Springboard
Developing Revolutionary Shopping Cart System in Record Time

Springboard Retail Networks, based in Toronto, Ontario, develops technologybased information systems for retailers. Its latest product, Concierge, is a wireless, touchscreen-based system installed in shopping carts. With the ability to display store maps and built-in GPS capabilities, Concierge can quickly guide shoppers to products. A built-in scanner tracks purchases as they're added to the cart, checks them off the customer's shopping list and keeps a running tab of the total. Concierge also suggests additional purchases based on what the customer has already selected, deliver coupons for additional savings, and even offer menu and recipe suggestions. The feedback about customer behavior it provides is a value add for retailers.

Facing a tight timetable and lack of expertise to develop Concierge in-house, Springboard divided the project among several vendors. It hoped to speed up the time to market. When the project proved to be too challenging for the other vendors, Springboard gave the entire project to Bsquare. Bsquare developed both the hardware and software for the device, which is based on an RMI Au1250 processor and runs Windows CE. Bsquare also created the user interface, based on Adobe Flash Lite; developed a board support package; significantly enhanced battery life; integrated Wi-Fi and GPS capabilities; performed extensive quality assurance testing; over-saw certification; licensed the Windows CE and Flash Lite software; and provided post-development support.

With Bsquare's help, Springboard reduced development time by nearly 70% and increased battery life by 33%. The product's intuitive user interface, featuring compelling graphics, sets Concierge apart from competitive products, and the extensive quality assurance testing that Bsquare performed is speeding the certification process. Additionally, Bsquare's assistance with software licensing helped Springboard make the right product choices and get the best pricing.

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> —Sylvain Perrier, Vice President of Technology
> Springboard Retail Networks

Overview

Country: USA

Industry: Retail Point-of-Sale

Customer Profile
Founded in 2005 in Toronto, Ontario, Springboard Retail Networks develops technology-based information systems for retailers, helping them improve profitability and competitiveness while strengthening customer relationships.

Business Situation
Springboard wanted to create a wireless, touchscreen-based device to be installed in shopping carts. Lacking resources to integrate Microsoft Windows CE in-house, Springboard decided to outsource development.

Solution
Springboard selected Bsquare for its hardware and software development, quality assurance, software licensing, and technical support.

Bsquare Products and Services
Professional Engineering Services Windows Embedded Licensing Consulting and Sales Adobe® Flash® Lite 3 Licensing

Situation

Founded in 2005, Springboard Retail Networks is a privately held company with headquarters in Toronto, Ontario. The company focuses on developing technology-based information systems that help retailers improve their profitability and competitiveness and strengthen their customer relationships. Springboard's electronic communication systems enables retailers to track and predict consumer's purchase patterns and target them with advertising geared to their specific needs and interests. The company's tools and technology enable consumers to make smart purchase choices and easily find what they're looking for, resulting in improved customer loyalty.

Shortly after its founding, Springboard came up with a great concept: a wireless, touchscreen-based "shopping advisor," to be installed in shopping carts.

The product would help consumers:
• Quickly find what they're looking for
• Determine which products best fit their needs
• Track purchases against a virtual shopping list
• Keep a running tab of the purchase total

The product would also help retailers by:
• Suggesting additional purchases based on what shoppers already have in their carts
• Issuing coupons to provide discounts on additional purchases
• Providing menus and recipes to help shoppers determine what additional products they may need
• Automatically gather data on customer behaviors, such as time spent in specific locations, products selected, and number of visits, so that retailers can modify store environments to increase sales

After extensively researching existing products and talking to retailers and consumers, Springboard determined that the product it envisioned would meet an important need. Although existing products provided some of the functionality that Springboard had in mind, they weren't intuitive to use. Also, Springboard planned to offer unique capabilities, such as providing users with a store layout diagram, and access to menus to help shoppers who forgot their shopping list determine what ingredients they might need to make their planned meal.

By 2006, Springboard was ready to start development on the product they called Concierge. It was to be based on the RMI Au1250 processor and the Windows® CE 5.0 operating system. The company chose version 5.0 because version 6.0 was still relatively new at the time, and changing to it would have required re-engineering the system's architecture.

Springboard wanted Concierge to be ready for in-store beta testing in late 2008. Because the company had neither enough IT staff to do the development in house nor expertise in all of the technologies needed to create such a product, they decided to outsource development. "We needed to create a top-quality product and get it to market quickly," says Silvain Perrier, Springboard's Vice President of Technology. "It would have taken us too long to find and train the necessary staff, so it was clear that finding outside expertise was the best solution."

Solution

Springboard initially divided the work among several vendors expecting to shorten the development cycle. However, by December 2007, the company realized the vendor working on the motherboard was having difficulties

and brought Bsquare in to review the hardware design. Having worked with Bsquare before on other projects, Springboard was familiar with the company's in-depth expertise in both hardware and software development.

Bsquare's analysis of the hardware problems and what was need to fix them proved to be so helpful that Springboard decided to turn over the motherboard development to them. Then, finding that other vendors were experiencing problems with their portions of the work, Springboard turned over their tasks to Bsquare as well. By February 2008, Bsquare was responsible for the entire project.

"Bsquare is one of the top organizations in the market," says Perrier. "They were pioneers in developing Windows CE; have expertise with Flash and wireless technology, and have close relationships with key players like Microsoft, ATS Corporation, and Motorola. They were clearly the right choice for the job."

"Bsquare doesn't just work for you—they work with you," he says. "It's a true collaborative process. That's a big differentiator between them and other consultants we've worked with."

Bsquare's responsibilities for Concierge development included:

- Developing the RMI Au1250-based hardware
- Developing a board support package (BSP) specific to the RMI Au1250 and Windows CE 5.0.
- Developing the software—bringing up Windows CE 5.0 on the device, writing the Flash Lite user interface, helping to write the back end functionality, and helping to create Word documents with menus and recipes.
- Enhancing power management to extend battery life, so the product could go 12 hours or longer before needing to be recharged. Bsquare tested various batteries to find the one with the best lifespan and then optimized power consumption on both the hardware and software so as to ensure the greatest longevity.
- Integrating Adobe Flash Lite into the user interface, to display banners and graphics. "By incorporating Flash Lite, we were able to develop a compelling user interface that Springboard can use to create easy-to-use, rich applications that differentiate Concierge from competing products," says Jim Gatzimas, Eastern Regional Account Executive, Bsquare. "For example, the user interface enables shoppers to quickly view a store layout, be alerted about specials when they are near their favorite products, and tally their spending in real-time."
- Integrating Wi-Fi (802.11) wireless capability
- Integrating GPS capabilities, to guide consumers around the store
- Licensing the Windows CE and Flash Lite software. As Microsoft's largest distributor of licensing in North America, Bsquare had the expertise to help Springboard choose the right version of the operating system (in this case, Windows CE Pro rather than the more limited Windows CE Core) and get the best deal in volume pricing.
- Testing the device, including running it through extensive quality assurance procedures. Bsquare has developed more than 10,000 test cases—over and above the 200 or so included in the Microsoft DevKit—and puts devices through three passes of the tests to ensure that products are production-ready at launch time.
- Device certification including WindowsCE certification, Flash certification, and certification of the device as a whole through Underwriters Laboratories. Bsquare's extensive quality assurance testing means that most products pass certification on the first try—as opposed to the usual two or three attempts. Providing post-

development telephone and e-mail support during pilot rollouts. With Bsquare's help, Springboard was able to create a product with a consumer-friendly interface that lets shoppers quickly view store layouts, receive information on product specials, and keep a tally of their shopping expenses. After six months of development, Concierge will be ready for instore pilot testing in September and will be fully launched by early 2009.

Benefits

By engaging Bsquare, Springboard was able to get a better product to market faster and more efficiently. Specific benefits the company realized include:

- Accelerated time to market.Bsquare reduced system software development time by nearly 70%, enabling product development to be completed in just 6 months—rather than the 18 months that would typically be required to staff an in-house team and develop and test the complete system. Bsquare further reduced development time by assigning multiple developers to the project, enabling hardware and software development to proceed in tandem.
- Long battery life—up to 12 hours or more, compared to the more usual 9 hours for a device of this type. The longer battery life is particularly important for a shopping cart application like Concierge, as it makes it easier for retailers to manage charging schedules so that users never grab a "dead cart."
- An intuitive user interface with compelling graphics. Based on its expertise with Adobe Flash Lite Bsquare recommended it for the user interface . "The rich graphics and intuitive user interface that Flash Lite gives us really sets us apart from the competition, which use either a browser-based user interface or the operating system shell," Says Perrier.
- Extensive quality assurance testing enabled Concierge to pass certification tests on the first try. "Bsquare is extremely thorough in its quality assurance testing," says Perrier. "We like knowing that our product has been verified by industry experts. And Bsquare is also great at communicating with our developers, so they feel comfortable having Bsquare review their source code." Perrier noted that Springboard also has Bsquare review the work of its other vendors. "They bring a fresh perspective that's very helpful," he said, "and they help us make sure that we get the top-quality work that we demand from our technology partners."

- Licensing guidance. "I've bought thousands of dollars worth of licensing in the past, and have had some horrendous experiences," says Perrier. "But with Bsquare, the process is entirely painless—they do all the legwork behind the scenes,. Plus they work with us to understand what we're trying to accomplish, help us choose the products that best fit our needs, and then find us the best pricing. They're really great to work with."

Perrier credits Bsquare for enabling Springboard to complete the product on time and for delivering a top-quality product. "With Bsquare's help," he says, "we expect to meet our aggressive pilot schedule for the Concierge cart and deliver a revolutionary shopping experience for consumers, retailers, and advertisers."

About Bsquare

Bsquare is headquartered in Bellevue, WA, USA, with engineering and development centers in Taiwan, Canada, Japan, India and the United States. Bsquare's Taiwan Development Center supports OEMs and ODMs in Taiwan which manufacture 80% of cell phones globally. Founded in 1994, Bsquare is a trusted partner to smart device makers. It collaborates with OEMs at all stages in device development, helping them to bring top-quality products to market faster. Bsquare offers professional engineering services in software and hardware development, project management and systems integration. It also develops a range of products that reduce development time, including innovative reference designs, board support packages, middleware and applications. Other areas of expertise include Windows licensing, training and support. For more information, visit www.bsquare.com.

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