

Bridgestone/Firestone Paves the Way to e-business Success

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Executive Summary

Bridgestone/Firestone is a world-leading provider of tires and rubber products for everything from cars and trucks to agricultural and construction vehicles. Faced with the challenge of serving its dealer network that includes 8,500 retail outlets, and 45,000 employees, Bridgestone/Firestone turned to IBM to develop an e-business site that would maximize service and revenue.

The Company

Bridgestone/Firestone is a world leading provider of tires and rubber products for everything from cars and trucks to agricultural and construction vehicles.

The Situation	Forced with the challenge of serving its dealer network that includes 8,500 retail outlets, Bridgestone/Firestone turned to IBM to help redesign its e-business site to maximize revenue while making Bridgestone/ Firestone easier to do business with.
Software	IBM WebSphere Application Server V3.5 IBM DB2 Universal Database/DB2 Connect Java IBM VisualAge for Java IBM IMS/IMS Connect
Servers	IBM RS/6000 SP IBM AS/400 eServer zSeries (formerly S/390 Parallel Enterprise Server)
Services	IBM Global Services • Business Innovation Services, Automotive Industry Practice
The Bottom Line	\$100 million of sales per year flowing through system and continuing to grow 500 inquiries per day for order management, 400 inquiries per day for invoices • Each inquiry is a potential customer service call Each order on the phone takes approximately 10 minutes, so the system enables the customer service staff to focus on more value-added activities Increased productivity for internal call-center representatives who use the system

Bridgestone/Firestone Background

Bridgestone/Firestone is a leading manufacturer and distributor of vehicle tires of virtually all types. It offers products for cars, light trucks, SUVs, commercial and construction trucks, agriculture vehicles, and motorcycles. In addition to tires, Bridgestone/Firestone also manufactures air springs, roofing materials, synthetic rubber, and industrial fibers and textiles.

A New e-business System Is Needed

Prior to 1997 Bridgestone/Firestone had no formalized e-business strategy. By 1997 the company realized that it needed to unify its efforts and create a company-wide system. Part of this realization was due to requests from the dealer network and part of it came from competitive pressures. Out of these competitive and customer pressures came the concept for ENTIRENET, Bridgestone/Firestone's e-business solution for its dealer network.

Bridgestone/Firestone had several issues to address with ENTIRENET. First and foremost was order status. Previously this information was found in a series of reports run from Bridgestone/Firestone's proprietary ERP system. The information from the reports was faxed or sent to dealers on diskette, rendering it at least partially obsolete when it arrived.

Initial efforts in 1997 consisted of a HAHTsite-based system running on Windows NT. This application was well received. It debuted at a dealer show in November 1997, and by the end of 1997, 50 to 100 dealers were using the system. About this time, Java was emerging as a flexible internet development language. Therefore, by the end of 1998, a decision was made to move away from the HAHTsite/Windows NT platform.

Goals for the New System

Companies often have different goals in mind as they move to deploy new technology and e-business initiatives (see sidebar).

Bridgestone/Firestone was clear in its resolve for the new system. Its single, overriding goal was:

- ▶ Make it easier to do business with Bridgestone/Firestone. Orders from the dealer network are the lifeblood of Bridgestone/Firestone's business. If dealers find Bridgestone/Firestone easier to do business with, dealers will be better able to satisfy their customers, leading to greater success for both Bridgestone/Firestone and its dealers. In a very competitive industry, Bridgestone/Firestone had made the decision to do just that, rather than competing strictly on price. Business tools such as ENTIRENET help make this feasible.

States of e-business Adoption

Companies go through a number of stages or states in their e-business evolution. The end state is one where the enterprise has not only integrated its back-office systems and connected to its suppliers, to its customers, and to other business partners, but it also has linked at the business process level, and these business processes are supported by applications that are dynamically created. These states are outlined below:

State 1 • Publish — Maintains a multipage Web site. Uses the Web for e-mail, and/or for noninteractive publishing of business information

State 2 • Transact — Uses the Web to enable clients to execute one-way or two-way transactions against core business systems

State 3 • Integrate Internally — Uses the Web to improve and/or integrate core business processes within the enterprise

State 4 • Integrate Externally — Uses the Web to integrate business processes across enterprise boundaries

State 5 • Adapt Dynamically — Uses the Web as the foundation for operating in a digital community

Of course, drivers and barriers vary between states. The barriers can be cultural as well as technical. For example, a driver for a company moving from state 1 to state 2 is often to improve customer support with the use of self-service applications. A barrier between these states might be that the organization doesn't have the skills to handle the new system.

► **Improve efficiency and customer service.**

By having a goal of making it available 24 hours a day, dealers can check inventory and order tires during their busy weekend times. In addition, the self-service aspects of ENTIRENET reduce both Bridgestone/Firestone's and its dealers' customer service costs, by giving its dealers tools to improve their businesses.

Ancillary goals in developing ENTIRENET were:

- **Create a simple design.** ENTIRENET is intended for use by thousands of users, many of whom have little or no experience in the use of e-business applications. It was paramount for ENTIRENET to maintain a simple design.
- **Leverage past investment.** Bridgestone/Firestone has made significant investments in proprietary systems. It was important for ENTIRENET to integrate into Bridgestone/Firestone's back-end.
- **Create a secure environment.** Bridgestone/Firestone had always pursued "banking environment" level of security as a goal. As ENTIRENET was being designed, it was important that this goal be maintained.

Selecting the Right Partner

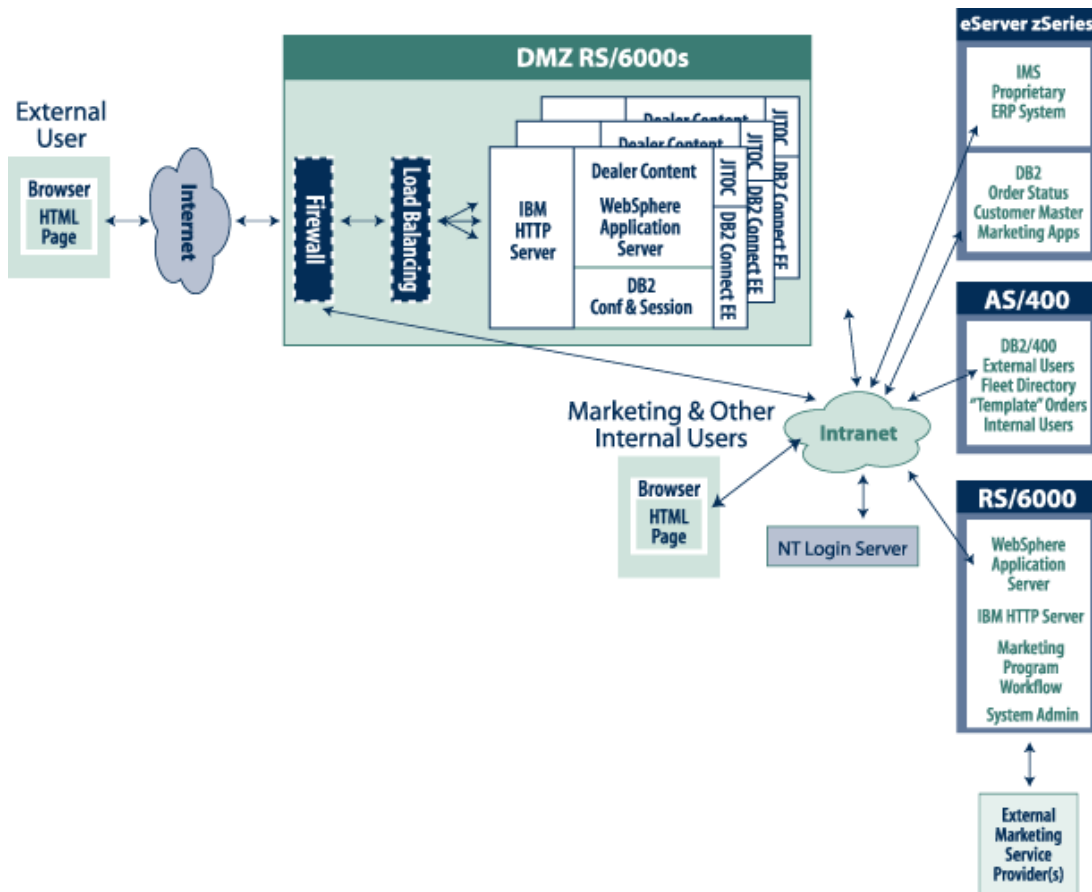
Lori Jones, Bridgestone/Firestone's manager of e-commerce, and Phil Brown, Manager of Internet Development, were charged with finding a partner with which to develop the new version of ENTIRENET.

The decision process was based on a series of presentations from, as well as informal discussions with, vendors. Over a year's time, Bridgestone/Firestone narrowed the field to three vendors and eventually chose IBM, because, as Ms. Jones put it, "many small things added up." Among the "small things" were:

- ▶ Bridgestone/Firestone's belief that Java was the best technology for the application and that the technology was gaining momentum in the marketplace.
- ▶ Bridgestone/Firestone's existing commitment to IBM infrastructure. The company already had an eServer zSeries-, AS/400-, and RS/6000-based architecture.
- ▶ IBM had already developed software to connect with Bridgestone/Firestone's IMS system. This was key to integration with the legacy order-entry system.

Far from a small thing, and the single largest factor, however, was accountability.

Bridgestone/Firestone developed an inherent belief that a combination of IBM's middleware and infrastructure, and IBM Global Service's expertise, would make the application work in the end.



ENTIRENET WebSphere Architecture

Implementing the Solution

ENTIRENET represented Bridgestone/Firestone's first implementation of commerce outside its own business. By integrating with dealers, outside service providers, and within the business, Bridgestone/Firestone has delivered timely e-business functionality. The goals, drivers, and degree of integration for the system put it at a state 4 implementation (see side bar, page 3). The deployment is notable in that the infrastructure is considerably complex, and that WebSphere Application Server ties much of it together. In addition, ties are made to legacy systems, and this data becomes the backbone of the system.

To determine what functionality needed to be included in ENTIRENET, Bridgestone/Firestone went to its customers — the dealers. Based on the input of the dealer network, priorities were identified, developed, and implemented.

The technology architecture was developed up front. The commitment to WebSphere was made early, even while realizing that interim steps would include the use of the HAHTsite technology used in the past. As new functionality was introduced, IBM Global Services worked with Bridgestone/Firestone to design and fine-tune each feature to assure that it met the needs of all users to the greatest degree possible.

One of the greatest challenges to Bridgestone/Firestone and IBM Global Services was integration. Links were made to Bridgestone/Firestone's proprietary ERP system, with order and financial data being delivered outside the enterprise to dealers, and inside the enterprise to Bridgestone/Firestone's own customer service representatives.

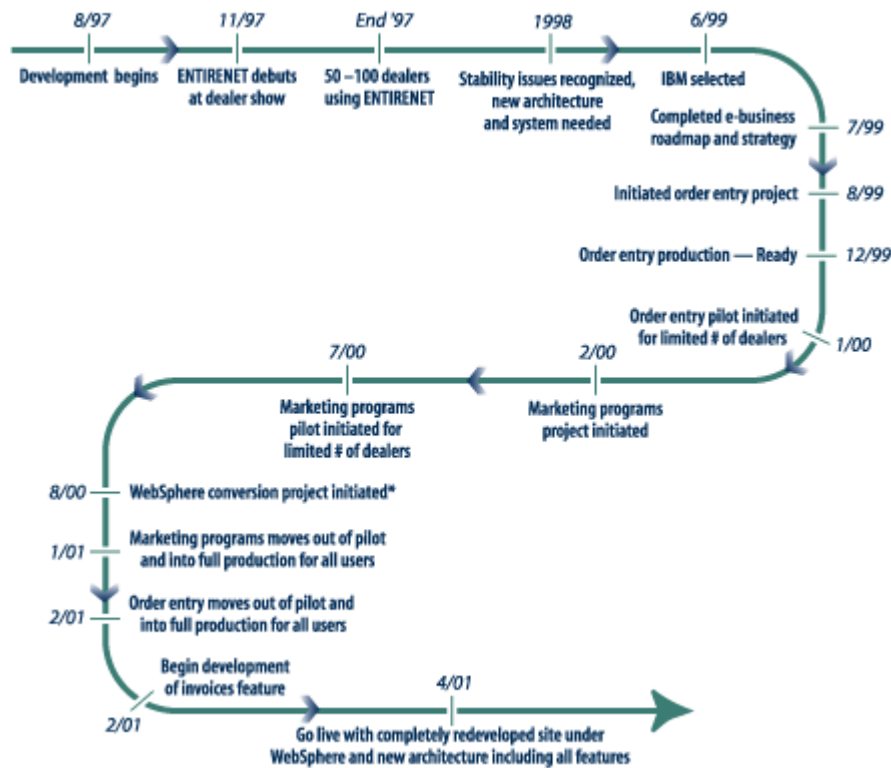
Order status was the first and most important feature, and to date eight pieces of functionality have been addressed:

- ▶ Order status
- ▶ Product information on the Web — pictures, specifications, etc.
- ▶ Dealer-based price catalog
- ▶ Marketing programs, e.g., monthly incentives
- ▶ Ability to input national fleet transactions
- ▶ Invoice inquiry
- ▶ Order entry by dealers
- ▶ Statements of marketing programs (view status of incentive programs)

Countdown to Change

The contract was awarded to IBM in mid-1999. IBM Global Services and Bridgestone/Firestone began working together in August 1999.

Countdown to Change



* Includes the redesign and rewrite of all features except marketing programs and order entry in Java, as well as the procurement/implementation of new hardware (RS/6000s) and a completely new data model and DB2-based environment

The overall goal was to provide an “industrial strength” e-business system, and Bridgestone/Firestone and IBM Global Services decided that order status would provide the most impact on the dealer network. This functionality was rolled out at the end of 1999 with great success. From there, IBM Global Services worked with Bridgestone/Firestone to implement the next functionality.

- ▶ Order status gives dealers and customer service reps information about their orders, allowing them to plan inventory.
- ▶ Product specifications and price catalogs give dealers and customer service reps the information they need to make the right product decisions.
- ▶ Marketing programs allow Bridgestone/Firestone to communicate with dealers, and allow dealers to maximize promotional opportunities.
- ▶ Invoices allow dealers to view their invoices over the Web to expedite payment.
- ▶ Self-service order entry allows dealers to enter their own orders over the Web to assure more timely and complete delivery.

The key to the success of all of this functionality was the ability of WebSphere to not only provide an “industrial strength” e-business platform, but also to provide the technology to integrate the e-business applications with the legacy systems and applications.

The ENTIRENET architecture is based on the WebSphere Application Server platform. The platform is leveraged heavily in the dealer network aspects of the application, as well as in the marketing programs workflow and the systems administration. WebSphere’s reliability and ability to integrate data securely from anywhere in the enterprise make it the backbone of ENTIRENET.

Order and product data is accessed throughout ENTIRENET from Bridgestone/Firestone’s custom ERP system. This data is integrated through WebSphere and fed back into the proprietary ERP system. A premium was placed on not “reinventing the wheel,” and keeping the interfaces between applications as simple as possible.

Marketing applications for “frequent buyers” and specific segments were delivered using ENTIRENET as a vehicle to get the information to the dealer network. This is in addition to other means of promotion (e.g., e-mail, direct mail, etc.), but proved a very effective means of communication. The increased visibility into Bridgestone/Firestone made it easier to do business for its dealers.

Every new piece of added functionality is written in Java. Java — chosen for its flexibility and platform independence — is credited as a major reason for rapid implementation of functionality, which became the hallmark of the engagement with IBM. The Java applications also proved scalable, with nearly 5,000 users at 800 different dealers using ENTIRENET. With each new piece of added functionality to the application, ENTIRENET experiences a surge of new usage — with no degradation in performance to date.

Security is administered through WebSphere, with an administration and security engine written in Java running on Bridgestone/Firestone’s intranet. Security rules are complex, but designed not to bog down the system in any way. Some human intervention is required. Bridgestone/Firestone administrators will contact dealers to confirm applicants for use of ENTIRENET after receiving each request.

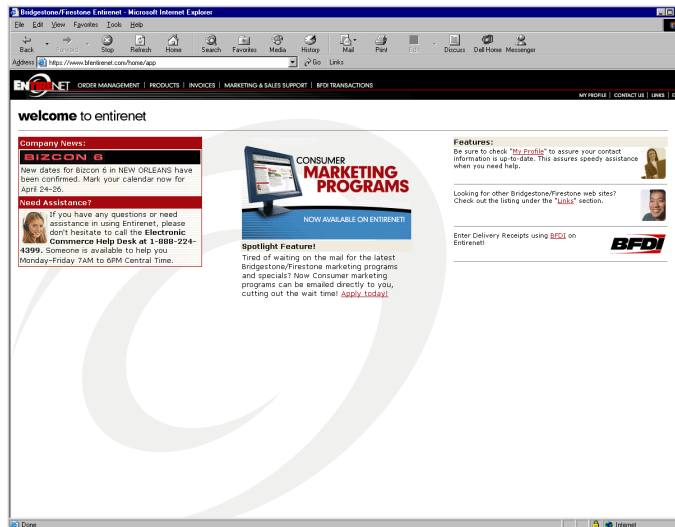
End User View

External Users

According to Lori Jones, "The goal was customer satisfaction. Making Bridgestone/Firestone easy to do business with was paramount." Bridgestone/Firestone provided access to ENTIRENET at no charge to dealers, while other competitors have charged dealers for access.

The system has created a tight integration between ENTIRENET and proprietary systems, providing business information to partners/customers.

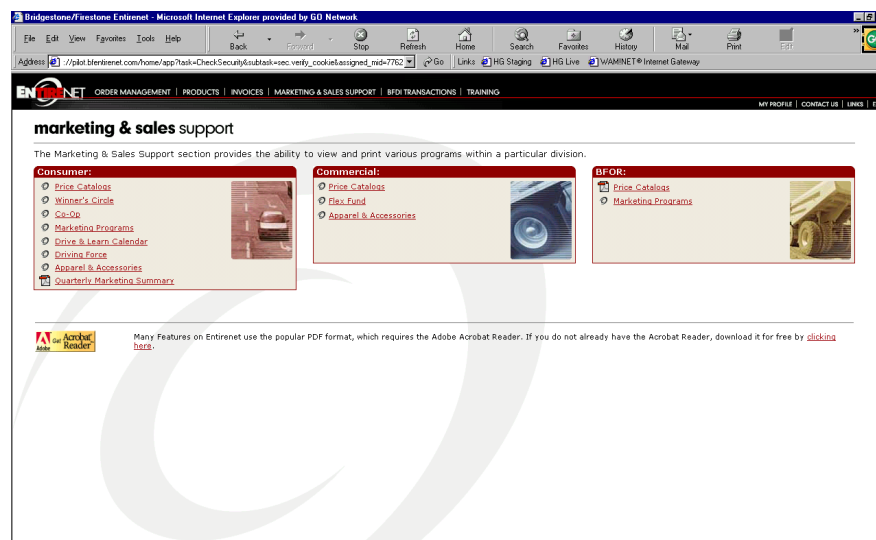
A sample screen is shown below:



The ENTIRENET home page

Internal Users

ENTIRENET is designed to provide maximum value to Bridgestone/Firestone's dealer network. The system has been so widely accepted, however, that Bridgestone/Firestone's own customer service representatives in its call center are using ENTIRENET for questions regarding shipping information (such as packing lists), order status, and other inventory/delivery related inquiries. Internal users have access to the same view of the data and application that external users have. A sample screen is shown below:



The marketing and sales support main screen

Challenges

Thanks to high-level buy-in, a phased approach, and a close relationship with IBM, Bridgestone/Firestone's road to success for ENTIRENET was relatively smooth. That is not to say, however, that there weren't many challenges along the way, both technical and cultural.

Technical

With an evolutionary approach to development, it is quite easy for an application's architecture to become overly complicated. In redesigning ENTIRENET, Bridgestone/Firestone overcame this problem by developing a WebSphere-based, simple, and intuitive solution.

Other technical challenges largely revolved around security. Bridgestone/Firestone's goal was to pattern its security measures after a "banking environment" for ENTIRENET. End users at dealers vary greatly in role, ranging from users who require inquiry-only access to users who require transaction capabilities. The system needed to address all of these roles in a secure fashion. This included field-level security as well as significant verification and checking of each applicant for access.

Data integrity is also an ongoing issue. Before the initial version of ENTIRENET was instituted, efforts were made to assure that the data in the system was complete and accurate. Processes and procedures have since been established to assure that this data integrity is maintained.

Additionally, with overlapping releases of functionality and a large development effort, change control and configuration management became a challenge. With the help of IBM, Bridgestone/Firestone established extensible procedures for the team to follow, and the problem was alleviated.

Business/Cultural

Among the lessons learned by Bridgestone/Firestone was not to underestimate the importance of educating users (in this case dealers and employees) in the power of the Internet. It was challenging for Bridgestone/Firestone to move the perception of ENTIRENET from a "nice to have" to a business necessity. This effort was critical, since adoption of the system provides great savings of time and money to both Bridgestone/Firestone and dealers.

IBM played a prominent role in fostering adoption. In realizing that many of the users are unfamiliar with the Internet, or any business applications for that matter, Bridgestone/Firestone and IBM assured that the user interface for ENTIRENET was intuitive and would require minimal training. Likewise the security schema was designed to incorporate the many levels described previously, but would be as simple as possible to administer during initial setup, as well as on an ongoing basis.

Benefits of the Solution

Since the first phase of implementation in 1999, the program has already generated some impressive results:

Goal	Results
Improve Customer Retention and Satisfaction	<ul style="list-style-type: none"> ▶ Approximately 2,500 users at 10,000 different dealers ▶ All of Bridgestone/Firestone's largest volume dealers ▶ Communications vehicle with dealers
Improve Internal Efficiency	<ul style="list-style-type: none"> ▶ Presently 500 inquiries per day for order management ▶ Presently 400 inquiries per day for invoices <ul style="list-style-type: none"> • Each inquiry represents a potential phone call to B/F ▶ 40-70 orders placed per day <ul style="list-style-type: none"> • Orders take an average of 10 minutes each, thus ENTIRENET frees CSRs to do value-added work ▶ ENTIRENET has become a tool for customer service representatives to resolve problems arising from phone calls ▶ Since its migration to a WebSphere-based architecture, ENTIRENET has been very reliable
Improve Technology Platform	<ul style="list-style-type: none"> ▶ The combination of IBM software and servers has realized a 50%-75% performance improvement

What's Next for Bridgestone/Firestone?

Bridgestone/Firestone is very pleased with the results of this deployment. The next steps are clear and will make a further impact on the business. It is committed to continued improvement based on open communication and increased understanding. Much of the new functionality considered is based on feedback from Bridgestone/Firestone's sales people, customer service representatives, and, of course, dealers. Bridgestone/Firestone realized that ENTIRENET will never achieve 100% adoption (quite simply, many dealers will never have Internet access); its philosophy is to come up with new and compelling functionality that will increase the desire to adopt the application.

Specific plans include voice and wireless access to ENTIRENET. This will benefit both the dealer network and Bridgestone/Firestone's sales force. In addition, Bridgestone/Firestone plans to work on enhancements that will handle the complexity associated with order management for its more advanced dealers, who have more complex buying habits. Further down the road are enhancements that will allow Bridgestone/Firestone's largest customers (rental agencies, trucking fleet owners, etc.) to order directly from ENTIRENET.



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