

# Depository Trust & Clearing Corporation keeps up with growth and keeps the markets on firm ground.

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## Overview

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### ■ **Business Challenge**

*The dominant provider of investment processing services in the U.S., DTCC sought to parlay its record of service innovation and cost leadership by expanding globally. To meet the additional processing demands and new service development requirements of these new markets, DTCC needed scalability, reliability and flexibility in its processing platform.*

### ■ **Solution**

*DTCC teamed with IBM to re-architect its core processing infrastructure to enable it to push its already world-leading transaction capabilities even further to accommodate DTCC's global growth vision. IBM's assistance in moving the company toward service-oriented architecture is a key part of DTCC's drive toward increased flexibility.*



*DTCC provides clearance, settlement and information services for a wide range of financial instruments. DTCC's depository provides custody and asset servicing for 2.8 million securities issues from the United States and 100 other countries and territories, valued at US\$39 trillion. Last year, DTCC settled more than US\$1.5 quadrillion in securities transactions—the equivalent of turning over the entire U.S. GDP every three days.*

### ■ **Key Benefits**

- *77 percent increase in overall transaction processing capacity, enabling DTCC to handle 3 times the highest volume ever recorded*
- *100 percent rate of reliability, with US\$1.5 quadrillion in trades settled annually*
- *25 percent reduction in cost per transaction, giving DTCC the lowest cost per transaction in the world*
- *Rebates of excess transaction fees of more than US\$580 million*

The world's financial markets are now in a period marked by profound changes that are both evolutionary and revolutionary in nature. Trading volumes are trending upward, with dramatic surges in volume becoming increasingly common. Further adding to the financial markets' dynamism is a steady rise in the number and complexity of new investment instruments being introduced. Perhaps most significantly, the very structure of the world's financial markets—defined by institutional relationships and an international regulatory framework—is also being reshaped, with geographic boundaries becoming increasingly irrelevant. These changes have had a widespread and powerful impact on investment strategies and government policies.

## ***Relying on powerful, flexible technology to enable global expansion***

### **Business Benefits**

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- 25 percent reduction in cost per transaction, giving DTCC the lowest cost per transaction in the world
- Rebates of excess transaction fees of more than US\$580 million
- Ability to ramp up processing capacity with maximum cost efficiency
- More business flexibility and faster speed to market through Java-based application development support

*“Our ability to expand capacity demonstrates our commitment to prepare for unprecedented growth and other risk factors affecting the global marketplace. IBM’s technology and vision have been essential to our success in doing this.”*

– William B. Aimetti, president and chief operating officer, DTCC

### **Strong and silent**

By comparison, the impact of these changes on the underlying institutions that make the gears of the financial markets move smoothly have gone relatively unnoticed—which, to a large extent, is the way it's supposed to be. In the same way a utility is always expected to be there, the assumption of reliability for such functions as trade clearance, settlement and record-keeping is built into the workings of the investment industry. The low profile these service providers have kept while providing an essential array of enabling services attests to their ability to adapt seamlessly to the challenges posed by the industry's evolution. In the U.S., the Depository Trust & Clearing Company ([www.dtcc.com](http://www.dtcc.com)) is far and away the leading provider of these services and—as part of its mandate to support the activities of the brokers, dealers, banks and other financial companies that collectively own it—has been a leading force in the development of new and innovative practices.

DTCC's subsidiaries trace their roots back nearly 35 years, when the company was formed to provide clearing and depository services for the New York and American Stock Exchanges, respectively, and the NASDAQ. DTCC's role in the market is to ensure that the trades it processes are settled and payments are made, records are updated and appropriate notification is made to trading partners, marketplaces and regulators. Over time, DTCC grew to include five business units as it expanded the scope of its operations to address new markets and securities. With some US\$1.5 quadrillion in trades settled annually, and US\$39 trillion in securities on deposit from 100 countries and territories, DTCC has become the centralized infrastructure for U.S. capital markets. Its dominance reflects how the scale, efficiency and, above all, reliability of DTCC's centralized trade processing model prevailed in the U.S. market. Its relationship to IBM, from which it acquired the powerful mainframe and database processing capability on which its business depended, was critical at each stage of its development.

### **A license to innovate**

With change accelerating in the global financial markets, DTCC's relationship with IBM would prove even more critical to its ability to adapt, and moreover to seize the opportunities emerging from an industry in flux. Surveying the competitive landscape, DTCC realized that its experience conferred a number of strategic advantages. First and foremost was its founding business model, which dictated that DTCC provide its customers (who are also its owners) with 100 percent reliable services on a flat-cost basis, which means excess profits are returned to users in the form of rebates so customers can benefit from critical mass and economies of scale. In effect, this gives the DTCC license to continuously drive efficiency improvements throughout its infrastructure and processes.

Through tight fiscal controls and high volume trading, DTCC customers receive an annual windfall of nearly half a billion dollars as a result of reductions in their transaction costs. DTCC has achieved the lowest cost of any service provider in the world, which gives it a decisive advantage in its efforts to penetrate emerging market opportunities in different parts of the world, which represent a new chapter in its growth.

Of the many new challenges arising from its growth strategy, the most important was the need to meet the increases in transaction volumes associated with new service offerings, while maintaining the 100 percent system reliability that had made DTCC a key pillar in the stability of the U.S. capital market. DTCC had successfully kept pace with the steady volume growth in its core business by leveraging the inherent scalability and reliability of its IBM mainframe platform, as well as such proven software as IBM DB2®, CICS® and IBM WebSphere® MQ. However, DTCC was moving down a new path that required a new level of flexibility to meet not only quantum increases in volume, but also the need to develop and introduce services rapidly in a more competitive environment. To achieve this, DTCC turned to the IBM System z9™ platform, a scalable architecture that will enable DTCC to push its world-leading transaction processing capability to a new level, in line with its expansion into new markets and services.

The move to Java was another important part of its strategy. By shifting its application development away from traditional mainframe languages, such as COBOL and Assembler, and incorporating Java into its application environment through IBM WebSphere Application Server, DTCC aims to bring new services to market faster and expand the pool of skilled resources it has access to in the technology market. Another reason for adopting Java was the ability to leverage the z9's z Application Assist Processor (ZAAP) intelligent processing capability, which enables DTCC to handle more processing load on its z9 and at a lower cost. DTCC accomplished this by teaming with IBM to re-architect a number of its core systems to incorporate Java. To provide systems management in the Java environment, DTCC deployed IBM Tivoli® Composite Application Manager (ITCAM) and IBM zOS® System Management tools to increase the performance and availability of its business-critical applications. Based on DTCC's work with IBM and other IT partners in the area of disaster recovery, DTCC can—in the event of a natural disaster—process trades across multiple data centers on an as-needed basis, thus providing maximum redundancy at minimum cost.

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## Key Components

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### Software

- IBM WebSphere Application Server
- IBM WebSphere MQ
- IBM DB2
- IBM Tivoli Composite Application Manager (ITCAM)
- IBM CICS
- z/OS System Management tools

### Servers

- IBM System z™

### Services

- IBM Hursley Software Development Lab
- IBM Poughkeepsie Software Development Lab

### Timeframe

- Full System z implementation: 6 months
  - Java reengineering core applications: 9 months
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## Why it matters

DTCC, a giant in the investment transaction processing industry, sought to expand its footprint into the global marketplace. By re-architecting its systems and doubling its unmatched processing capabilities, DTCC has been able to enter new global markets while developing new services as part of its growth strategy.

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## The future is now

If the globalization of its business is a key part of DTCC's future growth strategy, then the future—as the saying goes—is now. With its more powerful and flexible platform in place, DTCC has been at the center of a number of important new developments in the global financial markets. At the top of the list was the selection of DTCC's EuroCCP subsidiary to provide clearing, settlement and risk management services for a bold new pan-European equity trading platform known as Turquoise. Conceived by seven global investment banks in response to changing EU regulations, Turquoise is intended to bypass exchanges such as the London Stock Exchange and Euronext and is, as such, a signal event in the ongoing globalization of financial markets. William B. Aimetti, DTCC's President and Chief Operating Officer, also sees DTCC's selection as an endorsement of its reliability. "By selecting [us] to process its trades, Project Turquoise showed its confidence in our ability to deliver a large-scale, cross-border project within an ambitious timeframe," says Aimetti. "It also assures all of the world's capital markets that the infrastructure is ready to move into the over-the-counter (OTC) and pick-up derivatives market."

In addition to geographic expansion, DTCC's ability to leverage its world-leading transactional capability to develop new services is also a key part of its growth strategy—one that has already been strongly validated by the company's successful move into the credit-default derivatives market. The fact that settling and clearing credit-default swaps (derivatives based on corporate bonds and loans) requires a complex matching of buyer and seller had long been a barrier to process automation, which in the end raised transaction costs and exposed investors to added risk. Seeing an opportunity, DTCC adapted an existing matching engine to create a first-of-a kind infrastructure for handling credit-default swaps. Now, through its DerivSERV subsidiary, DTCC confirms more than 90 percent of credit default swaps that are traded around the world, with 65 percent of those trades coming from outside the U.S.

Just how ready is DTCC to handle the new volume generated from its global growth strategy? By virtue of its investment in the IBM solution, the company now has the capacity to handle nearly 300 million trades per day, an increase of 77 percent. As Aimetti sees it, it underscores DTCC's determination to fulfill its linchpin role in maintaining strong and stable markets. "We've put in place an unparalleled processing capability that demonstrates our commitment to prepare for unprecedented growth and other risk factors affecting the global marketplace. IBM's technology and vision have been essential to our success in doing this."

## For more information

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12-07  
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