



# CLS: Revolutionising the way the world settles foreign exchange trades

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## Overview

### The Need

To manage settlement risk, the global financial system needed to enable simultaneous settlement of both legs of foreign exchange (FX) transactions.

### The Solution

CLS Group created a groundbreaking process for FX settlement, then partnered with IBM to design, develop and manage the global IT infrastructure needed to support it.

### What Makes it Smarter

The unique system settles FX transactions concurrently across time zones, eliminating failure of one side to pay its sold currency after receiving its purchased currency and/or the failure of intermediary institutions.

### The Result

“The fact that we were able to handle the unheard-of surge in volume and volatility with no service disruptions and no loss of capital is enormously significant. This is why CLS was created.”

— Rob Close, CEO of CLS Group and President and CEO of CLS Bank

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The global foreign exchange (FX) market trades several trillion U.S. dollars each day in multiple currencies, involving a worldwide interconnected network of central banks such as the Federal Reserve, the European Central Bank, the Bank of England and almost all of the world's leading commercial banks.

FX transactions often take place between banks in different time zones. Because of this, it's often impossible for them to settle directly and simultaneously: banks in New York, for example, are not open at the same time as banks in Tokyo, and intermediary banks are used to pay and receive funds in the various currencies traded. A bank in Asia wanting to do a euro/dollar trade with a bank in North America, for example, would first send the sold euro funds to the N.America bank via a bank in Europe. The European bank would send their sold dollars to the buyer's agent or “nostro” bank in N.America which would credit the Asian purchaser during the U.S. working day to complete the exchange. This temporal lag inevitably caused exposure to “settlement risk.” Should any bank in this chain fail and thereby default on the deal, one of the parties in the transaction would not receive its purchased currency having paid away its sold currency.

## Radical rethink

In fact, just such a failure did happen several years ago, causing a significant loss and highlighting the need for a more intelligent way of clearing FX transactions. The incident led 60 of the world's leading financial institutions to create CLS Group (CLS)—a new business incorporating a single-purpose FX bank, CLS Bank International (CLS Bank). CLS had the mission to radically rethink the way FX markets work and eliminate settlement risk.

CLS devised an unprecedented straight-through process called “continuous linked settlement,” which facilitates the simultaneous and irrevocable settlement of FX trades. CLS takes all orders and automatically calculates the daily net effect of all the trades due to settle that day on the trading partners, allowing them to directly transfer the minimum necessary funds to CLS Bank as needed and protecting them from risk.





## Business Benefits

- Provides a streamlined, resilient, innovative service, processing more than 55% of global foreign exchange transactions with a peak daily total value settled of \$10.4 trillion
- Eliminates the foreign exchange settlement difference between payments of the two legs of each trade
- Creates a uniquely secure global system able to flex to meet the demands of a growing market
- Delivers the highest levels of resilience and business continuity through mirrored environments in multiple data centres
- Reduces reconciliation costs and increases efficiency of foreign exchange operations
- Reduces complexity based on a single supplier for a full-scope IT solution: design, build and run

“What we’ve done is eliminate settlement risk for FX transactions settled through CLS by changing the behaviour of the institutions that use our service,” says Peter Slater, COO of CLS. “Our service has become an integral part of the global financial system. Governments have been willing to change their local legislation to ensure robust legal protection of payments relating to CLS settlement. And CLS Bank is the only private sector entity in the world able to hold accounts at central banks from outside those countries. We’re a leading example of international cooperation for mutual benefit.”

## A system that can handle unprecedented demands

IBM worked closely with CLS experts to translate the requirements of the continuous linked settlement processes into a secure, highly available, global IT and communications infrastructure. The solution, hosted by IBM Global Technology Services, provides a resilient computer and communications infrastructure, with network and systems management from IBM Global Business Services. “In effect, IBM is a core element of our technology department,” says Slater.

Strategic outsourcing by IBM gives CLS total flexibility to scale operations as the number of participating banks and the volume of FX transactions grows. The solution currently incorporates IBM Power® 570 and System x® servers, IBM System Storage™ DS8100, IBM DB2®, IBM AIX® and IBM Tivoli® systems management software.

The service has proven to be remarkably resilient, thanks to a robust fundamental design. It was originally designed to handle a maximum daily average of 45,000 “sides,” or individual trade instructions (each complete trade has two sides), but growth significantly exceeded expectations even before the global economic crisis that unfolded in 2007 and 2008. The peak came two days after one of the many high-profile financial institution collapses in 2008, with some 1.55 million trade instructions processed and US\$8.6 trillion passing through the system.

## Smarter Banking:

## Eliminating settlement risk in the world's largest financial market



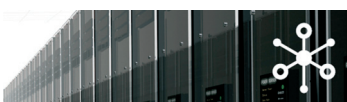
### Instrumented

Payment instructions for FX trades are submitted to CLS by financial institutions around the world via SWIFT and a secure, IBM-hosted communications infrastructure.



### Interconnected

The solution links all involved parties to the CLS system, which determines the outcome of each trade and transfers funds via the CLS Bank.



### Intelligent

Doing away with the need for intermediaries to hold funds represents a radical change in FX settlement and eliminates the risk from the default of one party to the trade.



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## Solution Components

### Software

- IBM AIX®
- IBM DB2® for Linux®, UNIX® and Windows®
- IBM Tivoli® Systems Management
- HotScan OFAC filter from Logica CMG
- FED gateway using the Fundtech PayPlus\$package
- PPRC

### Hardware

- IBM BladeCenter® HS21
- IBM Power® 570
- IBM System x®
- IBM System Storage™ DS8100

### Services

- IBM Global Business Services – Application Management Services
  - IBM Global Technology Services – Worldwide Strategic Outsourcing
  - IBM Global Financing
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*“It would have been difficult to have established and extended this resilient settlement system for one of the world’s major financial markets without the commitment, skills and capabilities of IBM.”*

— Rob Close

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Currently, the system handles an average daily volume of 600,000 transactions or sides, with a value of US\$3.5 trillion, in 17 different currencies and involving over 6,000 participants. System upgrades will allow the average volume to increase to 2 million sides per day by early 2010.

“Even before the remarkable increase in volume and volatility caused by the economic crisis, CLS had moved into a period of growth as we took on more settlement members, increased trading volumes and added more currencies,” says Rob Close, CEO of CLS Group and President and CEO of CLS Bank. “Our relationship with IBM has developed into a strong, cooperative partnership. IBM has been quick to extend and enhance our technical infrastructure, and has reacted very positively and flexibly in supporting our response to the huge increase in demand.”

### Making the system safer and smarter

From the start, the system was built for resiliency, with two synchronous, mirrored data centres in the UK. After 9/11, though, the Federal Bank of New York—which regulates CLS’s operations—required that new measures be taken to prevent a disaster in any one country from bringing the system down. A second command center was opened in the USA. In addition, a third data centre was built in Continental Europe to serve as a recovery site should a regional disaster take out both UK data centres.

Until recently, latency in the speed of data transmission has prevented synchronous mirrored data centres from being separated by long distances. New technology from IBM has enabled CLS to solve this problem, allowing the UK and mainland European data centres to operate synchronously even though they’re 800 kilometers apart. The link—thought to be the longest of its kind in the world—provides enough redundancy to allow the second UK data centre to be taken off-line, thereby saving money and reducing environmental impact with no loss of resiliency.

### Enabling the global economy to work better

Since it was launched, CLS has proven the validity of continuous linked settlement time and again. Concentrating these trades eliminates the largest risk factor in FX trading; allows highly efficient multi-lateral netting between all participants. This means that there is less need for, credit, and a higher volume of trading can be conducted without increasing credit limits. Errors are minimized and resources devoted to transaction matching and reconciliations are vastly reduced. This has generated significant cost savings for CLS Bank’s members.

But more importantly, the system has played a major role in mitigating the consequences of economic upheaval. “The fact that we were able to handle the unheard-of surge in volume and volatility that occurred in 2008, with no service disruptions and no loss of capital, is enormously significant,” Close says. “This is why CLS was created.”

### For more information

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