

# Real-Time Risk Analytics, Management, and Compliance with In-Memory Computing

The financial crisis of 2008 clearly revealed that banks did not have adequate measures of risk. What followed was a sea change in both business and regulatory requirements around market risk, which in turn created a demand that overwhelmed existing systems. The new required measures of market risk require several orders of magnitude more present value (PV) calculations than those used prior to 2008. The original goal of inter-day risk visibility post-crisis has been replaced by a demand for real-time visibility. Existing high-performance computing and analytics infrastructure is not able to deliver both the real-time speed and 100x or greater scale.

Leading banks, asset management firms and fintech companies rely on the GridGain in-memory computing platform as their new foundation for real-time risk analytics, portfolio management and regulatory compliance. With GridGain, these companies have brought together many different types of information to achieve a common, real-time view of risk. They have supported the needs of trading, settlement, accounting, customer portfolio management, risk management, internal and regulatory compliance. They have achieved all of this on a common platform with in-memory speed, unlimited horizontal scalability and broad integration to support any future needs.

## THE GRIDGAIN IN-MEMORY COMPUTING PLATFORM FOR RISK ANALYTICS, MANAGEMENT AND COMPLIANCE

GridGain is the leading in-memory computing platform for real-time risk analytics and compliance. It's 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 is used by leading banks, investment management and fintech companies to help manage risk across trillions of dollars of assets globally. These companies rely on GridGain's ability to combine real-time transaction processing and analytics, which Gartner calls hybrid transactional/analytical processing (HTAP). The foundation for real-time HTAP is in-memory computing. GridGain's HTAP support allows companies to add real-time risk, analytics and compliance computations into the many trading activities from pricing to settlement. With GridGain, banks have scaled risk-related applications to billions of transactions and analytics computations per second using petabytes of in-memory data, and lowered latency up to 1,000x without ripping out or replacing their existing risk infrastructure.

## LEADING FIRM IMPLEMENTS INVESTMENT BOOK OF RECORD FOR REAL-TIME ANALYTICS AND INNOVATION

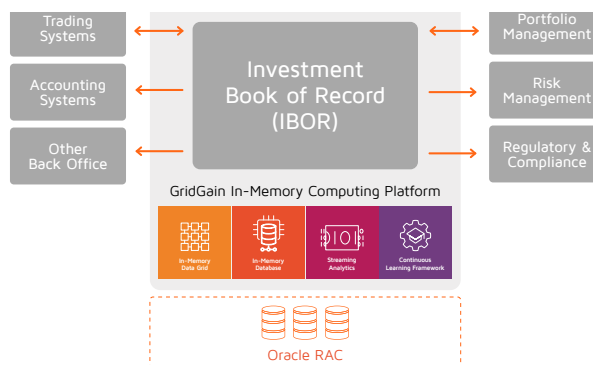
One of the top global asset management firms faced three major challenges:

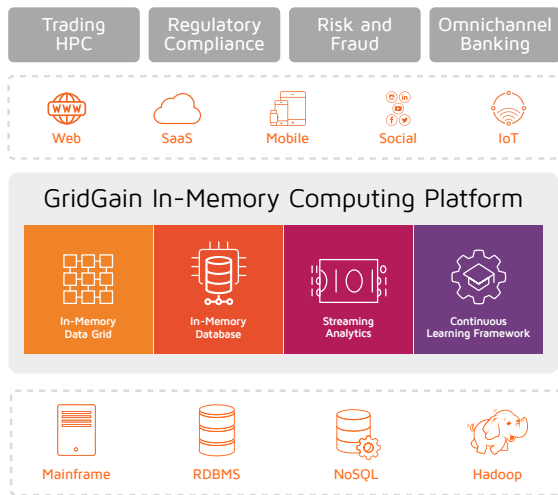
- Its existing systems were unable to support the growing volumes of financial data.
- A new wave of financial regulations required significant changes and orders of magnitude more computing power.
- There was a big demand to release new, more complex asset classes faster than what was possible with current systems.

In response, the company implemented a common investment book of record (IBOR) on GridGain. It is the single source of truth for investor positions, exposure, valuations and performance. All trade, accounting and back office activity flows through the IBOR in real-time. With GridGain, the company achieved:

10x lower latency, unlimited horizontal scalability by sliding GridGain in-between its Oracle database and applications without ripping out and replacing existing systems or major architectural changes.

Hybrid Transactional/Analytical Processing (HTAP) that is used for real-time position, market value, exposure and performance analytics; for risk analytics and risk management; and to meet all regulatory requirements.





## A PROVEN PLATFORM ACROSS REAL-TIME TRADING, RISK, FRAUD, COMPLIANCE AND OMNICHANNEL BANKING

GridGain has helped leading investment and commercial banking, as well as insurance and other more specialized financial services and fintech companies add speed and scale to existing systems, as well as deliver innovative new real-time capabilities to market.

Examples include real-time:

- Market and credit risk management
- Portfolio valuation
- Pricing analytics
- Pre-deal limit checking
- Trade settlement
- Cybersecurity and fraud prevention
- Regulatory compliance (e.g. Basel I, II, III, FRTB)
- Omnichannel banking on-premise or in the cloud, with a different size and topology.

## HOW GRIDGAIN DELIVERS A PLATFORM FOR REAL-TIME RISK ANALYTICS AND COMPLIANCE

GridGain has been used for many years for high performance computing (HPC), risk analytics and compliance by banks as part of their trading infrastructure. A major reason for GridGain's broad adoption is that it is the only in-memory computing platform that can both add speed and scalability to existing applications, and enable new applications and analytics. GridGain's native SQL and key-value support enables it to slide in-between leading databases and applications as an [in-memory data grid](#) (IMDG) without having to rip out and replace trading or risk infrastructure. Once in place, GridGain makes it easy to leverage the full platform and quickly deliver new risk analytics and compliance capabilities for the business. This includes using its distributed [in-memory database](#) (IMDB) for data ingestion, transactions and risk computations; its [streaming analytics](#) and Apache Spark™ support for processing trade or market data, and its [Continuous Learning Framework](#) to help leverage machine and deep learning across trading, fraud or portfolio management.

Throughout the platform, GridGain combines in-memory computing with a horizontal, shared-nothing architecture and massively parallel processing (MPP) that collocates computing with the data to deliver the best combination of in-memory speed and unlimited scale for HTAP. Developers can use GridGain's distributed, ANSI-99 compliant SQL, its built-in machine and deep learning, and its native support for Java, .NET and C++ to implement any computing. GridGain collocates the code with the data in memory across any cluster for unlimited horizontal scale on-premise, in a private cloud, or on Amazon Web Services, Microsoft Azure or Google Cloud.

By using GridGain, leading financial services and fintech companies have been able to perform real-time risk, analytics and compliance processing with unmatched in-memory speed and petabyte-scale. It has successfully supported billions of present value (PV), "x" value adjustment (XVA) or Monte Carlo calculations per second.

## Contact GridGain Systems

To learn more about how GridGain can help your business, please email our sales team at [sales@gridgain.com](mailto:sales@gridgain.com), call us at +1 (650) 241-2281 (US) or +44 (0)208 610 0666 (Europe), or complete the form at [www.gridgain.com/contact](http://www.gridgain.com/contact) to have us contact you.

### About GridGain Systems

GridGain Systems is revolutionizing real-time data access and processing with the GridGain in-memory computing platform built on Apache® Ignite™. GridGain and Apache Ignite are used by tens of thousands of global enterprises in financial services, fintech, software, e-commerce, retail, online business services, healthcare, telecom and other major sectors, with a client list that includes ING, Raymond James, American Express, Societe Generale, Finastra, IHS Markit, ServiceNow, Marketo, RingCentral, American Airlines, Agilent, and UnitedHealthcare. GridGain delivers unprecedented speed and massive scalability to both legacy and greenfield applications. Deployed on a distributed cluster of commodity servers, GridGain software can reside between the application and data layers (RDBMS, NoSQL and Apache® Hadoop®), requiring no rip-and-replace of the existing databases, or it can be deployed as an in-memory transactional SQL database. GridGain is the most comprehensive in-memory computing platform for high-volume ACID transactions, real-time analytics, web-scale applications, continuous learning and hybrid transactional/analytical processing (HTAP). For more information on GridGain products and services, visit [www.gridgain.com](http://www.gridgain.com).