planning.

Globalization

More and more exchanges are becoming public companies and are looking for mergers as a way to grown revenues and increase efficiency. We see the merger of the New York Stock Exchange with Euronext as one step in a bigger, more complicated, global transformation of capital markets that's underway. I expect that we will continue to see the consolidation of exchanges increase dramatically around the globe and our technology must support these evolving entities. We also understand that the pressure on our customers to reduce risk and costs is driving them toward strategies that include creating new investment instruments, new trading tactics, new risk transfer vehicles and much more sophisticated market mechanisms and capabilities.

Since what happens in Europe's markets is important to so many of our customers, it is obviously also important to us. In the case of the NYSE Group's merger with Euronext, DTCC is working closely with our customer, the exchange. We've made systems enhancements to meet specific requirements for serving a dual trading venue in order to support the new NYSE-Euronext Group.

We have constructed our clearing and settlement systems with the flexibility to accommodate practices in other markets. We can, for example, include multiple settlement cutoffs. Our Clearing Corps., (NSCC and FICC, and soon to be Euro CCP) subsidiaries can accept real-time input from exchanges and other marketplaces outside the U.S., and can accept trades in multiple currencies. In addition, our depository has the capability to settle transactions and service assets in currencies other than the U.S. dollar, with the flexibility to add additional currencies as needed.

None of this, of course, guarantees us survival in the changing world of securities. But we do have the experience of weathering the nearly three decades of change in U.S. securities markets that led to consolidation of the clearing and settlement business here. And in a world where the pressure to consolidate infrastructures will be very powerful, we work continuously to adapt. We understand that our customers will drive this process, and we know that meeting their expectations will be the sole basis for measuring our success.

Customers

The challenge for DTCC and our counterparts around the world is that customer expectations are accelerating at almost warp speed. The demands customers are putting on us are growing in number and size on a daily basis. Whether trading is on an exchange or over-the-counter, there's a whole new level of innovation required of us, and a much shorter time period to develop the kinds of capabilities the industry needs. And like our customers, we must be prepared for business 24/7, not just in one market, but in markets and time zones around the world. Technology must support this environment for both you and DTCC.

The challenge we face is how to serve these multiple trading venues, accommodate new instruments and meet new regulatory concerns without driving up cost or risk. The challenge is especially urgent because, if we can't do this, or respond fast enough, our customers will soon look elsewhere for solutions.

In the past five years, we have fundamentally transformed the entire IT organization at DTCC to meet our customers' increasingly diverse and complex technology needs. Part of this transformation lies in the way we develop and test software. At DTCC, we use a methodology called the Capability Maturity Model Integration – CMMI – which originated at Carnegie Mellon University. CMMI has five levels of certification that companies obtain based on their development capacity. DTCC now has Level 3 certification for six CMMI practices and, in 2007, we will add two more categories. In 2004, we obtained Level 2 certification in all CMMI disciplines. These accomplishments put DTCC in an elite class, especially among financial services firms. As you well know, many of the technology insourcing organizations in India and other low cost locations, market themselves as CMMI Level 5 organizations.

What's more, we've taken major steps to reengineer our core underwriting and corporate actions platforms. While the new corporate actions initiative will be implemented in phases through 2009, we'll launch part of our new underwriting system later this year. Called the New Issue Information Dissemination System, it will centralize and automate the electronic collection and distribution of information on new bond issues. In addition to moving the industry a step closer to straight-through processing, the new system will help underwriters meet a new regulatory requirement of the Municipal Securities Rulemaking Board (MSRB). The proposed new rule states that municipal securities dealers, in most cases, must report transactions to the MSRB within 15 minutes of the time of trade. This compares to the three-hour deadline that is now in place.

With the new system, underwriters will send new-issue information electronically to DTC, as well as any follow-up adjusted information. Once it has all the required reporting information, the system will send the data to information vendors, dealers and other market participants so they can confirm, clear and report trades in a timely and accurate fashion. We plan to expand this system to automate the collection and distribution of information on new corporate bonds, asset-backed securities and other fixed income securities.

New Instruments

Along with reengineering two of our core services, DTCC continues to introduce new services to process new financial instruments and to meet risk and regulatory requirements.

The derivatives market is a case in point. For our customers in this growing global over-the counter market, improving efficiency, managing risk and reducing operational costs are paramount. The total value outstanding of credit derivatives alone more than doubled to $26 trillion in mid-2006 from $12.4 trillion in mid-2005, according to the International Swaps and Derivatives Association, with new investors regularly entering the market. The value of Derivative instruments traded on an annual basis around the world dwarfs the value of Equity trades executed, cleared, and settled and will continue to grow.

We first entered this market when it was experiencing phenomenal growth in 2003 and the industry was looking for ways to automate and reduce risk in the derivatives market. Leveraging our technology, we introduced a matching and confirmation service called Deriv/SERV which automates the legal confirmation process for OTC derivatives, including credit equity and interest rate derivatives. Like the market itself, Deriv/SERV experienced rapid growth, amassing the largest community of users for automated processing in the market. In 2006, Deriv/SERV's global client base tripled to more than 753, including dealers, investment managers and hedge funds in 30 countries. Today, Deriv/SERV electronically confirms in excess of 80% of the credit derivatives traded worldwide, up from just 15% in 2004 and we are averaging one new customer/day in 2007, and now top 840 customers. And in 2006, total transactions processed rose to 2.6 million, from 945,000 the year before.

We followed up Deriv/SERV with our Trade Information Warehouse for OTC derivatives in 2006. The Warehouse provides a comprehensive trade database and support infrastructure that automates and standardizes post-trade processes – such as payments and contract term changes – over the life cycle of a contract, which can go on for years. To ensure global settlement services for the Warehouse, we established a strategic partnership with CLS Bank International, which is an integral part of the FX market and provides settlement services in 15 currencies. I mention this because as we support our customers in their changing world, we are open to partnerships with others who can help us deliver quality, cost-effective solutions. We now partner with numerous service providers in the OTC derivatives market alone.

DTCC continues to work with the global derivatives dealers and regulators on ways to automate and strengthen the market's infrastructure worldwide. A Financial Times editorial last fall called on the industry to keep working and improving the post-trade processing system. "While the work of clearing the backlog of unconfirmed credit derivatives trades is well under way," the Times wrote, "the (industry) has more work to do in improving the post-trade processing system more broadly…," and it should "…pursue 'borderless solutions' in today's more integrated global market.

So Deriv/SERV and the Trade Information Warehouse really represent the beginning of a fully-integrated, comprehensive global processing solution for derivatives. Our customers expect us to expand Deriv/SERV to support a wide range of instruments. We've already added CDS index tranches and interest rate life-cycle events to the processing platform, and we expect to add more than 60 products to the service this year by including such instruments as Japan share and index swaps, Asia ex. Japan share and index variance swaps, and non-deliverable swaps.

Industry Needs

Derivatives are just one new product that is driving technological change. At DTCC, we launched a new Managed Accounts Service in 2006 to bring new efficiencies and risk reduction to the process of opening and maintaining managed accounts. This new service automatically links investment managers, broker/dealers and service providers through a single, centralized, automated platform. At the same time, we responded to the investment community's call for help on alternative investment products. Many major asset managers are turning to alternative investment products to help increase returns on their investor's money. For example, assets in hedge funds reached $1.4 trillion in 2006 – a 15% jump in one year – and institutional demand for hedge funds is expected to triple by 2010. Throughout 2006, DTCC worked with the industry to develop an Alternative Investment Products Service to automate and streamline trade order, reporting and settlement of these complex products. The service is now in testing with a group of hedge funds, fund administrators and broker/dealers, and, pending regulatory approval, is expected to be launched this year.

There are many other examples of how the market is calling on DTCC and the industry to develop new solutions and new technology. Last year, we announced plans to build a central counterparty for mortgage-backed securities to guarantee settlement and bring new efficiencies to this $300 billion-a-day market. Our goal is to begin phasing in new services so that we will have a full central counterparty up and running within two years.

We are also working with a group who make up about 80% of the market for the syndication and secondary trading of commercial loans, where a lack of standards exists for confirmation and settlement. We are now working on the development of a prototype to be evaluated by the sponsoring firms.

Volatile Markets

Even the everyday business of processing securities transactions – one of our core businesses at DTCC – is helping shape today's technology needs. Earlier this year, for example, the U.S. markets experienced a volatile five-day period beginning on February 27 when the Dow lost 416 points by market close that day. At DTCC, we processed a record 76.7 million transactions that day, worth more than $1.54 trillion, surpassing the 2006 transaction record by more than 53%. Each of the following four trading days after February 27 exceeded the 2006 record by an average of 34%. Therefore, managing technology capacity and being sensitive to abnormal surges in volume must be paramount in all our technology plans. Unplanned events can and will cause tremendous volatility and volumes in the markets we serve.

Ensuring that there is adequate capacity in our systems to handle unpredictable spikes in volume is part of our job at DTCC. Our objective is to handle three time the normal volumes on any given day, and we'll be evaluating that number as the markets grow. But these unpredictable spikes and huge volumes are recurring more often than ever before, and it's clear that pressures on clearing and settlement structures, including globalization and the increasing interconnection of markets, will alter securities markets and practices.

Regulatory Issues

At the start of my talk this morning, I mentioned that regulators, as well as the markets and customers, were helping to shape the technology for securities processing.
And I believe one of the more pressing, and perhaps
controversial, new regulations facing the U.S. exchanges and markets is Reg NMS. Reg NMS – or National Market System – represents the push by the Securities and Exchange Commission for an integrated stock market to ensure that all buyers see the prices asked by all sellers, and all sellers see the prices offered by buyers and orders are routed to the Exchange with the best price. It's meant to level the playing field so that that every trader and every small investor get the best price available at any moment on any trading venue in the country.

At DTCC, we're not making any judgments on NMS. In fact Reg NMS deals more with trading than with our core business of clearance and settlement. But one of our corporate goals for 2007 is to work with the U.S. exchanges and marketplace to help them comply with the new regulation and meet the third quarter deadline.

DTCC is also working with other segments of the industry to help them meet compliance requirements stemming from the U.S.A. Patriot Act and other regulatory acts. In particular, a variety of services offered by our Insurance Services group help financial firms with Patriot Act compliance, and our Wealth Management group offers services that help mutual funds companies comply with recent trading regulations.

One of the new compliance requirements which is rather close to our hearts at DTCC involves the Direct

Registration System – DRS. As most of you may know, DRS enables investors to register ownership of their shares electronically with either the issuing company or its transfer agent, eliminating the need to issue paper certificates, and hence saving the industry million of dollars each year.

The Securities Industry and Financial Markets Association (SIFMA) has stated that the annual cost of printing and issuing paper certificates costs the industry approximately $250 million a year, and that includes $49 million annually to replace lost or stolen certificates.

The New York Stock Exchange, Nasdaq and the American Stock Exchange filed rule changes approved by the Securities and Exchange Commission (SEC) in 2006 that require that all newly-listed issues coming to market on or after January 1, 2007 be DRS-eligible. Issues that came to market before that date will have to become DRS-eligible by January 1, 2008. Regional exchanges in Chicago, Philadelphia and Boston followed suit this year and adopted the DRS-eligibility requirement.

We think this is a major step toward the dematerialization for the industry and have gotten lots of positive comments from issuers. Some have already said their firms have defaulted to DRS for eligible securities. Our next step is to find just how big the savings are for these firms. I promise we'll keep you up-to-date.

Partnering

Earlier I said that DTCC had formed a strategic partnership with CLS Bank International for the Trade Information Warehouse. I mentioned this because it illustrates how we use partnerships to extend our reach and deliver quality, cost-effective solutions quickly.

The fact that we are the largest post-trade infrastructure in the world is no assurance of continued success. We view partnering with other service providers as critical to ensuring our capacity to meet – and exceed – customer expectations. We outsource or partner with a well-respected company when it will help bring a high-quality and reliable solution to market quickly, and when it will help reduce customer cost. Another example is our partnership with Citibank, which I mentioned earlier, as the settlement agent for EuroCCP.

In the past year or so, for example, we've had many clients come to us complaining about the time and manpower it takes for them to research cost-basis information for their own customers. We all know – many of us from personal experience – that researching cost-basis information can be difficult, time-consuming and expensive. So imagine what it's like for a mutual funds company, security issuer, transfer agent or a broker/dealer when their clients – important clients – start asking them for cost-basis information.

We had a choice. We could certainly build our own system, which would call for an investment in time and money. Or we could see if there was a quality product already available on the market that we could offer customers. We studied the marketplace and discovered a company called NetWorth Services, which offered a superior, cost-basis service that was fast, accurate and reasonably priced – and had been used by the Internal Revenue Service to conduct a major tax study released in 2005. We formed a strategic alliance with NetWorth, called our new product AccuBasis and helped solve a problem that has plagued the industry and its investors for years. And it was all done in the relatively short period of a few months.

AccuBasis has security pricing data back to 1925 and calculates the historical security changes caused by stock splits, mergers, dividend reinvestments and every other possible cost-basis adjustment. By inputting some basic information on the security with a few keystrokes of their PCs, investors will have accurate cost-basis information delivered to them in a matter of seconds. We already have a diverse range of clients, both financial and non-financial, interested in AccuBasis and some companies such as Aflac, a major insurance company, and Horizon Publishing Company, a leading publisher of investment newsletters for individual investors, are already offering AccuBasis to their clients.

Outsourcing

Outsourcing, too, is part of our overall technology strategy and I am sure part of your strategy as well. Our outsourcing program has been in place for several years. In prior years, we called it "consulting help," which was used to augment our full-time staff when our demand for labor was greater than our supply. The difference now is that we are able to obtain resources from locations outside the United States at more economical rates. This staffing strategy allows us to ramp up our resources quickly, enabling us to meet technology development commitments.

We've entered into strategic partnerships with several firms, negotiating service agreements that include a series of safeguards. For instance, we built in protection against rate increases. For the first two years, our rates were frozen with subsequent increases indexed to the U.S. consumer price index, not their CPI. We are also protected against foreign exchange risk.

Today, we have multiple partners, which gives us flexibility as well as a form of checks and balances. For instance, we might use one firm for development and another for testing. We've also diversified geographically to avoid having too much work concentrated in one country. In addition to strategic partners in India, we have a strategic partnership in Brazil, and we are looking to diversify into Canada, as well.

Whenever I speak on this topic, I'm always asked about the potential security risks associated with outsourcing. Like all employees at DTCC, the people from outsourcing firms who work for us go through a rigorous screening process, managed by our Internal Security Department, which works closely with local authorities on background checks. And from an information security standpoint, none of the offshore developers has access to DTCC's production systems. They can only access our development environment, which is completely isolated from the production environment. We use these firms for development and testing, but not for the maintenance of our critical core processing applications.

Business Continuity

Our technology strategy, like the technology strategies of most financial firms, is tied squarely into our business continuity plans as we move forward into 2007.

Contingency and business continuity planning go back many years at DTCC. We have always had safeguards in place to support our critical clearing, settlement and asset servicing roles. But 9/11 and the 2003 blackout in the Midwest and Northeast taught us new lessons, and at DTCC we learned to build on our existing continuity plans. We have completed all our major projects planned for strengthening the industry's infrastructure, and at this point, we are considered by the industry to be state-of-the-art in business continuity. That doesn't means we have stopped paying attention to this area. On the contrary, we are continually reinforcing and reassessing our continuity capabilities.

Currently, we have plans and resources in place to:

- Achieve recovery, even in the most dire circumstances, within the two-hour window mandated by government agencies. Faster recovery is the objective in less extreme situations.
- Increase employee safety and disperse staff across geographically diverse operating facilities in accordance with the recommendations of an interagency government paper.
- Operate multiple back-up data centers linked by our highly resilient network technology.
- Reinforce our processes that mitigate marketplace, operational and cyber-attack risks.
- Test our own continuity plan readiness and connectivity on a regular basis, ensuring that our customers can connect to our primary and back-up sites and that we can connect to their primary and back-up sites.
- Communicate on an emergency basis with the market, our customers and government agency decision-makers.
- Utilize new technology we developed in conjunction with partners to provide high-volume, high-speed, asynchronous data transfer over distances of 1,000 miles or more.

This last point – utilizing new technology to develop high-speed asynchronous data transfer – is a good example of how DTCC is employing new technology and partnering at the same time to bring new safeguards to the industry.

Just four years ago, the most efficient way for DTCC to maintain an out-of-region data center was to back-up its most important data on tape and send the tapes to a remote location – a process that took about 24 hours. In 2003, we began using a new technology from EMC Corporation called Symmetrix Automation Replication, which could replicate data in 30-minute intervals at a location thousands of miles away. This enabled us to operate a remote data center which dramatically improved business continuity for the industry.

Last year, EMC released a new data replication system called Symmetrix Triangulated Automation Replication which, after DTCC spent months customizing and testing, cut the 30-minute cycle down to under one minute. This means that if a disruption in network service occurred at DTCC's regional data centers, no more than one minute worth of data would be lost after the systems were recovered at the remote data center, greatly reducing the amount of lost transactions.

Working with this new technology was a challenging, time-consuming task. We had to make key enhancements to the technology, and it took months to install and test the system. And because it was a cutting-edge technology, it had its own kinks that had to be worked out. But since we've had the system up and running, there hasn't been a hiccup.

Customer Satisfaction

One of the things we know at DTCC is that customers help drive the process...and that if you listen and respond to your customers on a consistent basis, you will win their respect as well as their business. We believe that "putting customers first" is ingrained in the DTCC culture and that it's at the heart of our business model.

That's why we were so delighted this year to receive a 91% overall customer satisfaction score in a survey conducted by an independent consultant. We think this underscores the depth of commitment across all of our business lines to quality and excellence, and it also marks the third straight year that DTCC has received world-class customer satisfaction scores.

Thank you for your time and attention. Now it's my turn to listen and respond. I'll be happy to take any questions.