

GemFire Data Management For The Retail Industry

Retail operations are driven by data in every facet of the business. Supply chains manage information about products, inventories, order levels, and categorization such as SKU numbers or part numbers. Customer relationship management uses purchasing behavior, demographic details, membership participation, and more. Store management relies on point of sale information, pricing, discounts, and marketing programs. Further, the advent of RFID-based systems has led to an exponential increase in the volumes of data that.

Though the overall volumes of data are significant, most of the operational decision making is often focussed on a smaller subset of data elements, like a particular item-group or orders for a particular item or store locations. While data warehouses and data marts can address the backend data consolidation and storage needs of a retail entity, they do not provide a scalable operational data platform to aid the different business processes. With these systems, it is extremely difficult to provide partitioned and highly accessible views of data to different application modules like merchandise planning, pricing or inventory planning.

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 retail supply-chain. GemFire Enterprise, the data backbone of 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.

GemFire's Complex Event Processing (CEP) solution, GemFire Real-Time Events, serves a dual role for retail 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. For instance,

when an RFID signal about a palette movement is received, it can instantly be compared to other enterprise data system to analyze shipping details, restocking needs, and many other operational necessities.

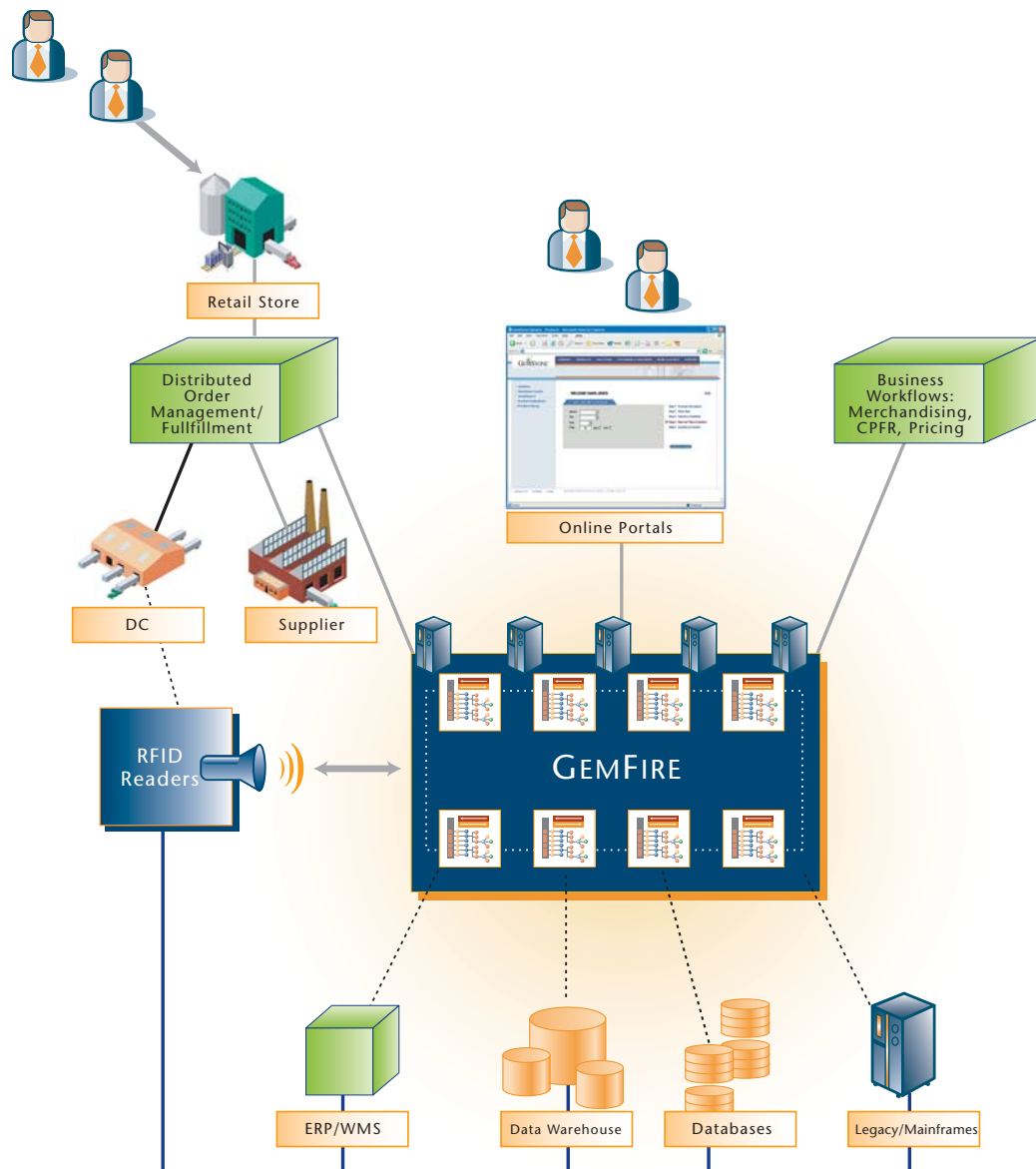
The GemFire data fabric is a key foundation component for managing and running effective retail processes. GemFire works with industry-standard infrastructure software such as databases, messaging systems, application servers, and XML files.

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

SAMPLE APPLICATIONS OF GEMFIRE IN RETAIL SUPPLY CHAINS

Online Services and e-Tailing:

- Improve scalability and performance of web applications to improve business revenues through electronic channels
- Synchronize web-based transactions with data updates in all affected applications



- Tie together data from disparate sources to allow more intelligent point of sale pricing, offers, and customer interactions - improving the customer experience
- Offer product recommendations based on membership data, inventory/costs, transaction details, etc.

RFID

- Intelligently filter and analyze RFID data
- Distribute data across multiple reader networks and back end information systems (e.g.: WMS, ERP, etc.)

Distributed Order Management and Fulfillment

- Allow high performance access to order and inventory data from any location
- Ensure high availability of data through replication of critical data elements
- Aggregate order fulfillment data from multiple data sources in memory for faster access and use by real-time response systems

Information Analysis and Visibility

- Use high-performance data access for workflows such as promotions planning, forecast collaborations, and vendor managed inventory programs
- Rapidly analyze data streams like point-of-sale to drive intelligent pricing and merchandizing models.
- Improve performance of batch systems such as reporting, auditing, and membership application processing by bringing data into local memory

Product Content and Data Management

- Ensure data consistency across the enterprise and out to associated third party systems with managed data replication and WAN-based communications
- Incorporate data change notification into systems to guarantee refreshes and updates as warranted by events and transactions

Integrated Demand and Replenishment Planning

- Integrate merchandise and promotion planning with inventory and store space management
- Share data more transparently between planning and execution systems
- Integrate event-based and message-based transactions to respond to all business activities



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