Creating a High-Performance Multi-Channel Retailing Infrastructure

How CommercialWare and IBM Deliver a Unified Approach to Selling in the World of Clicks-and-Mortar

COMMERCIALWARE
POWERS RETAIL COMMERCE

IBM Business Partner

Executive Summary

The customer is king. Every retailer knows the rule. The challenge in today's rapidly evolving retailing environment is how to deliver top-quality service across both physical (traditional) and virtual (e-tail) service environments. CommercialWare and IBM offer an integrated solution to this challenge that provides a consistent view of the customer across all sales and service media, while simultaneously helping the retailer to better manage business operations. This paper explores how the integration of CommercialWare ***retail.dot.commerce*** with IBM® ***WebSphere® Commerce Suite*** creates a new benchmark for service in multi-channel retailing.

The Changing Retail Environment

Building a robust environment to support the deployment and maintenance of a true multi-channel retailing environment can be a daunting challenge made especially complex by the unique self-service shopping environment that is e-commerce. The Internet facilitates exciting options like 365x24x7 shopping and global access. It simultaneously presents the challenge of creating a usable, friendly and maintainable operating environment that is also tightly integrated with the retailer's back office systems to ensure effective customer service. For example, providing online shoppers with accurate, real-time inventory status is a key parameter of usability in e-commerce. Delivering inventory data from internal back-end systems is complex in itself, but is even more complicated when the data is managed cross-channel. Forecasts now predict online consumers will make 90 million returns totaling $5.8 billion in 2005[1], emphasizing that e-commerce is more than just taking an order and shipping products.

Success in the multi-channel retailing space is built on several basic concepts:

- Acknowledging customer needs and behavior that can influence cross-channel sales activity
- Creating an infrastructure to manage both the supply and demand chains cross-channel for optimized consumer experience and satisfaction
- Strengthening customer relationships through increasingly personalized communication and simplified/streamlined processes that provide competitive differentiation

Each of these concepts requires effective, real-time management of integrated information. Managing customer, supply chain, logistics and merchandising data across all points-of-contact, and preparing appropriate data for both employee-facing and customer-facing applications, has emerged as a principal lever to success in the new world of retailing.

Recognizing this requirement, CommercialWare and IBM have partnered to deliver true, multi-channel retailing solutions to mid-tier and large enterprises, based on proven technologies, secure and scalable platforms, and domain expertise. CommercialWare ***retail.dot.commerce*** and IBM ***WebSphere Commerce Suite*** represent best-of-breed applications that have been fully integrated to provide major retailers with the environment needed to compete. This paper will explore how these individual systems work together to deliver rich functionality, robust and reliable performance and scalable operation — all in an easily managed environment.

The Components of the Solution: *retail.dot.commerce* and WebSphere Commerce Suite
CommercialWare ***retail.dot.commerce*** is an integrated suite of applications that support the entire retail transaction lifecycle — from informing and attracting customers to merchandising, ordering, fulfillment and customer service. Building on IBM's iSeries server platform and CommercialWare's long history of application development and support in the retail sector, ***retail.dot.commerce*** provides a robust, scalable architecture that streamlines commercial transaction processes and customer management for organizations processing hundreds of thousands to millions of transactions a year. ***retail.dot.commerce*** is engineered to create a unified view of the customer and comprehensive access to critical business data across all points-of-touch, including Internet, Catalog, Call Center, Kiosk and Wireless by providing a real-time repository for:

· Source product/merchandising data and business rules
· Customer transaction data
· Customer profiles and histories
· Product inventory and supply chain data
· Critical logistics data and business rules
· Orders

The core modules of ***retail.dot.commerce*** provide both rich functionality to support critical business process, as well as a versatile system for integration of best-of-breed retailing applications, including POS, back office, logistics and supply chain management. This combination ensures that employees, customers and business partners all have immediate, convenient access to the information they need, when they need it. It also fosters profitable customer relationships by supporting advanced customer service offerings, while simultaneously facilitating tighter management of operational costs throughout the supply and demand chains.

While ***retail.dot.commerce*** offers comprehensive e-commerce storefront support, developing a best-of-breed e-commerce initiative involves much more than creation of an attractive shopping interface. Today, e-tailers must address the need for:

1. Distributed content management with support for rich media and multi-lingual display.
2. Personalization tools that enhance the user experience and simplify navigation through large volumes of content.
3. Integration of comprehensive decision support tools to facilitate advanced merchandising and maximize cross-sell/up-sell opportunities.
4. Advanced change management tools to permit site revision and enhancement.

IBM ***WebSphere Commerce Suite*** has emerged as the benchmark for creation of fast, flexible, fearless e-commerce infrastructures in the current global business environment. As part of an integrated solution with ***retail.dot.commerce***, ***WebSphere Commerce Suite*** delivers:

1. A highly scalable architecture proven in major global e-commerce installations
2. Proven performance: (75% more EJB transactions and double the JDBC database requests compared to BEA WebLogic)
3. An advanced personalization and globalization framework
4. Extensive infrastructure integration support
5. Rapid time-to-market through integration of software wizards and team-based line of business and development tools
6. Complete standards support, including 100% Pure Java environment that supports EJBs, JSPs and J2EE, and XML technology
7. 25% faster return-on-investment compared to the industry average
8. IBM experience: leading technology provider to retail market

By bringing ***retail.dot.commerce*** and ***WebSphere Commerce Suite*** together, enterprises access the foundation technologies for a breakthrough solution to the demands of multi-channel retailing.

From Vision to Reality: The CommercialWare/IBM Multi-Channel Retailing Environment
The integration of supply and demand chain activity is a critical step in creating an infrastructure to support multi-channel retailing. Toward this goal, CommercialWare and IBM have agreed on a common vision of retailing, shown in Figure 1, which includes consistent interactive flow of information between a retailer and its suppliers, business partners/channel providers and logistics partners. Data transparency is achieved by definition of a common information repository that can syndicate data to or accept data from all the enterprise's customers, partners and suppliers. This is the principle behind ***retail.dot.commerce***.

Figure 1: The CommercialWare and IBM vision of the integrated retailing process.

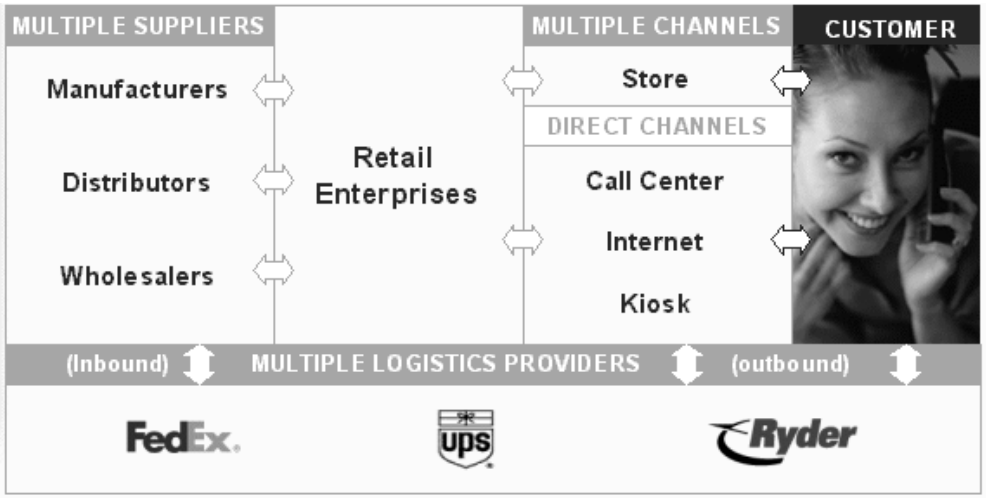
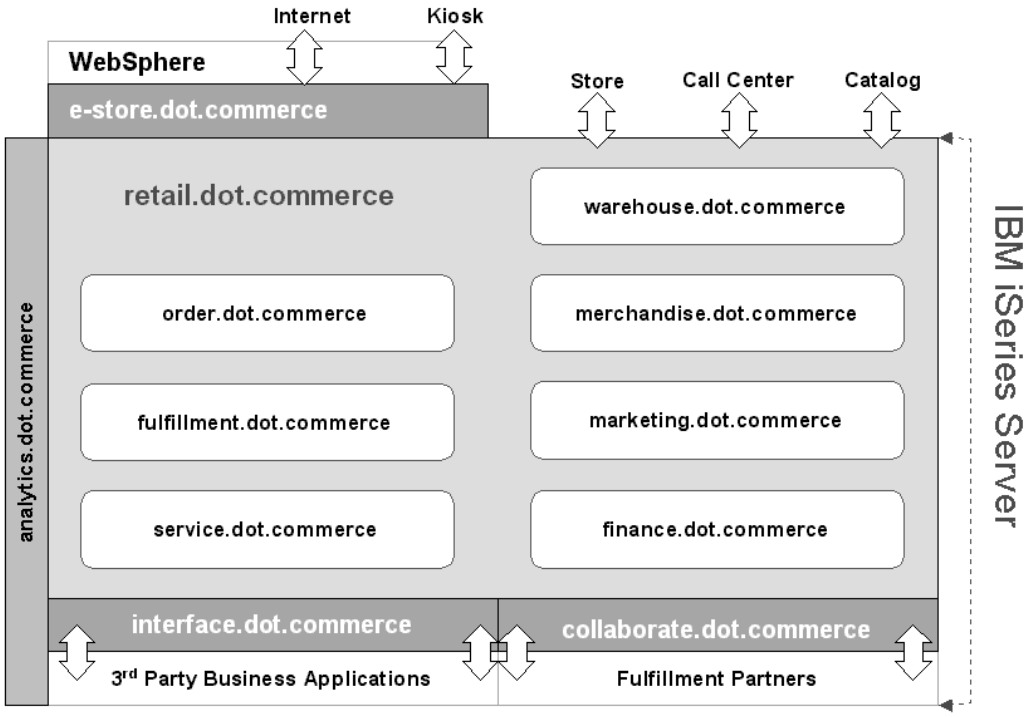


Figure 2 describes the overall architecture of ***retail.dot.commerce***. The seven core modules (order, fulfillment, service, warehouse, merchandise, marketing, finance) deliver the basic operational facilities needed to manage traditional bricks-and-mortar retailing operations. ***interface.dot.commerce*** provides a versatile API (application programming interface) and integration toolkit for connecting ***retail.dot.commerce*** to leading third-party business applications in RF scanning, warehouse management, tax reporting, etc. ***analytics.dot.commerce*** supports advanced decision support and management reporting tools for evaluating retail activity and supply chain efficiency. ***collaborate.dot.commerce*** provides a highly interactive environment that enables merchants and their supply chain partners to support drop-ship fulfillment.

For Web-based applications, ***e-store.dot.commerce*** provides a structured, Java-based environment for the creation and support of Web storefronts from ***retail.dot.commerce***. It also serves as the primary integration platform for communication with external commerce application server environments such as IBM ***WebSphere Commerce Suite***.

Figure 2: ***retail.dot.commerce*** **architecture**



While ***retail.dot.commerce*** provides a comprehensive retailing support infrastructure, the development of robust and effective e-commerce interfaces has become a complex process. This is where IBM ***WebSphere Commerce Suite*** excels. Web content managers use WebSphere tools to take the data published by ***retail.dot.commerce*** and extend it for Web use while optimizing business rules/processes for e-tail use.

In building an integration protocol between ***retail.dot.commerce*** and ***WebSphere Commerce Suite***, a key goal was to seamlessly mesh the two systems while effectively leveraging the relative strengths of each. Accordingly, CommercialWare and IBM worked to:

- Eliminate redundant work effort across sales channels to enhance operating efficiency and reduce clerical data errors.
- Maintain appropriate static data, including base catalog content and all associated data enhancements (graphics, syndicated product reviews, etc.) on the Web server. This permits convenient use of the merchant's preferred web content management tools for efficient upkeep of Web data.
- Maximize efficiency by limiting communications between ***retail.dot.commerce*** and ***WebSphere Commerce Suite*** to critical touchpoints — order check out, order status, catalog requests, etc. This ensures consistent performance across a wide range of system loads.
- Provide real-time creation of Internet orders in ***retail.dot.commerce*** for processing. This ensures consistent cross-channel views of order status and inventory levels.

Figure 3 provides a business perspective of the integration between ***retail.dot.commerce*** and ***WebSphere Commerce Suite***. While ***retail.dot.commerce*** serves as the common data repository for e-tailing operations, ***WebSphere Commerce Suite*** supplies the platform for expanded content management, personalization, globalization, etc.. ***retail.dot.commerce***, in turn, supports the customer relationship (cross-channel), advanced order management, cross-channel sales, inventory control, logistics/reverse logistics, drop-ship and third-party fulfillment, and other essential operational tasks behind the Web storefront.

Figure 3: Leveraging the strengths of each system component

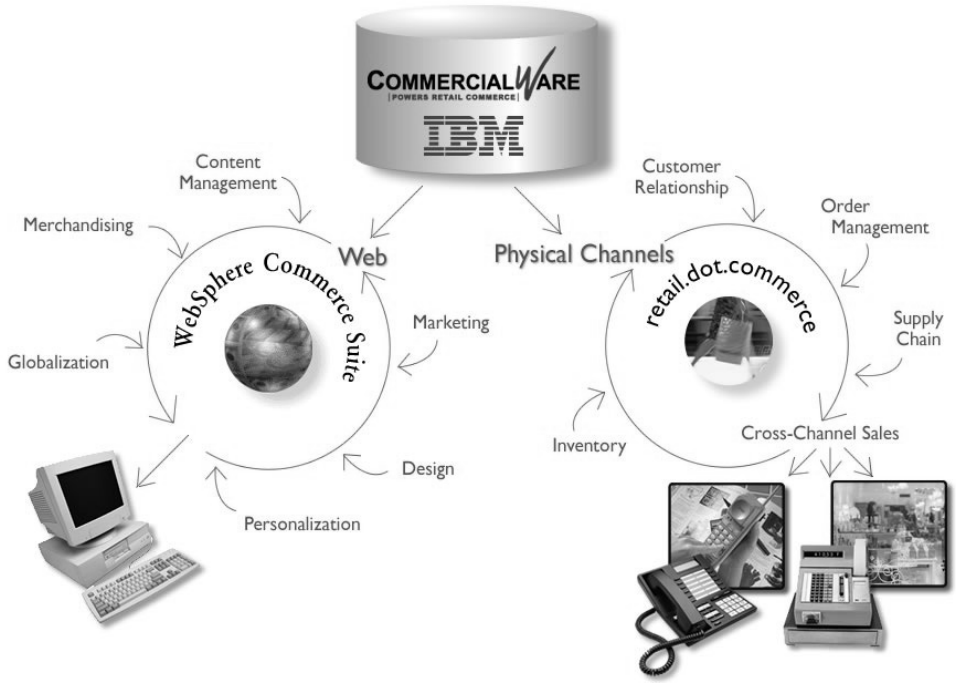
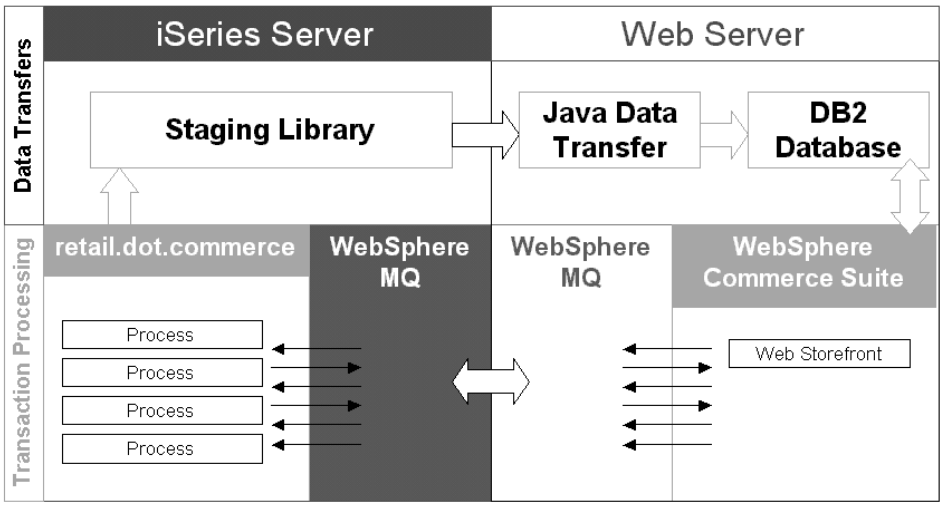


Figure 4 provides a more technical perspective of the integration protocol between ***retail.dot.commerce*** and ***WebSphere Commerce Suite***. Note that both CommercialWare and IBM focused on making the system robust from both a shopping experience perspective (consumer focus) and from a transactional efficiency perspective (retailer focus).

Figure 4: *retail.dot.commerce*/WebSphere Commerce Suite integrated architecture



As shown, ***retail.dot.commerce*** builds a staging library from its consolidated information repository. This typically consists of:

- Standard product information (SKU #, descriptions (long and short), unit pricing)
- Product categorizations, associations for display and cross-sell-upsell
- Current promotions
- Business rules (pricing, merchandising, promotions)
- Static order support tables (i.e. data supporting the ordering process, including shipment methods, payment types, etc.)

This information is transferred to the WebSphere DB2® production database after verification. The transfer to ***retail.dot.commerce*** is managed through the e-store Java toolset. The ***retail.dot.commerce*** WebSphere integration tools are written in pure Java and designed for conformance with IBM's e-Business Infrastructure guidelines. The production data is subsequently managed and enhanced within the WebSphere environment. Important aspects of this system include:

- Basic catalog data is entered and managed once, within ***retail.dot.commerce***, and syndicated to the Internet site. No supplicate data entry/management is required.
- Once data is published, the Web development/e-commerce team is free to leverage best-of-breed tools within WebSphere to create a world-class user experience.

· Business rules published by ***retail.dot.commerce*** can be applied within WebSphere without modification, or can be modified/over-written using WebSphere's Blaze Advisor rules engine. That means the Web environment can maintain complete consistency (e.g. for promotions) with the bricks-and-mortar environment, or can utilize an independent set of rules to create specialized Web opportunities.

Once the e-commerce environment is constructed and shoppers begin to visit the site, site performance is controlled/optimized within the Web server farm. All basic catalog display information is accessed from a Web data repository, without connectivity to the ***retail.dot.commerce*** environment. Only when the user fills a shopping cart and is ready to check out, are back office systems re-engaged.

On check out, an initial check of the customer records and address information, including address deliverability, is conducted within the Web database. If the order passes this preliminary check, the transaction is passed to ***retail.dot.commerce*** via IBM's messaging middleware, WebSphere MQ (formerly IBM MQSeries®). Of importance, WebSphere MQ provides:

· Secure data transfers
· Persistent, time-independent communication
· Assured one-time delivery

The retailer can be confident that orders are received by ***retail.dot.commerce*** even in the event of a systems or communications interruption.

For order processing, the ***retail.dot.commerce*****/*****WebSphere Commerce Suite*** solution supports:

· Real-time inventory reservations
· Real-time order payment, including credit card authorization and credits for gift certificates
· Discount structures for memberships, subscriptions and continuity programs
· Customized gift giving
· Gift wrapping
· Personalized messages
· Dated delivery
· Split shipments (multiple delivery addresses within a single order)

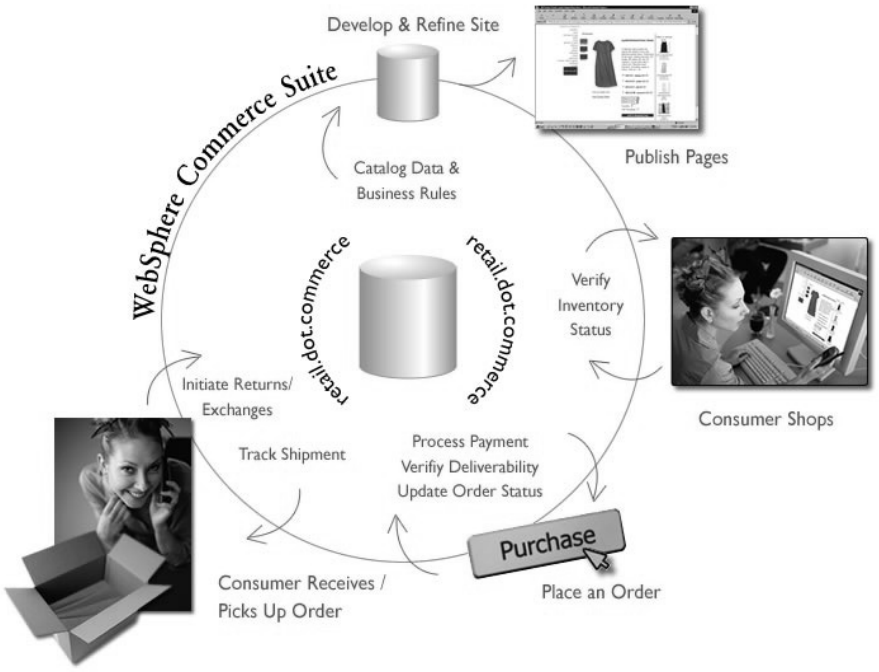
The integrated system can handle exceptionally high concurrent traffic and total daily transaction volume. The ***retail.dot.commerce***/WebSphere environment is ideally suited to environments handling over a million direct-to-consumer orders per year, yet readily scales to handle much higher volumes.

As orders are immediately transferred and available within the ***retail.dot.commerce*** environment, important customer service options emerge, including:

- Call center representatives can immediately access the order to provide phone assistance to a customer and/or complete the checkout process if necessary
- Customers can immediately access self-service facilities if they need to make a change, fix an error, etc.
- Customers have immediate access to their account profiles for self-serve maintenance
- Orders can be fulfilled across all supported channels

The overall business logic executed in the integrated ***retail.dot.commerce***/WebSphere environment is summarized in Figure 5.

Figure 5: Business logic flow. With *retail.dot.commerce* as the nucleus and WebSphere Commerce Suite supporting a robust Web interface, merchants can effectively manage cross-channel operations for both outstanding customer service and efficient business operation.



Putting It All Together

The integration of ***retail.dot.commerce*** with ***WebSphere Commerce Suite*** defines a benchmark for multi-channel information management that can be applied across all sales channels. For catalog or direct mail orders, Call Center or Fulfillment Center personnel can manage catalog or direct mail orders by interacting directly with ***retail.dot.commerce*** or through an integrated third-party application. Similarly, information in ***retail.dot.commerce*** can be made available in retail store environments to support best-practices customer service. In each instance, the software used at the consumer touchpoint is selected based on required functionality and

merchant preferences. However, ***retail.dot.commerce*** always maintains a single repository for all data — inventory, customer, transaction — across all channels. This provides the infrastructure to move appropriate data to the local system (e.g. item master, pricing, etc.) while supporting real-time interaction with necessary cross-channel information (e.g. inventory levels). The CommercialWare architecture permits the ideal combination of a unified marketing view of the customer with unsurpassed service and operational efficiency.

Returning to e-tailing, the most complex of the multiple channels, applying this data management and application architecture in combination with the advanced marketing and personalization tools of IBM ***WebSphere Commerce Suite*** provides retailers with the power to elevate customer service to new heights, while maintaining margins and advancing competitive position.

[1] CIO Online, Behind the Numbers: ”Online Returns to Total Nearly $6B”, 05/10/2001