The Impact of Technology on Global Stock markets

The period of time between a trade being initiated and its completion is called latency – a key parameter for everyone involved in trading.

Before technology was introduced, the average number of daily trades at the London Stock Exchange was 20,000, amounting to about £700m worth of shares changing hands. After the introduction of automated trading, the figure went up to a daily average of 59,000 trades. This year saw nearly £18bn of transactions in one day.

'The speed and volume of trading is much, much higher these days,' said Sebastian Kolksmann who works for London Investments in Frankfurt. 'Transaction flows are faster driven by end investors, by electronic trading, algorithms, and lower latency.'

'Time is money as they say,' commented Bob Sherunkle, a New York Trader for London Investments. 'If our technology gets me information a nanosecond faster than everyone else, I may be able to sell a stock quickly, a split second before its price drops, or I may be able to buy another stock before its price starts to rise and it's more expensive for everyone else. That's why we need the fastest connectivity, the quickest processing, and the lowest latency out of our systems.'

So where do all these data transactions happen? Each exchange will have its own data centre that stores all the historic and current trading data with inputs, buy and sell requests, or market information, coming from all over the world. Trading companies are now starting to host their own server equipment at the stock exchanges' data centres, providing sub-millisecond access to the trading systems and market data, thereby eliminating network latency.

For member firms that are connected to Stock Exchanges via 100 megabit IP connectivity, collocating their servers could reduce roundtrip trade execution and market data transmission times by another one and a half milliseconds. Typically transaction capacity at exchanges is around 20,000 continuous messages per second and end-to-end execution latency for a deal is from about six milliseconds to three milliseconds.

Watching all this going on in dealer rooms around the world are the traders, surrounded by numerous screens showing red and green numbers and banks of phones allowing them to receive instructions from their clients to buy and sell, and effect those requests using their computers or calling another trading house. Just one exchange such as London will have more than 100,000 screens connected directly or indirectly to its data centre and trading systems. Of course, some dealers may be really putting IP networking technology to good use and have the same data on their laptop screen, while they are sitting on a beach somewhere in the world, trading virtually.