GridGain

INDUSTRY BRIEF

FRTB and XVA: Addressing Real-Time Regulatory and Business Needs with In-Memory Computing

The Fundamental Review of the Trading Book (FRTB) and ("x") valuation adjustments known as XVA are arguably the biggest regulatory requirements and business challenges faced by banks with a capital market presence. FRTB enforces the alignment between front office, XVA, Market and Credit risk models. The Basel Committee predicts FRTB will raise capital requirements by 40% and significantly increase the cost of implementing regulatory requirements when pricing and trading. Even compared to Basel 2.5, the performance and scalability challenges of FRTB and XVA are daunting. The computations for different stress scenarios and back-testing can increase by up to 50x. But the rewards are huge for those banks who calculate the fastest.

Leading banks and fintech companies have already adopted the GridGain in-memory computing platform as the foundation for FRTB and their next generation trading systems. With GridGain, these banks have been able to rapidly implement the required XVA calculations, continuously run their new risk models and price new securities in near real-time.

TURNING REGULATORY REQUIREMENT SUPPORT INTO A STRATEGIC ADVANTAGE AND PRODUCT

One of the leading financial services groups and top 20 banks worldwide needed to deliver a new trading platform that supported FRTB and other requirements for several internal clients including recent acquisitions. Their initial implementation using .NET with a NoSQL database was too slow to support the performance and scalability required as part of the integration.

By adding the GridGain® in-memory computing platform the bank was able to accelerate data access 100x and scale dynamically to handle any FRTB or other computing requirements without having to rip out and replace the NoSQL database or .NET. It also allowed them to reduce the total cost of ownership (TCO) 20x.

GridGain's broad support for technologies, including the ability to be deployed anywhere on-premise or in the cloud also enabled the bank to accomplish another goal; to sell the new trading system as an offering to tier 2 and 3 investment banks.

FUNDAMENTAL REVIEW OF THE TRADING BOOKS (FRTB)

FRTB is a significant overhaul of the market risk regulatory framework that requires major changes to data and IT infrastructure to support risk and pricing calculations. Not only do banks need to use more historical data. They need to perform orders of magnitude more calculations. Even just to price a new trade, determining the expected shortfall (ES) measure of risk for FRTB can take 12,000 calculations. Due to competitive pressures, they also need to perform these calculations much faster than before. The first bank to properly price a trade gets the business and the profits. Those that don't stand to lose revenues and put their business at risk, especially given the expected increased costs associated with FRTB and XVA.

"X" VALUATION ADJUSTMENTS (XVA)

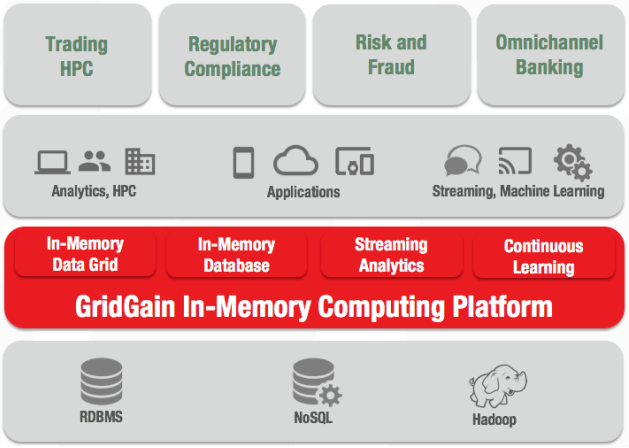
A core part of the FRTB regulatory requirement is XVA, a set of adjustments that take into account the cost all of the various direct and indirect risks of a trade including credit (CVA), funding (FVA), regulatory capital (KVA), debit (DVA), and margin (MVA). Ideally these costs are all calculated before and incorporated into the actual price of the trade to ensure profitability and lower risk to the business. Performance is everything. In order to implement XVA, a portfolio of 10,000 derivative trades can generate up to 600 billion present value (PV) calculations and lead to several TB of data.

THE GRIDGAIN IN-MEMORY COMPUTING PLATFORM FOR INNOVATION AND REGULATORY COMPLIANCE

GridGain is the leading in-memory computing platform for real-time business, and used by leading banks, investment management and fintech companies to help manage trillions of dollars of assets globally. It is built on Apache® Ignite™, one of the top five Apache open source projects. GridGain Systems contributed the code that became Ignite to the Apache Software Foundation and continues to be a leading contributor to the project. GridGain has helped scale data-intensive applications to billions of transactions per second and petabytes of in-memory data while reducing query times up to 1,000x without changing the data or application layers.

GridGain has helped banks innovate by providing the performance and scalability needed for new initiatives. Banks have been able to bring new offerings and services to market and improve end-to-end business performance while addressing real-time risk and regulatory requirements. Examples include real-time:

- Market and credit risk management
- Portfolio valuation
- Pricing analytics
- Pre-deal limit checking
- Cybersecurity and fraud prevention
- Regulatory compliance, including Basel I, II, III and FRTB
- Omnichannel banking



HOW GRIDGAIN ADDRESSES FRTB AND XVA REQUIREMENTS

GridGain has been used for many years for high performance computing (HPC), risk analytics and compliance by banks as part of their trading infrastructure. Compliance use cases include Basel 2.5 and more recently FRTB and XVA. One major reason for GridGain's use is its ability to combine real-time transaction processing and analytics. This allows companies to implement real-time risk, analytics and compliance computing such as Monte Carlo calculations into the many trading activities from pricing to settlement. Gartner calls this approach hybrid transactional/analytical processing (HTAP). The foundation for real-time HTAP is in-memory computing. Companies can implement any calculations in SQL, Java, .NET or C++, and then collocate these calculations with the data in memory across any cluster of on-premise or cloud infrastructure. GridGain's distributed in-memory computing architecture allows companies to scale horizontally to petabytes of data and any level of computing power. Another reason for GridGain's broad use is that it supports many different types of projects on the same platform. GridGain can function both as an in-memory data grid to add speed and scalability to existing applications and databases, and as an in-memory database for new data and services. It also supports streaming analytics and a Continuous Learning Framework for machine and deep learning. This has allowed banks to use GridGain to improve the scalability of their existing systems and add new risk calculations for ES and XVA without having to rip out and replace existing trading infrastructure.

LEARN MORE - WHITEPAPER

Introducing the GridGain In-Memory Computing Platform

CONTACT US

Please contact us now to learn more about the GridGain in-memory computing platform. Email us at info@gridgain.com or call us at (650) 241-2281 or +44 (0)7775 835 770.

ABOUT GRIDGAIN

GridGain Systems is revolutionizing real-time data access and processing by offering enterprise-grade in-memory computing solutions built on Apache® Ignite™. GridGain solutions are used by global enterprises in financial, fintech, software, ecommerce, retail, online business services, healthcare, telecom and other major sectors. GridGain solutions connect data stores (SQL, NoSQL, and Apache Hadoop) with cloud-scale applications and enable massive data throughput and ultra-low latencies across a scalable cluster of commodity servers. GridGain is the most comprehensive, enterprise-grade in-memory computing platform for high volume ACID transactions, real-time analytics and hybrid transactional/analytical processing. For more information, visit gridgain.com.

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