IBM

e-business case studies

PlanetRx:

The pharmacy of the future builds for the long term using IBM technology

e-business

Putting e-business to Work

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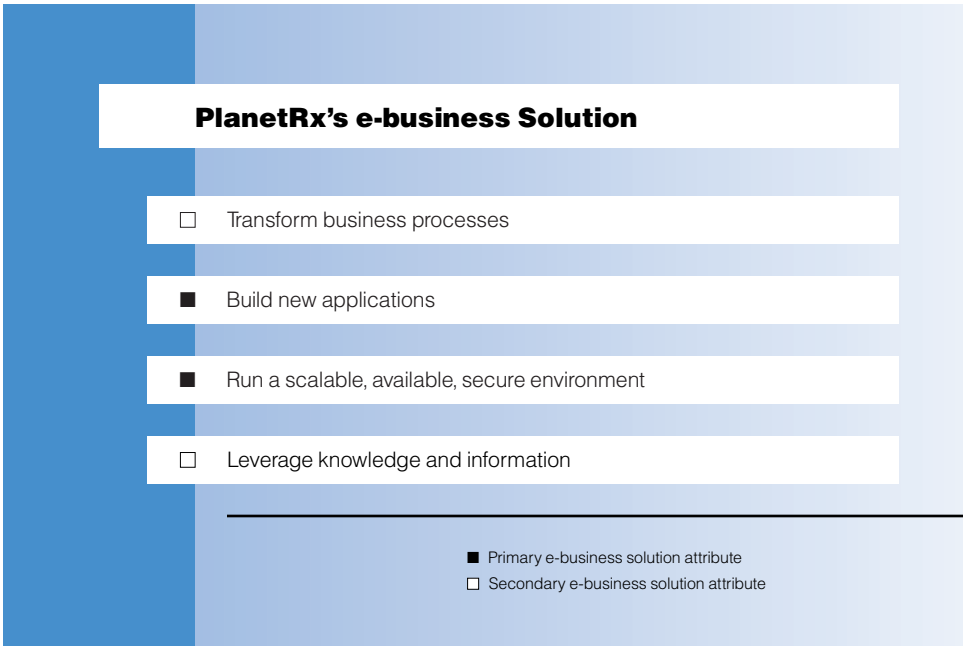
Overview

e-business Case Study: PlanetRx.com

PlanetRx.com, Inc. is an Internet-based pharmacy that focuses on "the three Cs": content, community and commerce. With products ranging from prescriptions and personal care items to the latest medical information, PlanetRx aims to provide consumers with the ability to manage their own healthcare in a convenient and secure environment. Headquartered in San Francisco, California, the company operates its own pharmacy and distribution center in Memphis, Tennessee.

As the competitive field has become more crowded, PlanetRx has taken several key steps to stay ahead of the pack. As this case study shows, the development of a secure, flexible, and highly scalable e-commerce platform has been a critical weapon in its competitive arsenal. In its quest to create "the best transaction infrastructure in the industry," PlanetRx used the IBM Application Framework for e-business, with such technologies as MQSeries, WebSphere Application Server, and DB2 to build a system with robust, end-to-end capabilities. Moreover, by introducing such advanced features as personalization, PlanetRx hopes to establish a new level of Web-based e-commerce and to fundamentally change how consumers manage their own health care.



PlanetRx.com

The Company

- Based in San Francisco, CA
- Operates a distribution center and pharmacy in Memphis, Tennessee.

The Web Site

- *www.planetrx.com*
- Generates as many as 256,000 online monthly purchases, one of the highest monthly transaction rates for online retailers

The Solution

- Business-to-Consumer e-commerce platform

The Benefits

- Increased scalability, reliability and availability of systems
- Anticipated 20 percent reduction in development cycle time
- Lower training costs
- Ability to preserve investments in application development

The Technology

- IBM MQSeries®
- IBM WebSphere™ Application Server
- IBM DB2® Universal Database™ for AIX®
- IBM Netfinity®
- IBM RS/6000®

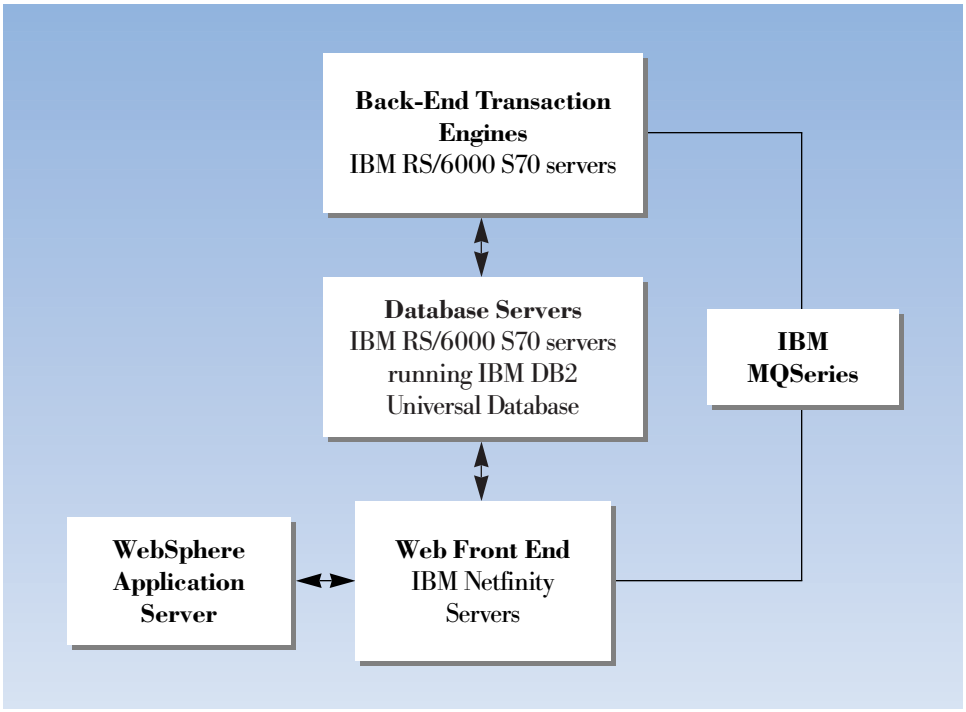
e-business Solution Profile

"For our solution, MQSeries proved to be the critical link that facilitated the de-coupling of transactional elements. We see this as a testament to the strength of MQSeries as a tool to build advanced e-business solutions."

— James Chong, Chief Technology Officer, PlanetRx

PlanetRx is a full-service Internet-based pharmacy whose e-commerce Web site — www.PlanetRx.com — allows customers to fill or refill medical prescriptions from the convenience and privacy of home. Launched in March, 1999, PlanetRx's online pharmacy offers a full selection of over-the-counter medicines, vitamins, herbs, dietary supplements, medical supplies, and personal care and beauty products. While the PlanetRx.com site represents the core of its business model, PlanetRx also offers a wide range of informational services that are complimentary to its online pharmacy service. These include content and online communities developed around specific health-related topics. According to Stephanie Schear Tilenius, Vice President of Business Development and Sales and a co-founder of PlanetRx, these information services have allowed PlanetRx to stand out from a growing field of competitors. "We provide a great deal of information for consumers," says Tilenius. "For instance, we have developed what we call 'eCenters' — areas where we combine content and commerce, covering over 100 disease categories. What we've tried to do is to really provide the right information for people to manage their health."

Early in its development, PlanetRx came to the realization that in order to create a "high-touch" experience for consumers — one where customers can discuss and educate themselves on their medication options — its business model needed to transcend the traditional boundaries of being just a commerce site, a content site, or a portal. Moreover, to support such rich functionality and content, PlanetRx further recognized its need for a platform scalable enough to support a tremendous volume of users and transactions. According to James Chong, Chief Technology Officer at PlanetRx, the company's platform development strategy relied heavily on a component model that uses elements of IBM's Application Framework for e-business, including technologies such as Enterprise Java Beans™, WebSphere Application Server and DB2, among others, running on AIX. "Our firm has grown tremendously in the last few months and the big reason for our success is our infrastructure," says Chong.



Source: PlanetRx.com

Figure 1. Basic System Architecture of the PlanetRx.com e-business Solution

The e-business solution examined in this case study represents the next generation of PlanetRx's Internet commerce platform. Under its initial rollout strategy, PlanetRx chose to have its commerce site hosted, a reflection of the criticality of speed-to-market for an Internet start-up. But as PlanetRx enters the next phase of its growth, it has decided to bring its commerce infrastructure in-house, and has begun to strengthen its e-commerce capabilities to accommodate its surging online business volume. IBM's software and hardware technology occupies a central role in this next-generation commerce platform.

The main headline of PlanetRx's IT strategy is its recently begun migration from a hosted, Windows NT®-based environment to its own AIX-based e-business solution. Under this solution, PlanetRx will operate a primary data center at its San Francisco headquarters, as well as a back-up data center in Memphis, where it also operates a warehouse and distribution center. PlanetRx based this next-generation e-business platform on the Application Framework for e-business, using a wide range of IBM products, including WebSphere Application Server, MQSeries, DB2 and both Netfinity and RS/6000 servers. PlanetRx's data center architecture consists of several IBM Netfinity servers acting as Web servers, which link to two IBM RS/6000 Model S70 Enterprise Servers (functioning as database servers) running IBM DB2 Universal Database for AIX. PlanetRx's back-end transaction engines will also be run on RS/6000 servers.

PlanetRx designed and built its own highly efficient and scalable transaction infrastructure. Chong attributes the solution's robustness to the fact that while it is truly an end-to-end commerce engine, the system was designed to de-couple the various transactional elements, such as the transaction engine and its inventory systems. According to Chong, this loosely coupled architecture will ensure optimal scalability for the system by using transactional resources more efficiently. "The root of the system's scalability is that it enables shorter transaction instances," he says. "This is because it ties up fewer transactional resources from the time the customer begins browsing to the time the customer checks out."

Chong points out that while de-coupling underlies the core strength of the PlanetRx commerce platform, IBM MQSeries was the indispensable tool that made it happen. "For our solution, MQSeries proved to be the critical link that facilitated the de-coupling of transactional elements," says Chong. "We see this as a testament to the strength of MQSeries as a tool to build advanced e-business solutions."

In addition to MQSeries, the PlanetRx commerce solution also makes extensive use of IBM DB2 Universal Database. While DB2 databases now house the PlanetRx online catalog as well as information related to shipping and logistics, Chong notes that PlanetRx will ultimately shift all of its data to DB2, including customer account information and history, transaction information, and product information. As DB2's role grows, Chong expects the size of PlanetRx's DB2 databases to rise from the current 20MB to 5GB.

Featured IBM Technology

MQSeries

IBM's innovative, award winning MQSeries is the market leader in commercial messaging, providing a key element of enterprise systems and setting the standards against which messaging products are judged.
www.ibm.com/software/ts/mqseries

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WebSphere Application Server offers the most reliable and robust platform for Java servers, using open, cross-platform Java and XML/XSL technologies. With new machine translation capabilities, you can translate Web site content automatically, giving your business worldwide reach. The new site analysis features can help you target your Web marketing and solutions better than ever before.
www.ibm.com/software/websphere

DB2

The DB2 product family offers open, industrial-strength database management for business intelligence, transaction processing, and a broad range of applications for all types of businesses.
www.ibm.com/software/data

Featured IBM Technology

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RS/6000

As the fastest UNIX enterprise server available, IBM's RS/6000 delivers business value while supporting the newest applications in e-business. If you are looking for industry-leading performance for your e-business applications, you don't need to look any further than RS/6000, the engine behind millions of e-business transactions completed every day.
www.rs6000.ibm.com

"We selected DB2 because of its outstanding track record, its reliability, the quality of IBM's support for it, and excellent price performance," says Chong. "We have used DB2 in a complex NT and AIX environment with Java since May, 1999, and thus far we haven't had any significant outages. This demonstrates the kind of performance that we require for our platform."

Chong adds that DB2 presently serves as the database for PlanetRx's data warehouse and represents the data source for PlanetRx's interactive database reporting and data mining activities. "DB2 has thus far provided an outstanding platform for our business intelligence activities. We expect data warehousing and data mining to become even more critical for us in the future as we analyze what products are selling in order to optimize our approach to stocking and replenishment. I expect that DB2 will occupy a prominent place in our future business intelligence initiatives."

At present, the PlanetRx solution also employs WebSphere Application Server (WAS) Standard Edition, having developed its own search tool using a WebSphere servlet engine. Chong points out that while PlanetRx has enjoyed the benefits of higher flexibility inherent in a servlet-based search engine, a much larger role for WAS will develop in the immediate future. "Our choice of WebSphere was both a tactical and a strategic decision. It was a tactical choice because it enabled us to get a robust and flexible search engine up and running very quickly," says Chong. "At the same time, it was a strategic decision because it laid the groundwork for our taking full advantage of WebSphere's Enterprise JavaBeans support. In the near future, we plan to use WebSphere as our Web application server, where it will handle everything from catalog display to order taking and order management."

Goals and Business Drivers

According to Chong, PlanetRx's Web-based business model necessitates a tight linkage between its business goals and its technology investment strategies. "At this point in our company's development, our key priority is to increase the size of the customer base and to drive revenue," says Chong. "These goals are all predicated on the fundamental notion that we can use advanced technology to gain a competitive advantage. We see our core competency – as well as that of any company operating in our business model – as having a set of technologies and architectures that enable scalable, efficient and low-cost operation."

Chong believes that of all the metrics by which the strength of a platform can be gauged, system availability and scalability are at the top of the list. "When we were planning our current transaction processing architecture, we knew that its long-term scalability had to be built in from square one – before increases in our business volume strained the system to its capacity," he notes. "For a Web-based company like ours, the real danger of inadequate scalability is that once online business volume outstrips the solution's ability to handle it, you'll never catch up."

The related issues of system availability and reliability also rank extremely high on PlanetRx's list of planning considerations and were among the top reasons that PlanetRx chose to rely so heavily on IBM technology. The reason for their importance, notes Chong, again relates to the bedrock requirement of the PlanetRx business model – being there for the customer. "We demand 99.9 percent up time, so we need to know that the technology we're relying on has that kind of capability," says Chong. "We are an e-business, and if we're not up and running, our competitor is just a mouse click away. Like any e-business, we would be crazy not to focus on availability. So my previous experience using IBM technology for these types of applications has made me extremely comfortable with their system uptime and availability."

Chong also reserves strong praise for IBM's service and support capability. "Given the rigorous system availability requirements that our company has established, I feel the only way we can meet them is to work with a vendor that has both wide service coverage and a broad range of expertise – like IBM," he says. "The really great thing about working with IBM is that they are willing to invest that expertise to help my firm when the time comes, which my experience tells me is a pretty rare thing. IBM is the technology behind our solution because they're willing to stand behind their products."

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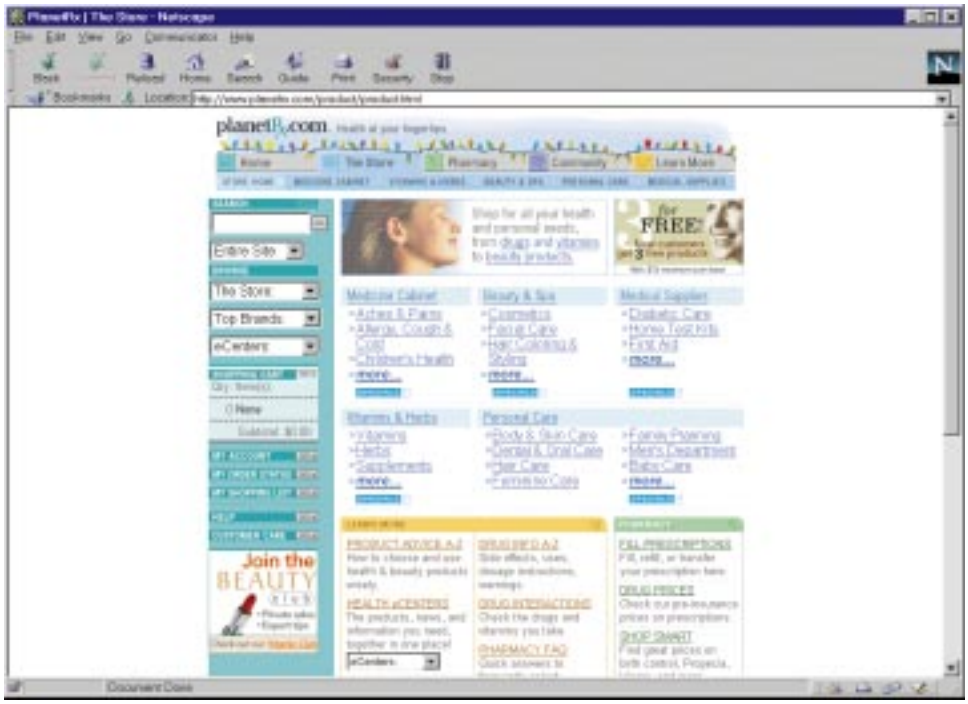
— James Chong

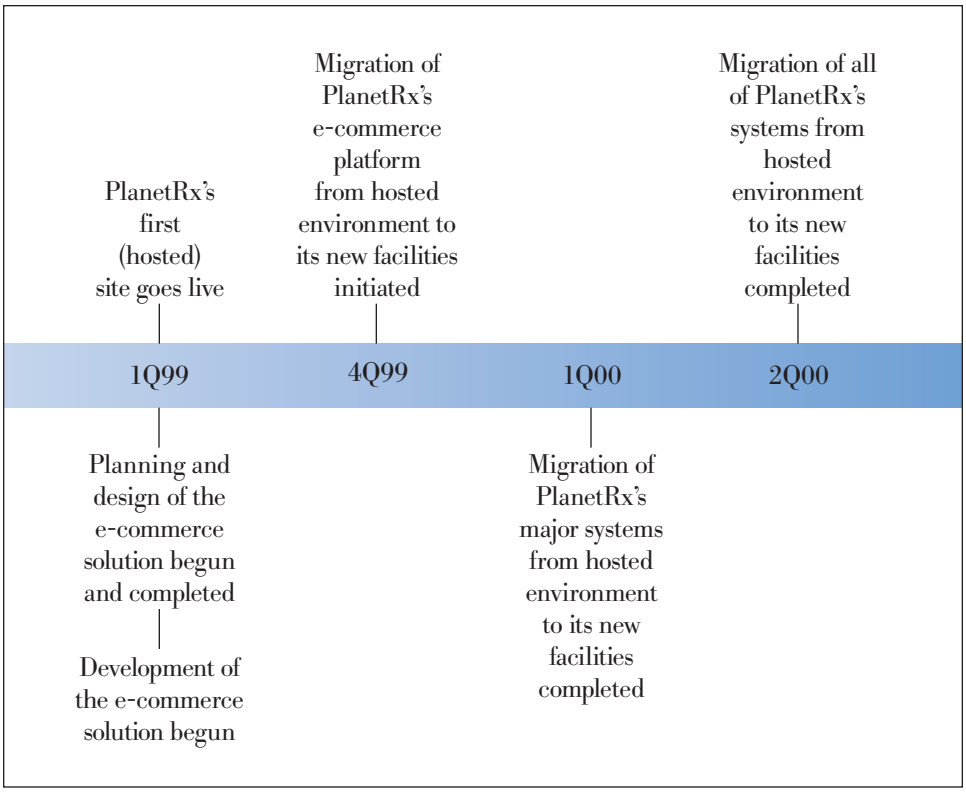
Implementation Timetable and Strategy

> ***"We consider EJB a critical element of our e-business strategy because it will provide us with both flexibility and efficiency."***
>
> *— James Chong*

As discussed, PlanetRx relied on its own internal IT resources for the design and deployment of its commerce solution. Despite the complexity and sophistication of the transaction platform, Chong notes that its planning, begun in the first quarter of 1999, required less than one month. According to Chong, the fact that he and his team embarked on the project with an exceptionally clear vision in mind allowed PlanetRx to significantly shorten its planning cycle.

PlanetRx defines its implementation strategy as a two-phase process. The first phase, platform development, included the establishment of its new data centers as well as the creation of its application architecture. Chong points out that the application development effort was driven by the assumption that Enterprise JavaBeans (EJB) would serve as the basis of PlanetRx's software architecture. "We consider EJB a critical element of our e-business strategy because it will provide us with both flexibility and efficiency," says Chong. "We also subscribe to the EJB model because it keeps our scalability options open if our current platform peaks out. In fact, we designed the software architecture such that if we run out of scalability, we will be able to transport our entire software architecture onto an [IBM S/390®] Parallel Sysplex, allowing us to preserve our investments."





Source: PlanetRx.com

Figure 2. Implementation Timetable for the PlanetRx.com e-business Solution

PlanetRx only recently began the second phase of its implementation strategy, the gradual migration from old platform to new. "We developed the new system while our older platform was still running in parallel and we just began bringing the new system online piece by piece," notes Chong. "Because we based our applications on IBM Application Framework for e-business, with its cross-platform software capabilities, we are able to make this migration without the need to change our existing applications. We expect the majority of our major systems to be brought online in the first quarter of 2000, with the complete switch-over expected to be done into the second quarter of 2000."

Return on Investment

"The strength of our platform is a reflection of its advanced architecture as well as our choice of technology. For instance, our decision to use IBM Application Framework for e-business — with products like MQSeries, WebSphere and DB2 — not only provided us with superior functionality, it made our development cycles faster and more efficient."

— James Chong

James Chong believes that his company's e-business solution investments will produce strong benefits because they provide PlanetRx with a major technological advantage over its competitors. "I believe that PlanetRx has the best transaction infrastructure in the industry," says Chong, "and this will provide us with a strong, sustainable competitive advantage as our business expands." Chong sees the PlanetRx solution as a standout because of the inherent scalability and reliability of the transaction infrastructure. "The strength of our platform is a reflection of its advanced architecture as well as our choice of technology," says Chong. "For instance, our decision to use IBM Application Framework for e-business — with products like MQSeries, WebSphere and DB2 — not only provided us with superior functionality, it made our development cycles faster and more efficient."

As PlanetRx broadens its use of WAS in the near future — incorporating a wider range of e-commerce functions — Chong expects an even broader and deeper benefit stream to result. "We see WebSphere as a proven, stable and reliable platform that provides us with the availability that we demand," says Chong. "In addition to solid performance, WebSphere gives us peace of mind because it's been on the market for so long, and because it's backed up by IBM's superior support and documentation, which you can't say about the other alternatives on the market." In terms of features, Chong cites versatility as one of the biggest benefits: "The fact that WebSphere runs on multiple platforms means that we can just insert it anywhere we want, so we don't have to worry about whether it runs on other platforms. For example, WebSphere's JDBC [Java Database Connectivity] support allows it to talk to a DB2 or SQL server — giving us more flexibility."

Overall Benefits	
Source	**Benefit**
Application Development	MQSeries facilitated development of PlanetRx's "de-coupled" transaction processing infrastructure WAS provided flexible means of creating search function based on a servlet engine
Cost Savings	WebSphere saved both upfront costs (*i.e.*, low price) and ongoing training and support costs
Customer Base	High reliability and availability profile of the PlanetRx platform will support its market development goals High scalability ensures that the platform will keep pace with the growth of its customer base and business volume

Source: PlanetRx.com

Figure 3. Benefits of the PlanetRx.com e-business Solution

While Chong considers the richness of WAS's features its most attractive quality, he is nonetheless pleased with the short-term and long-term cost savings that he expects PlanetRx to realize. "The fact that WebSphere is reasonably priced is great because it helps us control our upfront costs, but the long-term cost savings may be more attractive," he says. "One of the most significant benefits will be more efficiency in our application development process, which we expect WAS to shorten by an average of 20 percent. Coupled with the fact that we've had to spend very little on training and ongoing support, WAS will help us keep our IT costs lean and mean, and will really help us to maximize the efficiency of our IT resources."

In selecting IBM as the primary technology vendor for its next-generation e-business solution, Chong feels assured that IBM's proven record of high reliability and quality support will guarantee maximum availability and uptime. Chong points out that higher system availability and uptime are critical because so many other business benefits flow from them. "One of our key business goals is to build our customer base by establishing and maintaining customer loyalty and increasing customer goodwill," notes Chong. "To do these we simply cannot compromise on our system's availability, since no customer will want to deal with you if you're not there. Our choice of IBM to fill this role should be taken as a statement of our faith in their strong reliability and support record."

Future Plans

> ***"We have to stay at the forefront of innovation to keep ahead of the pack, and projects like these show that we mean to do just that."***
>
> *— James Chong*

PlanetRx plans to further refine its e-commerce capabilities by adding sophisticated personalization capabilities. The new personalization technology, known as Dynamic Store, will enable PlanetRx to offer customers their own customized store and to configure special offers for customers based on their record of past purchases. According to Chong, the introduction of advanced personalization will provide PlanetRx with yet another means of differentiating itself in a highly competitive field. "In the old days, people went to the neighborhood pharmacy because they felt comfortable talking to the pharmacist. We're trying to recreate that feeling, by leveraging personalization technology. If a customer comes to our store and feels like PlanetRx knows them, we gain by increasing that customer's loyalty, and they gain by getting higher quality, personalized service."

PlanetRx has also undertaken another groundbreaking e-business project called Pervasive Shopping under which it will enable wireless shopping for pharmaceutical products through 3Com's Palm™ wireless platform, including the PalmPilot™ hand-held device. PlanetRx has worked closely with IBM Research on the Pervasive Shopping initiative, and will incorporate a substantial amount of IBM technology in the final product. "We're planning on using a lot of IBM's expertise," says Chong, who notes that the wireless initiative will affect all major points of PlanetRx's commerce infrastructure – back end to front end. "This technology platform will enable customers to actually write a pharmacy processing application to run on the PalmPilot," says Chong. "When people connect to us, and happen to have a script sitting with us, we can send them information, including such critical messages as when to take medicine. We have to stay at the forefront of innovation to keep ahead of the pack," says Chong, "and projects like these show that we mean to do just that."

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For information about PlanetRx, visit:
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