HAN DALE

SHAPING IMAGINATIONS INTO INNOVATIONS

Conditional Order Engine (COE)

The Client

Australia's leading online stock broker, Bell Direct, has been in the business of online share trading and investment for more than 25 years of experience.

Bell Direct offers all the features that include full service online share trading platform — where you can trade ASX listed equities, warrants and interest rate securities

The Challenge

Bell Direct required a highly sophisticated automatic order placement system. The system was to monitor conditional orders by matching the posted conditions against the incoming prices of various stocks. The system was to place an order to Order System interface once the condition matched. The challenge was to create a system that would process about more than hundreds of conditions against the incoming stock data which is at the rate of more than 11,000 data per minute. The system had to be efficient and robust.

Also, the system was required to monitor and process the new, update and cancel conditional orders.

Solution

Conditional order engine (CEO), a windows service was designed to create a highly sophisticated automatic order placement system. The system monitors conditional order and the price events submitted to the engine and process the required. Once the conditions match, it places an order to order system interface.

Also, the system has the ability to monitor and process the new, update and cancel conditional orders. Conditional order engine stops the process.

Components of the conditional order engine

Conditional order: MSMQ server stores and sends conditional orders to the conditional order engine.

Price event: MSMQ server stores price events arriving from different stock servers and sends to the conditional order engine.

Event receiver: external events (price events and order conditions) arriving at the conditional order engine are received by event receivers (ER), each of which runs in a separate thread, receiving events from a particular source. The ER threads shall be responsible for desterilizing them in the conditional order engine.

Query engine: the conditional order query engine is a single thread that is responsible for most of the query processing work. The query engine continually looks for the incoming price and/or volume for a mach with the conditions. Upon finding matching conditions with price, the engine triggers an order and posts the order to existing order system.