



GemFire Enterprise Data Fabric Powers an Online Fixed Income Securities Trading Portal

One of the largest securities brokerage and banking provider is using GemFire Enterprise Data Fabric (EDF) in a trading portal initiative. This initiative aims to provide a single point of access for trading across a variety of fixed-income instruments like Municipal bonds, Corporate bonds, Mortgage backed bonds, etc. The ultimate business goal is to enrich trading experience for the users by providing a wealth of information through a single touch-point and thereby drive customer satisfaction and increase business volumes.

The Problem: The current architecture in this environment includes simplistic in-house caching technologies as an in-memory data storage layer. However there are several issues that exist with this solution with regards to availability, scalability and performance - typical issues that plague any online infrastructure. First, there are issues around extracting, aggregating and caching data from multiple backend databases and applications that store large volumes of securities related information. Secondly, distribution of this data across a farm of application servers in order to service client requests without any latency is problematic. Thirdly, propagating any changes to the underlying data source to the application layer poses its own set of chal-

lenges. Finally, there are issues around the scalability of this architecture to cater to increasing user loads without significantly impacting performance. All these requirements highlight the need for a robust data infrastructure. GemFire Enterprise, a key product component of the GemFire EDF, offers distributed caching, data distribution and notification, data virtualization and high availability features for this portal, with easy deployment capabilities.

The GemFire Solution: Figure 1 highlights the key aspects of the GemFire based solution architecture. When client requests are channeled to the portal, they are serviced through data stored in the distributed GemFire EDF (spanning several J2EE application server nodes). This fabric seamlessly aggregates data from the different securities databases and applications through the data virtualization framework (data-loaders) and caches them, so that end-user requests are serviced instantaneously. The data stored in the cache can also be transformed into multiple formats to cater to different application needs. This data layer can also serve as a data source proxy and can isolate users from the effects of data source unavailability. Changes to the underlying data are communicated to the GemFire

Enterprise layer through XML events on an enterprise message bus resulting in the invalidation of the relevant objects in the cache. Cache data can also be invalidated through configurable timeout policies that GemFire Enterprise supports. Additionally, the mainframe database shown in Figure 1 also has a GemFire cache layer that it uses to service other application clients that request securities data. Through this distributed topology, GemFire provides a pervasive data fabric that aggregates data, stores and caches information and enhances data availability throughout the entire application network thereby providing a scalable model for handling data distribution to service end-user requests efficiently.

Bottom Line: All these benefits translate to an enriched customer experience anchored on rich content and high performance, which results in improved customer satisfaction, increased customer retention and higher revenues.

BENEFITS:

- High data availability through intelligent data caching
- Unified data access and aggregation across multiple data sources
- Scalability through a distributed caching network that spans multiple application servers
- Data consistency management through notification and data invalidation mechanisms
- Increased resilience to data source unavailability

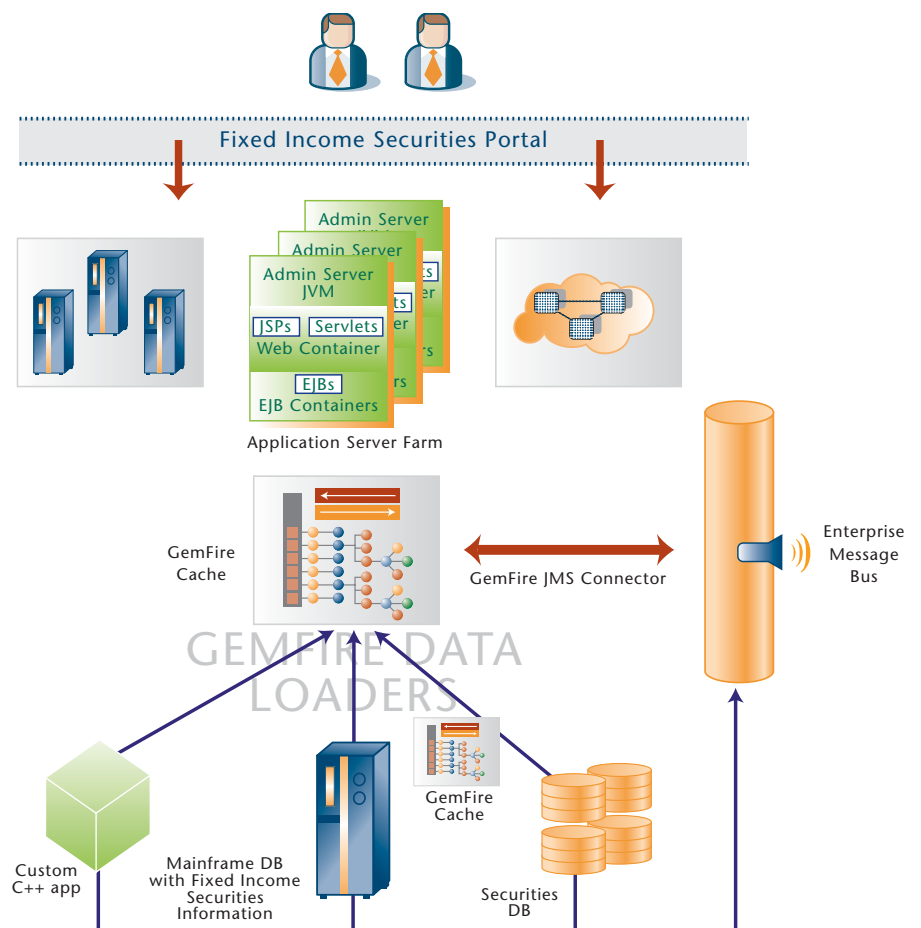


Figure 1: GemFire based architecture for a Fixed Income Securities Trading Portal

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