

GemFire Data Management for the Banking Industry

Profitable banking is dependent on the effective use of data throughout all business operations. Whether working with consumer accounts, mortgages and loans, credit cards, investments, or associated financial services, banks and specialized financial institutions must integrate and consider data from many disparate sources. Data drives operations from loan and account origination processing to terms and pricing to auditing and compliance requirements. Other aspects of managing the overall customer experience like contact management, help and support systems, and fraud prevention are also impacted by information management.

One of the greatest challenges in managing these many banking operations is making use of the right subsets of information to satisfy local needs. Each computer system and program used in the enterprise calls on only a fraction of the total stored enterprise data. Waiting for data to be found, physically transferred to the requesting program, manipulated and returned to the master store is a significant bottleneck in achieving efficiencies in cost and speed of operations. Data accessibility becomes even more problematic with distributed computing architectures such as grids and blades that physically separate systems and data. Also, important is the abil-

ity to identify and act on real-time data as and when it is available rather than relying on batch processing of the same.

Many applications attempt to overcome the latency issue by calling for their needed data from locally-created data stores. They periodically refresh their data from the master enterprise records, retrieve the elements of use in their processing, transform it into a format that is expected by the program code, and keep the results in a specialized dataset referenced only by that one application. The CRM system has customer demographics and account status information; the risk management system has detailed transaction histories and legal requirements.

Unfortunately, this arrangement creates difficulties at the enterprise level. Each application has unique code that manages local data access and update. If master data record formats or locations are altered, each component application must be reprogrammed. Data in local stores is redundant to master records and may not be synchronized with recent events, transactions, or data updates. As data volumes increase, the load on the processing and re-purposing of data elements for individual application uses goes up as well.

The GemFire suite of products provides a distributed operational data fabric that acts as a high-performance information access and real-time analysis mechanism for applications and systems throughout the business. GemFire Enterprise, the data platform in the GemFire data fabric, enables large amounts of data to be held in memory, ready for low-latency retrieval and analysis by multiple programs. It also manages data redundancy by automatically synchronizing distributed data caches stored physically closer to the applications that call on them. Each application refers to the data source as if it were in one centralized location, using standardized access calls that are consistent with other enterprise applications. Client requests are virtualized to find the proper physical location and format for the data.

In the competitive financial services market, a lost opportunity is lost revenue. Companies demand reliability of systems and nonstop access to data at all times. Investment activities and funds transfers are susceptible to significant financial impacts from delays of even a few seconds. GemFire helps to ensure uninterrupted processing by managing fail-over situations in the event of a lost connection to a local data source. Distributed memory data caches with disk backup and recovery allow systems to continue their work transparently, unaware that data may be coming from an alternate location. Customer frustration is reduced and revenue opportunities are continually exploited.

The GemFire product suite's Complex Event Processing (CEP) solution, GemFire Real-Time Events, serves a dual role for financial institutions. It monitors transactions as and when they occur to enable real-time decision making and identification of opportunities, exceptions, and warning signs. It also supports correlation with historical data records to find significant events that affect operations. As an application event is received, it can instantly be compared to other enterprise data to look for potential fraud, marketing and cross-selling opportunities, pricing opportunities, and many other operational necessities.

The GemFire data fabric is a key foundation component for managing and running effective banking processes. GemFire works with industry-standard infrastructure software such as databases, messaging systems, application servers, and XML data. Initiatives such as SOA, Web Services and Grid Computing can greatly benefit from a data backbone like GemFire.

The following list gives a brief sampling of a few of the many benefits GemFire can bring to financial operations.

SAMPLE APPLICATIONS OF GEMFIRE IN BANKING

Customer Experience Management:

- Centralize and redistribute information managed by customer data integration systems for consistent use throughout the enterprise
- Integrate information from multiple data sources and communication channels to provide a 360-degree view of the customer
- Enhance and improve online self-service options for customers to enable faster resolution of questions, response to applications, and management of personal data
- Ensure consistency of data used in contact management systems to eliminate redundant contacts and conflicting information delivered to the customer

Loan Originations and Underwriting

- Integrate data from loan/mortgage applications, credit reports, institutional databases, external data sources to make fast decisions
- Improve the accuracy and speed of pricing and risk analysis
- Share data between origination decision systems and associated systems such as CRM and billing

Compliance and Auditing

- Allow high performance access to all decision criteria and customer information used in banking processes

- Aggregate data from multiple data sources in memory for faster access and use by auditing, reporting, and compliance systems

Growth Management

- Allow growth of business infrastructure and transaction load volumes by supporting grid and distributed network architectures with no limits on data sizes
- Plan for mergers and acquisitions or technology changes by establishing a standards-based data access strategy the serves applications written in a variety of computer languages
- Enhance reliability and availability of customer facing systems by ensuring that data is available in the event of a source access failure. Reduce customer frustration, increase revenue opportunities
- Overcome data latency issues in web services and Business Process Management (BPM) systems with data caches located near the service processing engines

Marketing

- Target customers based on real-time behavior patterns, demographics, and branch locations
- Deliver real-time marketing programs as opposed to batch analysis.

Information Analysis and Visibility

- Use high-performance data access to support real-time analytics used in online cross-selling/up-selling
- Improve performance of batch systems such as reporting, auditing, and membership application processing by bringing data into local memory

Fraud Detection

- Use archival information, real-time transaction data, and behavior patterns to detect fraud at point of deposit
- Share data between branches and back office systems to spot conflicting or duplicate transactions
- Incorporate point of sale event information to detect credit card fraud in real-time



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