

REAL TIME RISK MONITORING FOR DERIVATIVE TRADES FOR ASIA'S OLDEST EXCHANGE

Computation of Portfolio Margins for Client Positions Across Index Futures & Options • Stock Futures & Options

Asia's Oldest Exchange

Established in 1875, the Bombay Stock Exchange is Asia's oldest exchange, and one of the world's top ten exchanges in terms of market capitalization of its listed companies. A member of the World Federation of Exchanges, the exchange was one of the first few exchanges in the world to achieve ISO certifications for its quality management and information security management systems.

The client operates a futures and options segment covering indices and stocks. In continuation of its attempts to improve the offerings on this segment to its market participants, the exchange wanted to introduce real-time margining of trades across index futures, index options, stock futures and stock options. It also wanted to bring in cross margining between cash and derivative segments, allowing market participants to use their capital efficiently.

Real-time SPAN® Based Margining Across Market Segments

The exchange had a risk management system in place that calculated the SPAN® initial margin for trades at the client portfolio level, on an intra-day basis. In order to increase its market share in the segment and manage risk better, the exchange desired to have the following improvements to the system:

- Margins computed for all trades on an online, real-time basis
- Margins generated taking into consideration the portfolio positions across both, cash and derivative market segments
- Low latency and scalability to ensure that the complex margin computation algorithm is processed faultlessly and the system is able to process up to 20 million trades a day

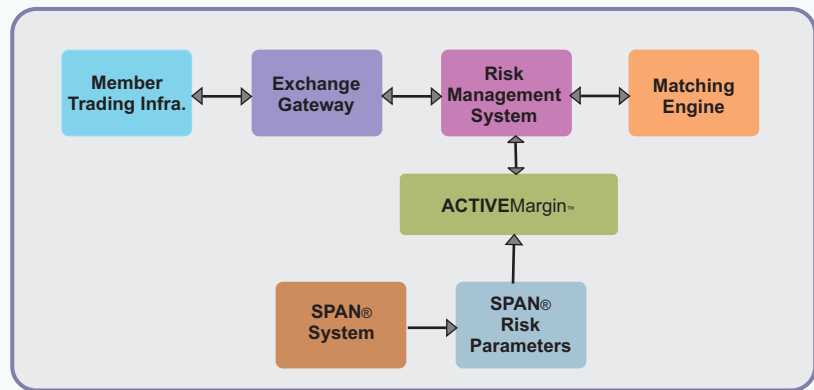
The exchange was also looking for necessary consulting services to generate SPAN® risk parameters relevant to its specified needs. Chella Software, a securities markets specialist, has designed, developed, and deployed solutions in the areas of trading, risk management, clearing and settlement and treasury for various financial market participants globally. With over a decade's experience in financial markets, the company specializes in emerging markets with comprehensive solutions for trading, back office and risk.

Chella Software's leading risk management platform ActiveMargin™ was chosen to meet the real-time margining needs of the client exchange. ActiveMargin™ is a comprehensive risk management framework offering real-time pre and post trade risk calculations (regulatory as well as Value-at-Risk based) across assets, currencies, market segments and exchanges.



System Architecture of the Solution

The margin computation module of ActiveMargin™ was deployed at the client exchange. On receiving a trade from the exchange's matching engine, ActiveMargin™ computes the initial margin requirements for the resultant portfolios. Each trade on the exchange results in two portfolio changes, one of the buy leg and the other of the sell leg of the trade.



The margin computation rules for the portfolios as defined by the regulator are as follows:

- Margin computation to be based on the SPAN® risk parameters for portfolios of index/stock futures, index/stock options and their underlying stocks.
- In case of indices, the underlying will be a basket of stocks in the index in the same ratio.
- Cross margining benefit to be considered in the cases of:
 - Index futures position and constituent stock futures position in derivatives segment
 - Index futures position in derivatives segment and constituent stock position in cash segment
 - Stock futures position in derivatives segment and the position in the corresponding underlying in cash segment

Chella Software's ActiveMargin® has delivered real-time derivative portfolio margining and cross margining capability to the client, with capacity to process up to 20 million transactions a day. Over its first 3 months of operations, the system has handled continued increase in volumes with zero downtime.

About Chella Software



We are financial market specialists serving capital and derivative markets, treasuries and investment management verticals. Our customers include leading financial institutions across 9 countries. We process over 14 billion USD worth of deals every day, hold millions of customer accounts and offer sub-milli second processing for mission critical applications. 4 nationally important financial systems run on our platforms.

Our customers benefit from our 14 years of accumulated experience and insights into best practices from across the world. They frequently select us for transformational and strategic initiatives that include commencing a new business line, scaling an existing business or improving operating margin.

We have built one of the industry's best post-sales support system. We have never once lost an on-boarded customer. Once a ChellaSoft customer, one will always want to remain a ChellaSoft customer.



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