



GemFire Enterprise Data Fabric Facilitates Agile Risk Management at a Financial Service Provider

BENEFITS

- Reduction in risk computation cycle from 8+ hours to less than 2 hours
- Improved accuracy in risk calculation and real-time analysis
- Greater scalability (more applications) and data availability through a distributed, in-memory risk data layer

A leading global investment banking, securities trading and brokerage firm is deploying GemFire Enterprise Data Fabric (EDF) as an integral part of its risk computation infrastructure. The primary goal is to improve the efficiency of the risk computations and deliver timely and accurate risk data to the portfolio management applications, which depend on this information for subsequent trading activities.

The Problem: One of the biggest challenges that this firm faced was a surge in data volumes that had to be manipulated for risk calculations. Market conditions as well as compliance requirements, both of which required additional sources of information to be included in the risk calculation, were the major reasons for this increase in volumes. Consequently, the risk computation cycle time increased significantly, almost stretching into the start of the next day's trading cycle. As a result, the operational risk in this environment increased to a great extent. In this scenario, data latency and data movement accounted for about 70-80% of the risk computation cycle time. GemFire EDF with its comprehensive set of functions such as distributed caching, data distribution and notifica-

tion, data virtualization and high availability provides a solution to address this problem.

The GemFire Solution: GemFire EDF bolsters this risk computation infrastructure through a comprehensive data management solution. Through intelligent data caching and distribution mechanisms, GemFire increases data availability for the risk calculation applications and provides them instant access to relevant information. As seen in Figure 1, which illustrates the flow of information through this system, market data, historical data and reference data are fed into systems that perform theoretical calculations (pre-processors). The results of these are made available through a distributed GemFire cache network. Once the calculations are complete, GemFire pushes this data to another set of distributed cache nodes that feed the individual portfolio risk calculation applications. By positioning the data close to the consumers (risk calculators) through a distributed network of data regions, the data latency issues are successfully addressed and information is made available on a timely basis. The risk calculations are also persisted using the GemFire persistence mechanism, or can also be stored in other reporting databases that in-

turn feed portfolio management applications. This infrastructure is deployed on a highly distributed Linux Architecture using RDMA based Infiniband topology. GemFire ideally complements the RDMA by distributing data across interconnected nodes (e.g. blades), creating a single system image of shared data that elegantly spans the system area network created by Infiniband's hardware virtualization technology. By virtue of sharing state in a distributed manner across tightly interconnected blades, GemFire provides massive scale out, business continuity, and load-balancing of data resources.

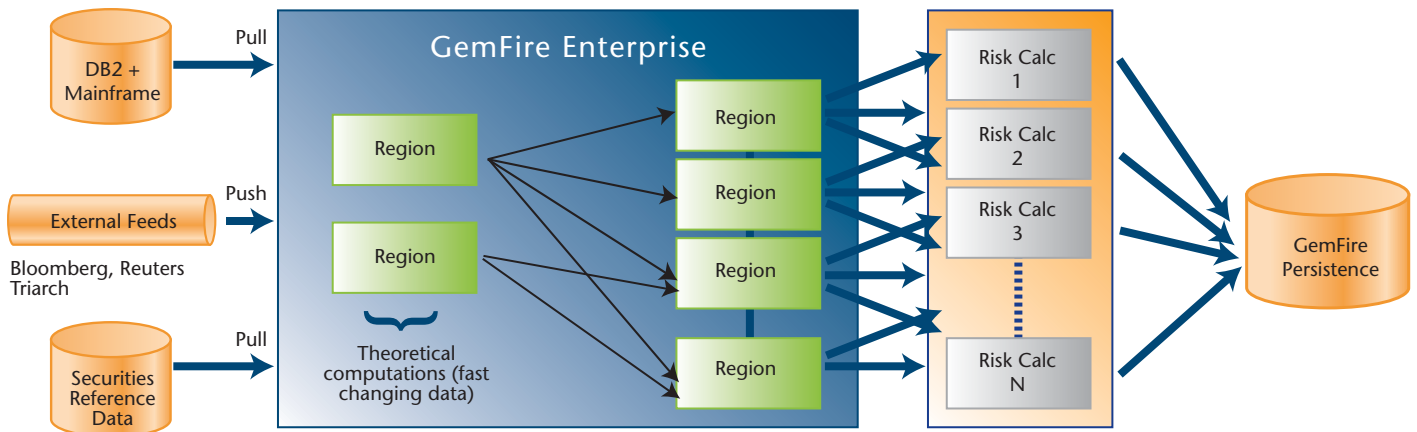


Figure 1: GemFire in a Financial Risk Computation Architecture

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