Business Intelligence

Vol. 4, No. 6

CUTTER CONSORTIUM

High Payoffs Drive Growth in Wireless CRM

by Brenda Lewis

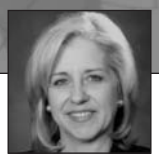
Overall corporate IT spending may be growing in mere baby steps, but all signs point to one conclusion about the growth in wireless customer relationship management (CRM) solutions: big strides. This *Executive Report* highlights outstanding returns and market advantages that four enterprises are experiencing from four different vendors, and offers advice on how wireless CRM can help your organization.

Executive Report

Cutter Business Technology Council

Rob Austin

Tom DeMarco


Christine Davis

Lynne Ellyn

Jim Highsmith

Tim Lister

Ken Orr

Ed Yourdon

About Cutter Consortium

Cutter Consortium's mission is to foster the debate of, and dialogue on, the business-technology issues challenging enterprises today and to help organizations leverage IT for competitive advantage and business success. Cutter's philosophy is that most of the issues managers face are complex enough to merit examination that goes beyond simple pronouncements. The Consortium takes a unique view of the business-technology landscape, looking beyond the one-dimensional "technology" fix approach so common today. We know there are no "silver bullets" in IT and that successful implementation and deployment of a technology is as crucial as the selection of that technology.

To accomplish our mission, we have assembled the world's preeminent IT consultants — a distinguished group of internationally recognized experts committed to delivering top-level, critical, objective advice. Each of the Consortium's nine practice areas features a team of Senior Consultants whose credentials are unmatched by any other service provider. This group of experts provides all the consulting, performs all the research and writing, develops and presents all the workshops, and fields all the inquiries from Cutter clients.

This is what differentiates Cutter from other analyst and consulting firms and why we say Cutter gives you access to the experts. All of Cutter's products and services are provided by today's top thinkers in business and IT. Cutter's clients tap into this brain trust and are the beneficiaries of the dialogue and debate our experts engage in at the annual Cutter *Summit*, in the pages of *Cutter IT Journal*, through the collaborative forecasting of the Cutter Business Technology Council, and in our many reports and advisories.

Cutter Consortium's menu of products and services can be customized to fit your organization's budget. Most importantly, Cutter offers objectivity. Unlike so many information providers, the Consortium has no special ties to vendors and can therefore be completely forthright and critical. That's why more than 5,300 global organizations rely on Cutter for the no-holds-barred advice they need to gain and to maintain a competitive edge — and for the peace of mind that comes with knowing they are relying on the best minds in the business for their information, insight, and guidance.

For more information, contact Cutter Consortium at +1 781 648 8700 or sales@cutter.com.

High Payoffs Drive Growth in Wireless CRM

Business Intelligence Advisory Service

Executive Report, Vol. 4, No. 6

by Brenda Lewis

Prior to September 11, the wireless customer relationship management (CRM) market was very small. A groundbreaking research report, "Wireless Data in the Enterprise," published in November 2001, was the first publicly available, statistically relevant (95th percent confidence interval) research on enterprise demand for wireless applications. The research was conducted in the summer of 2001, but author John Bucher recontacted the survey participants after 9/11 to make sure their responses were still valid. Bucher, Vice President, Harris Nesbitt (formerly of Gerard Klauer Mattison), found that only 17.7% of the *Fortune* 1000 had installed wireless CRM systems (see Figure 1) [1].

The 9/11 attacks proved a pivotal point in the market for enterprise wireless applications, especially for CRM. A global survey by Evans Data Corporation (with a 95th percent confidence interval) of more than 600 wireless developers showed that by February 2002, 27.9% of developers were engaged in wireless CRM initiatives (see Figure 2, which offers a regional breakdown of wireless development activity in spring 2002) [5]. A new Evans Data survey, undertaken earlier this year, found 34.2% of developers engaged in wireless CRM (see Figure 3 for regional details) [6]. That 6.3% increase is reflected in the view of Kirk Garner, Wireless Solutions Architect in IBM's National Wireless Practice, who told me in an interview: "In 2000 and 2001, we were doing prototypes. No one was interested in rolling out anything. Now, about 50%-60% of the applications we do are CRM, and most of those are enterprise solutions."

According to AMR Research, the global CRM market will grow by US $1 billion to $10.8 billion in 2004, a growth rate of 10% [2]. David Schmaier, Executive VP of Siebel Systems, Inc., stated that Siebel expects CRM to be the largest part of the enterprise software market and believes the 2004 global CRM market will be $23 billion, with only 13% attributable to packaged CRM software and 87% to custom-built CRM systems [3]. As a conservative estimate, the CRM market is growing at least five times faster than IT spending as a whole and wireless CRM is a major contributor to that growth. From a base of $300 million in 2001, a figure that included only wireless CRM solutions that

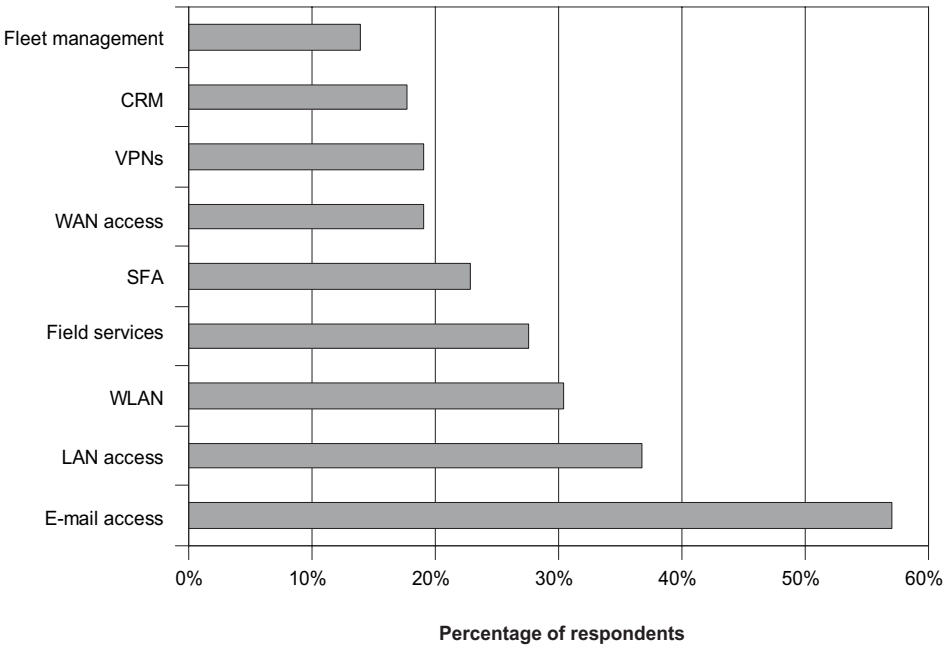


Figure 1 — Wireless data deployment for *Fortune* 1000, by application (2001). (Source: [1].)

access corporate systems through WANs (wide area networks), Frost & Sullivan's Katherine Shariq predicted that the wireless CRM market would grow rapidly in 2004 and 2005 as wireless technology matured, experiencing an annual growth rate of 36% [4].

With IT spending widely believed to be growing at a rate of only 1%-3% in 2004, why is wireless CRM growing so much faster? I believe it is because enterprises have stopped thinking in terms of "alphabet soup" software (SFA, SCM, and ILS are all part of *how* CRM is implemented) and instead are focusing on the customer data and service requirements (*why* CRM is being implemented). Globalization, headcount reduction, outsourcing, regulatory compliance, and business continuity requirements have forced enterprises to strive for real-time customer data visibility, embracing not just customer sales and service contacts, but every interaction from first referral to contract completion. Enterprise wireless CRM systems are not built for data mining experts in the back office; they are designed for active use by field sales forces and service and logistics personnel, including functions outsourced to third parties. Many wireless CRM systems are designed for data access by the customer, at inception or in the future, often in real time.

This *Executive Report* illustrates the extraordinary returns and powerful market advantage that wireless CRM systems provide enterprises. It offers a counterpoint to the terrible statistics regarding failed wireline CRM implementations, which, depending on whose report you read, have failure rates of 70%-80%. It presents never-before-published enterprise wireless CRM system case studies to illustrate how enterprise wireless CRM systems provide benefits to a firm, its partners, and its customers, often by sharing collected data.

The case studies include companies large and small, domestic and international, and from different industries: Yamas Controls, Inc. (construction/real estate services); Continental Laboratory Products (medical equipment); Parryware (consumer products); and Hitachi Global Storage Technologies (electronic equipment). Each wireless application is different in structure: a traditional licensed software model (Yamas/FieldCentrix); an integrated

The ***Business Intelligence Advisory Service Executive Report*** is published by Cutter Consortium, 37 Broadway, Suite 1, Arlington, MA 02474-5552, USA. Client Services: Tel: +1 781 641 9876 or, within North America, +1 800 492 1650; Fax: +1 781 648 1950 or, within North America, +1 800 888 1816; E-mail: service@cutter.com; Web site: www.cutter.com. Group Publisher: Kara Letourneau, E-mail: kletourneau@cutter.com. Managing Editor: Rick Saia, E-mail: rsaia@cutter.com. Production Editor: Linda M. Dias, E-mail: ldias@cutter.com. ISSN: 1540-7403. ©2004 by Cutter Consortium. All rights reserved. Unauthorized reproduction in any form, including photocopying, faxing, and image scanning, is against the law. Reprints make an excellent training tool. For information about reprints and/or back issues, call +1 781 648 8700 or e-mail service@cutter.com.

turnkey application (Continental Laboratory Products/Zumasys); a hosted solution (Parryware/Air2Web); and a customized, proprietary solution (Hitachi/IBM). Each utilizes one or more different wireless transmission protocols, including Global System for Mobile Communications (GSM), specifically short message services (SMS); Code Division Multiple Access (CDMA), specifically Cellular Digital Packet Data (CDPD) and Evolution Data Only (EvDO); General Packet Radio Service (GPRS); Time Division Multiple Access (TDMA); and Wi-Fi.

The case studies were developed from telephone interviews conducted with the business officer who sponsored each project and with the vendor representative closest to the customer solution. Interview questions were e-mailed in advance, and completed interviews were e-mailed back to participants for accuracy checks and legal review. The case studies are told in the words of the participants and detail the following information: a profile of the customer's business, the project objectives, selection of the vendor, implementation, and costs. At the end of the report are sections describing the metrics used, wireless challenges, unintended benefits, and participants' advice to others, along with the conclusions that may be drawn from this diverse set of solutions. Here then, in their own words, are four wireless CRM success stories.

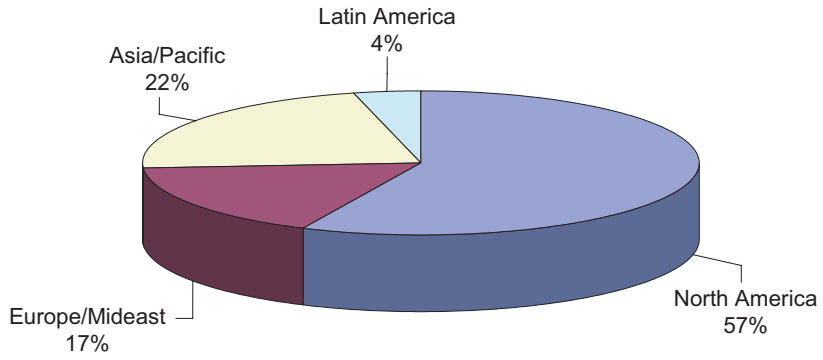


Figure 2 — Wireless CRM development activity, by region (spring 2002). (Source: [5].)

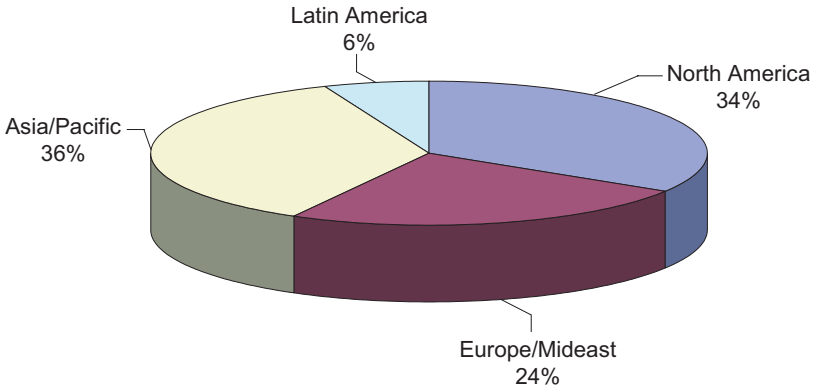


Figure 3 — Wireless CRM development activity, by region (spring 2004). (Source: [6].)

YAMAS CONTROLS, INC. (www.yamas.com)

Participants

- Janey Kaster, VP, Service, Yamas Controls, Inc.
- Craig Burbidge, Director, Marketing, FieldCentrix

Company Profile

Yamas offers construction and facilities management services, both mechanical and environmental. The company was formed in 1952 and is privately held. Total revenues for 2003 were $60 million, with the services division generating $20 million in revenues. The firm has about 350 direct employees in seven Western US and six Eastern US locations. The service market historically has experienced growth of 25% per year, which Yamas has exceeded through expansion from controls to mechanical and environmental services. In 2003, the company doubled in size through acquisition. Because customers increasingly want a single point of contact

for services, this growth is anticipated to continue. The market is split between several large national and international competitors and local or regional firms.

Objectives

Janey Kaster: Three years ago, Yamas acquired new eastern US locations in the Carolinas. Two years ago, Yamas had reorganized and adopted a new strategic direction. To implement a national strategy, the company was looking for best-in-class technologies — in particular, a service management tool. Although we were not initially looking for a wireless system, the FieldCentrix solution met our three objectives: to automate our manual, paper processes; to provide revenue assurance (capture of unbilled services); and to capitalize on customer leads being lost. The system also had to meet a specific IT requirement, which was to integrate with our financial system (Maxwell Systems).

Selection and Implementation

JK: We did not do an RFP [request for proposal]. We looked first for those that would tie in to Maxwell, and there were only two: FieldCentrix and a package from Maxwell itself. However, we wanted to satisfy ourselves that we were not sacrificing a better service tool out there, so we evaluated DataBasis, Dexter + Cheney, SAS1200, Schaeffer's, and FieldCentrix. After going through this analysis, we selected FieldCentrix. We were impressed with its very clean, easy-to-navigate dispatcher board. It also had a very complete catalog (a prepopulated database of mechanical services). This is a big advantage. We have since created our own catalog for controls, which is extremely labor-intensive and time-consuming, so having this already done is a big plus. Finally, FieldCentrix had an exceptionally good set of software tools, which allows us a high degree of customization.

The time from when we got board approval in April 2002 to the pilot was nine months. We signed the contract in June and started the pilot in Las Vegas [Nevada] and Reno [Nevada] on 1 December 2002. At the end of March 2003, we brought up two more locations and in the second week of April two more. We acquired our Los Angeles [California] locations in October 2003, and we brought them up in the week of 5 April 2004. I think that process, with all we have learned, will be a lot faster for our Carolina locations, helping us to integrate them more rapidly. We had a high level of senior management commitment. I was absolutely passionate about getting this done. We had an internal team with about 50 person-years of service experience. This consisted of a database expert, the dispatcher and service leader at the pilot location, a financial person, and myself.

We did not use a systems integrator; FieldCentrix did the project management. Their project manager was Gail Van Luit, and she was extremely organized. We had many meetings, status reports, and teleconferences weekly. She did an excellent job orchestrating the rollout of the application. FieldCentrix installed the wireless devices and the servers. Locally, Harris Business Systems is the rep for Maxwell Systems. We got them involved because, although an API had been written, it was not specific to our system.

This is the first wireless project Yamas has ever done. We have three types of devices, each with a different user interface. Our automation technicians were already carrying laptops, so we equipped them with a Sierra Wireless AirCard. We have Itronix fex21 handhelds for our mechanics service, and we are using [HP] iPAQs in Los Angeles. We will use only the iPAQ in the Carolinas rollout. So far we have had no bad feedback on any of these devices. However, in early 2003, we had 20% failure rates on both fex21 and Sierra AirCards.

Craig Burbidge: We have an implementation methodology that is an ordered, repeatable process. We formed a team composed of a FieldCentrix engineer, a trainer, and Gail as project manager. We used our "discovery" process, which takes place prior to billable activity, in which we go out to the client site for a day or two in order to develop a statement of work. This actually becomes part of the

contract and includes things like the scope of work and the integration points. We also provide a hardware and software selection guide for the client based on predetermined load and stress testing. We do not resell hardware, but we introduce various vendors as a courtesy to the customer. Populating the database is typically — I'd say 95% of the time — done by the customer, but we will do it if necessary. We cover that in our statement of work. In this case, we provided one of two databases to Yamas. Some customers use the CRM system as an opportunity to start from scratch and create a database, and all use it as a chance to clean up existing data.

For security, we use a password and user ID at log-in. Remote administration in the server allows remote disabling of a device. We have a wireless enterprise application that can take control of a device and remotely launch applications. We created that in order to do large-scale deployments. You need to be able to do "global replace" to update the software for a large mobile field force in real time.

JK: Everyone did the FieldCentrix online training, and in addition, they ran two half-day hands-on training sessions. We substituted our own hands-on sessions for some of the locations, and what was startling to me was that these users do not have the same attitude about the system as those who got the hands-on training from FieldCentrix.

CB: The online learning system is role-based for office and field personnel. This takes eight to 12 hours to complete. It consists of videos, documentation, exams, and access to a test server with live data. By the time our on-site trainer came in, the users were already well versed in the system. For post-implementation account management, we provide a manned help desk and maintain remote access to the customer server.

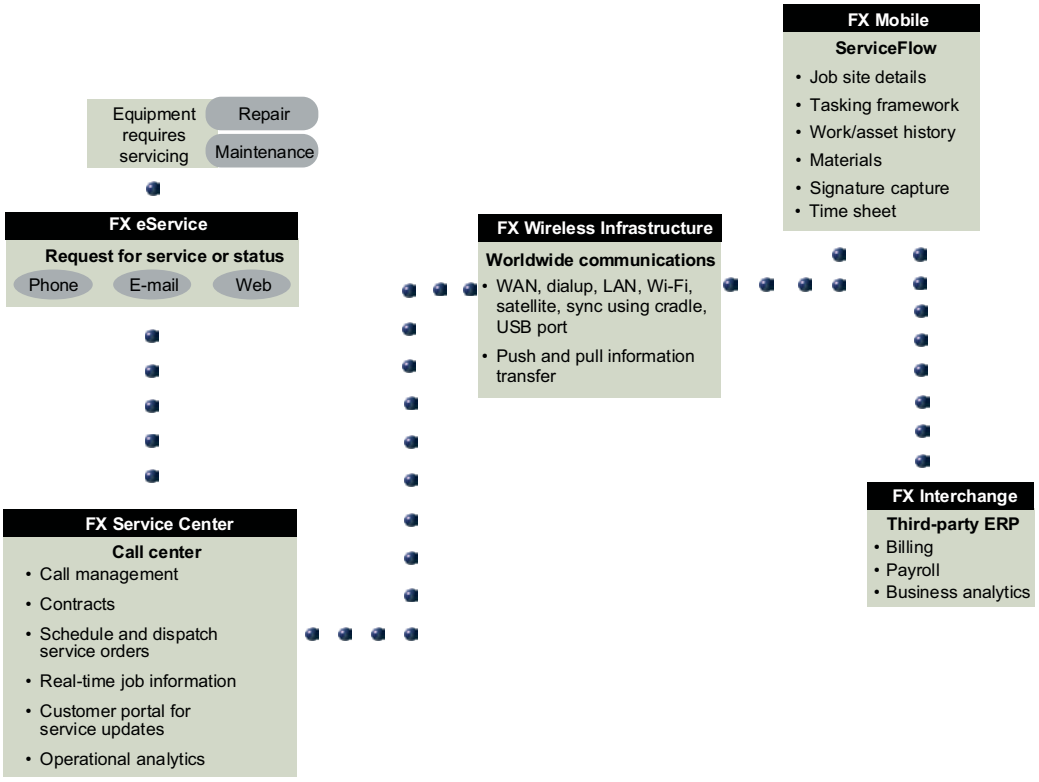


Figure 4 — Real-time capture and wireless transmission of Yamas's service work order data reduces unbilled revenues and increases lead referrals. (Source: Yamas Controls, Inc.)

Costs

JK: Our fixed costs were for design and integration. Our ongoing costs are for the wireless services from AT&T Wireless and Verizon Wireless. We elected to go with a lower activation fee and a fixed flat rate per month; unit-based rather than usage-based. Given our need to eventually migrate to another wireless network, that has turned out to be a good decision. The other operating cost is annual maintenance.

CB: We utilize a standard licensing model with software upgrades and help desk included in maintenance, which is 18% of the software. In addition, we price services on the statement of work, including installation, training, technical support, project management, and business process analysis (we map all field service functions during the discovery function). We select three to five key performance indicators (KPIs) in order to measure the system from an ROI standpoint. We install the systems needed to configure those KPIs. In the last 24 months, all projects have come in on time and on budget.

CONTINENTAL LABORATORY PRODUCTS (CLP) (www.clpdirect.com)

Participants

- Scott Cranford, VP, Sales, Continental Laboratory Products
- Paul Giobbi, CEO, Zumasys, Inc.

Company Profile

Scott Cranford: We are a privately held firm that manufactures and distributes laboratory supply products to general and molecular research labs. We have been in business for over 15 years and have two US locations and about 50 employees. Most of our products are manufactured at our plant in Tijuana, Mexico, which is ISO certified and FDA certified. We sell through a direct sales force in the US and through numerous stocking distributors in over 40 countries. Our product line includes thermal cyclers, reagents, pipette tips, pipettors, plates, tubes, gloves, and other products used in molecular research. Our marketplace is rapidly evolving into an oligopoly. We differentiate ourselves by offering our products directly as the manufacturer to the end user. Our goal is to make the customers' buying experience easy, problem-free, and fun.

Our market can be segmented into university, hospital and institute research labs, biotechnology, pharmaceutical, and medical device companies. The person placing an order is typically a person working in a lab. Since no one gets a Ph.D. to become an expert at ordering lab supplies, we try to expedite the ordering process so they can get back to their research. We strive to ship their product within a 48-hour period after receipt of the order. Researchers tell us they prefer to place their orders direct from the vendor. Buying direct avoids having central purchasing substitute products from a "prime vendor" for those ordered, which is commonly done against the researchers' wishes.

I joined the firm in August 2003, having been in the business 18 years and having been CEO of a local biotech firm. My charter for the first 90 days was to perform a needs assessment and develop a strategic plan. After 30 days, I learned that the majority of our customers viewed our products as excellent in quality and liked the fact that we valued their business. The negatives were related to a lack of integrated systems to support our service to the customer. We immediately began to plan our 24/7 Service One program.

Our solution is an integrated Web-based customer support interface. We deployed a wireless CRM system to allow our field personnel to access company information when they needed it, whether from customers' offices or hotels and airports while on the road. We have already seen significant improvements in our sales activity and customer satisfaction performance since we started.

Selection and Implementation

Paul Giobbi: We met Continental Lab Products three years ago at a trade show. In September 2003, we invited them to one of our seminars to learn about the benefits of wireless. We always have a

drawing, which includes three Sierra Wireless AirCards, a laptop, and a fixed number of hours access to our Citrix server. Continental won the drawing, started using the tools, and went nuts with it.

SC: One of our objectives was to avoid any headcount increase. We especially did not want to have a $3-billion ERP [enterprise resource planning]-type system with systems integrators camped out for seven years on site. The system solution had to be compatible with our current ERP system. We called Paul and set up a meeting to discuss our needs. During our initial contact, it was very clear that Zumasys brought a fresh perspective and understood the ins and outs of various solutions. Paul had a candid approach to the pros and cons of wireless and what was needed to make the solution a practical idea that performed consistently. Paul didn't give us "happy talk," and he has given us the support we hope to give our customers. Zumasys's approach was to focus on developing a relationship with us first and not to be singularly focused on getting the order.

PG: [CLP] decided to go forward. We installed Citrix, which needed to interface with Dataworks, their Epicor ERP system. The beauty of Citrix is that you do not have to make any modifications to the user application. A company called AdvanceWare Solutions developed their API. We then migrated the profile of two users (one was Scott) over to a demo server to use as beta testers. From the completion of the beta test, it was 30 days until we put up the production server. We believe that this is the first CRM application deployed over EvDO (EvDO is a 3G digital broadband protocol running over CDMA cellular networks).

In working with the customer, our process is well established. We had three different visits with the customer. In the pre-sale meeting, we spent two to three hours setting up the demo server. Once they had bought the server, we spent a half-day to install it. We then transferred the data to the Citrix server, set up cards, and loaded the clients. We have a point of contact to provide telephone support. Five months into the project (March 2003), Scott sent an IT guy to be certified as a Citrix administrator.

Citrix is the best-kept secret in the market. Zumasys has 60 customers we have installed using it. For 95% of those 60, it was their first enterprise wireless solution. Citrix designed two things. First, it designed Windows NT to multitask by essentially creating a private workspace on the server, which uses no resource until a keyboard stroke or mouse click. This was MultiWin and was sold to Microsoft and renamed Terminal Services. The second was a protocol called Citrix ICA (Independent Computing Architecture), which sits on a client device but is actually running on the server. It has a screen image of the keyboard, audio, etc. It is optimized to run on narrow bandwidth. It needs as little as 20 kbps to run faster than a fractional T-1 connection at a desktop. We have even used a dialup line with a fat client. We have run at 50-70 kbps, 90% of the speed of a landline, on 1xRTT (one-time radio transmission technology, the first evolutionary step available to operators of wireless CDMA networks toward 3G digital broadband services).

To run the Citrix application, you need Windows 2003 on a server with Terminal Services loaded, and then you layer on Citrix. You could use Microsoft Remote Desktop, but it is six to eight times slower than Citrix. Citrix has optimized the system for the user in the field. Standard features include echo keystrokes, auto disconnect and reconnect, text anticipation, and caching of keystrokes. We have 128-bit security, not unlike a VPN. Citrix was optimized to improve the user experience on a small device, so security was added as they went along. The software VPN can be upgraded to SSL (Secure Sockets Layer) for free by going on the Citrix site. Citrix allows you to run ICA through a browser, which provides increased solution security. This is done through two products: Citrix Secure Gateway and NFuse Classic. By running your client through the site, you can

get triple DES (Data Encryption Standard) security for use at kiosks or if you were going overseas.

Costs

PG: Our model relies on commodity economics. The Panasonic Toughbooks (lightweight laptops that have gained favor with field operatives for their rugged construction and durability) are provided for 2%-3% over cost; the Sierra Wireless AirCards are below cost in quantity through the cellular carrier; and we make a 10% margin on Citrix. A single 20-user server lists for $5,800 (not load balanced); a five-user server for $1,950. No one pays list price for servers. We have very low labor costs on these projects because we have very little site time — on this project, less than a day in total. We do all the staging and configuration at our own Zumasys lab.

The services in the lab are sold at a fixed price. On-site labor is billed at $150-$270 per hour. We do offer an incident-based support contract, and if a client needs managed services, we have a monthly retainer structure. We provide a continuous remote link to the user server. Using Citrix Administrator, we can see the users logged in, and remote session access allows us to terminate a user or shadow their keystrokes.

The Continental CFO was the initial buyer. When Scott came into the project, we worked with him. [With] every wireless installation we've done, you have to have buy-in from the business officer who owns the potential productivity gains. IT and finance just can't give you that.

SC: By using a Web interface, we have been able to maximize the use of our concurrent ERP seat licenses and reduce the need for more. By being able to custom design our interfaces to the customer, we can significantly reduce the amount of time we spend in taking and fulfilling orders. On the hardware side, we spent approximately $2,100 for each Panasonic Toughbook W2, each equipped with Centrino (wireless connectivity built into Intel chips for laptops) and DVD. In addition to the Citrix server, other costs include EvDO cards ($149) and Verizon's fixed (unlimited) monthly data service for a charge of $80 per user. I can honestly say that our ROI to date has already covered our costs.

PARRYWARE (www.eparryware.com)

Participants

- K.E. Ranganathan, GM of Sales, Parryware
- Ravi Ramaswamy, CTO, Air2Web Asia Pacific

Company Profile

K.E. Ranganathan: Parryware is a business unit of Murugappa, a conglomerate that has $150 million in annual sales. Parryware has $35 million in annual sales. In India, it is the number one brand in bathroom equipment: washbasins, tubs, commodes, and accessories. Started in 1952, we were a pioneer in the ceramics industry. We celebrated our Golden Jubilee in 2002, and we think of ourselves as 52 years young! We have 1,500 employees and three factories: one each in the north and south and another in central India. We were founded in Madras, which is our headquarters today. We also have 14 depots (warehouses) throughout the country in major centers like Delhi and Mumbai. We have 600 dealers to whom we ship products; these are our customers, and they handle over 1,800 SKUs. They, in turn, supply over 3,500 retail shops across the country. Our overall market is growing at 8%-9% a year, but we are growing at 15% per year and have a 38% market share. This is our share of what we call the "organized" market. There are many small kilns (used to make porcelain bathroom products) operating around the country; we consider this the "unorganized" market.

Objectives

KER: We run our business on an SAP ERP system. I had 40 salespeople traveling all over the country and 600 customers who needed access to data trapped in that system. I never bothered to justify the project on an economic basis. We spent millions on the SAP system, and to extend its usefulness was intuitive. The sales force needed to have access to

order status data and to actual versus planned or budgeted sales on a daily basis. They needed to know the status of their orders in the plant.

Ravi Ramaswamy: The sales team sells to the dealers, and in the past, order verification would take one to three days, requiring many costly phone followups to Parryware from the field to determine status. The wireless system has resulted in a much shorter turnaround.

KER: We also wanted to provide timely shipment information. Logistics are very tough in our country: sometimes it takes six days to get the product from the plant to the customer. Because the terms of the contract require payment upon delivery, this represented a cash management issue for [customers]. The wireless CRM system has taken the guesswork out of delivery: they get an SMS indicating the lorry (truck) and an estimated time of arrival (ETA).

RR: There is actually a third user (after the sales force and manufacturing personnel): Parryware management. MIS updates the SAP system between 7 am and 8 am, and there is a standing 10 am meeting for all the senior managers to go over these numbers. The system has given [management] visibility into SAP and information about their customers they never had before on a real-time basis.

Selection and Implementation

KER: I read about the compatibility of SMS with ERP in a trade magazine. We did not do an RFP, we only approached Air2Web. They were Chennai [India]-based. They were responsive, they understood our business, and they had excellent reference companies for us.

Data collected in both the field and the plants is resident in the SAP system. It is updated by 8 am

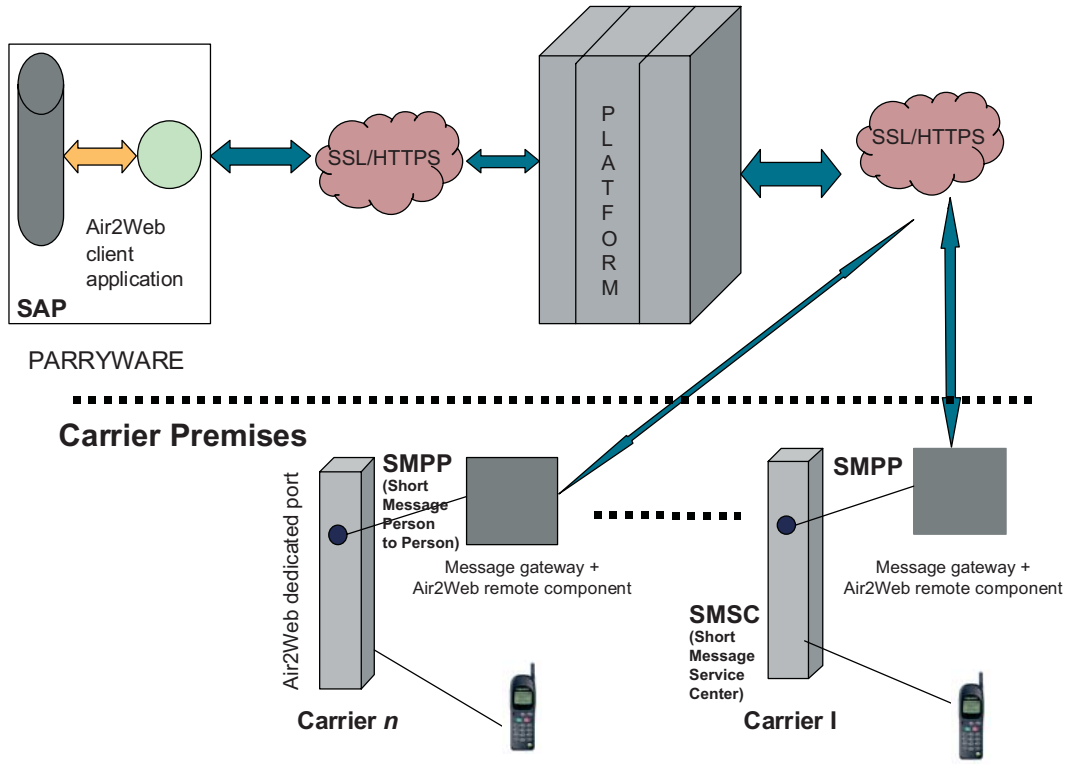


Figure 5 — Both customers and sales personnel at Parryware were able to eliminate order status inquiries through access to wirelessly updated SAP data.

every morning. The wireless system allows us to extract it in a standard form and "push" it to the sales and manufacturing people using SMS messaging. We started with two or three on the sales force. We now have about 250 people in both manufacturing and sales using the system. The system is simple to use, and unlike in the US, people here are used to using SMS. (It's cheaper than land-based telephone and also serves as an alternative where there is no land-based service.) We did not invest in new wireless devices; all the staff have mobile phones with SMS capability. As a result, from the time we decided to investigate the system until it was deployed was 45 days.

RR: Air2Web handled the project from concept to installation. We created an API to link the wireless interface to SAP, and Parryware was up and running in 30-40 days. We then had a user acceptance test that ran for 15 days. So we started 30 March 2002 and were live 1 May 2002. We were so successful with this that, six months later, [Murugappa] brought us into its sugar division (Parryware is one of Murugappa's 10-15 diversified product divisions).

Costs

RR: The interface with SAP cost about $2,000 to complete. In addition, Parryware pays $100-$125 per month for the hosted service. We provide connectivity through about 10-15 cellular carriers across the country (in India, carriers seldom sell services directly to enterprises). This covers roughly 100 devices averaging 10 messages a day. It works out to about three cents per message. We also have an annual maintenance fee that is 15%-20% of the software development cost and that covers any system upgrades. We do provide documentation, and we have 24/7 customer support available as backup for their IT folks when they are on vacation or sick leave. In choosing the system, the economics were less important than having easy access to the customer around the clock. We find that is the most important benefit for the enterprise.

HITACHI GLOBAL STORAGE TECHNOLOGIES (HGST) (www.hgst.com)

Participants

- Mike Pastor, Senior Logistics Professional, Financial Planning and Worldwide Logistics, HGST
- Kirk Garner, IBM, Wireless Solutions Architect, National Wireless Practice

Company Profile

Hitachi Global Storage Technologies was founded in 2003 and was formed as a result of the strategic combination of IBM and Hitachi's hard disk drive businesses. Storage is a Hitachi core business; the company will extend the world-renowned R&D heritage of its founders and build on their combined 80 years of hard disk drive expertise. Hitachi Global Storage Technologies employs 24,000 people worldwide, with headquarters located in San Jose, California. It has manufacturing sites at seven locations, four development sites, and sales offices throughout the world. Hitachi offers customers a comprehensive product portfolio unsurpassed in the industry — including 1-inch, 1.8-inch, 2.5-inch, and 3.5-inch hard disk drive storage devices and solutions for a broad range of market segments.

Objectives

Mike Pastor: The objective in the first phase was simply to get accurate inventory data. Before we implemented the CRM system, the data had to be entered in both SAP terminals and our 3PL's (third-party logistics provider) warehouse management system, resulting in double data entry for every "pick, pack, and prepare" order! In implementing the system, we were excited about eliminating dual entry and reducing the level of transactions fees we paid. Another benefit was inventory visibility. Clint Dyer, our VP of supply chain management, owns supply/demand planning and replenishment. The strategy that Dyer has set links upstream and downstream planning and replenishment tools that rely on the accuracy and visibility of inventory in real time. The wireless solution has brought us significantly closer to that goal. In our JIT [just-in-time] hubs, transactions had been manually transmitted via fax or

e-mail. The wireless tool immediately brought us accuracy improvements and reduced cycle time in processing goods receipts and issues by 24 hours or more.

Selection and Implementation

Kirk Garner: There was no RFP. Hitachi was an existing IBM customer. In fact, most of our projects come to us through existing relationships. We had a project team, which ranged from four to 12 IBM folks depending upon where we were in the process. We managed the project for Mike Pastor, who coordinated the launch of wireless PDA technology worldwide. He actually had to present it to his division's budget committee to get approval for the project. We then had a contract for each phase with a budget.

MP: The early phase of the project was a collaborative venture with Kirk Garner's unit, Pervasive Computing. Executive discussions within IBM led to a joint effort under contract, which has continued through the present time. As a startup project, this was a learning experience for everyone. Funding requests grew as we extended the scope of this project to be worldwide.

KG: We started with a prototype to eliminate paper-based tracking in their JIT hubs. These are large outsourced warehouses located literally next to OEMs [original equipment manufacturers] that are Hitachi's customers. For example, you might have 3PLs managing inventory for HGST's customers. Hitachi also wanted to eliminate double entries of data — once into the warehouse system and again into the SAP system. Shrinking the delay created by double entry and a paper system would reduce the time to track inventory from days or hours to real time, with bar codes on the pallets entered directly.

MP: JIT hubs are managed by third-party vendors. Most of the JITs are customer-specific. A few are shared between customers. There are no Hitachi employees in these locations. Often, our customer selects these third-party hub vendors, and if the customer is unhappy with a JIT manager's performance, they can replace them.

The four large LCs (logistics centers) in Taiwan, Singapore, California, and the Netherlands are not customer-centric and are run for us by a 3PL vendor. They serve smaller OEMs, distributors, and customers without a dedicated JIT. There are three to four Hitachi employees at each of these locations.

The project actually had two phases. The objective in the first was simply to get accurate inventory data. We were using faxes and e-mail to obtain data on inventory from our 40 JIT hubs. In phase 1 of the project, we used a PDA (we experimented with many; I have a drawer full of them) to gather scanned data at the warehouses, which was then transmitted via wireless (GSM) to an application server. An operator "screen-scraped" the data into SAP. In this phase, we had no "automatic" wireless confirmations, but we cleaned up the data entry, which was a huge step.

In phase 2, we created the linkage between the PDA input at the hubs and SAP. It has been up and running about a year now and gives us a direct interface to SAP. In real time, we get return codes indicating data received or error messages if there is a problem. By having the PDA system, there is no reinstalling vendor-specific terminals and installing new leased lines. This provides huge flexibility to our customers and us. We have multilevel security using WECM (IBM's WebSphere Everyplace Connection Manager), which authenticates the PDA (see sidebar on WECM). We also require sign-on at several different levels.

In the logistics centers, we utilize a slightly different method. These locations have 802.11b LANs, and data is collected on PCs and sent via a VPN tunnel to SAP. We have a few JIT hubs that also use 802.11b transmission via VPN. For example, there is one hub in China where the cellular service was too unstable to rely on and one in Sioux City, Iowa [USA], where cellular wasn't available, so we piped the data through the

WECM (WEBSPHERE EVERYPLACE CONNECTION MANAGER)

WECM, middleware available from IBM, has been awarded the Federal Information Processing Standards (FIPS) 140-2 level of certification, widely viewed as the most stringent security standard internationally. Developed by the US and Canadian governments, FIPS 140-2 defines the requirements for commercial cryptographic products that may be procured by US and Canadian federal agencies. It is becoming a standard throughout federal, provincial, state, and local governments as well as security-insistent enterprises, to validate the degree of security "robustness" of enterprise networking products. Some WECM features include secure access to e-business applications to mobile users over wireless and wired networks, mobile access, messaging and WAP services, a Java technology gatekeeper to set up and configure users across multiple platforms, and secure roaming among dissimilar wireless transmission media.

wireless access points into DSL and then on into SAP.

KG: The design issue, which was the hardest, was the simultaneous integration of the transactions for both SAP and the warehouse: the server software, global goods tracker, and SAP. It required a fail-safe rollback over two different networks: Hitachi's and the 3PL's logistics network. Because the system had to update SAP immediately, we had a continuous connection to 802.11 within the logistics centers. IBM implemented intermittent connectivity for the JITs, meaning the warehouse worker would connect to the WAN (cell connection) to send over the updates at various times throughout the day. Our screen refresh time target was under five seconds, and we have exceeded that in the logistics center with the 802.11 link. There may be a little more latency in the JITs. But it is bursty data; there are only about 10 elements in pallet identifiers.

IBM bought the wireless device from Symbol Technologies and wrote a custom application, initially in C++ and later in Java, put it on the device, and deployed it to the warehouses. It took eight months from the decision to start until we were in full production. We could have used more time, but the reaction was "Hey, this is great," and enthusiasm got ahead of the hardening process [arriving at a stable final configuration of the software on the device that permits deployment with common procedures and training]. We took a step back and did a phased rollout to 22 locations, including facilities in Taiwan and Singapore.

In the US, we use AT&T Wireless TDMA; and in Asia, GSM. The communications protocol doesn't matter to us; it's whatever network the customer wants to use. Because we had to accommodate different wireless transmission protocols, we separated the user interface, the communications, and the business process connections in the implementation. Each function is a separate component, so not only can we utilize any wireless transmission medium, we also can support different back ends (PeopleSoft, SAP, Oracle, etc.).

MP: We are using GSM as the air interface, and we are evaluating other options, especially 802.11b. On the device side, the users are not technically oriented, so proper training is critical. Connectivity is their major issue, and so we have actually stressed that more in our training be based upon the hotline calls. We have also created "super users" within HGST. IBM trains them intensively, and then they train our team. From a device selection standpoint, we focus on input from the user community and incorporate their experiences when making GSM versus 802.11b implementation decisions.

KG: We undertook an intensive two-week "train the trainer" program. That involved one logistics center and two JIT locations. After that, we provided demo and documentation support training, which probably took a week.

MP: We consider our 3PL vendor a long-term partner, and we knew that whatever system we implemented had to benefit them as well. They have their own warehousing system at the LCs. Their system has more specific functionality than SAP in that it can drill down to an actual storage location. Our partner was excited about the potential cost savings by

having this technology simultaneously update their system with our SAP system. I have been told that they basically halved their warehouse staff in one location.

Hitachi OEMs have access to certain modules of SAP, as do Hitachi GST's 3PL and the other third-party warehouses. We have a firewall and utilize a standalone security component from WebSphere, which is WECM. WebSphere manages sessions on the server so that if a cellular link drops off, the session is reestablished. WECM also manages roaming between dissimilar wireless transmission media. For example, in the logistics centers, Hitachi had 802.11 LANs but needed to link to GSM for wireless in Europe and Asia.

Most JITs have the system today; all will by December 2004. The primary 3PL was in the process of upgrading their warehouse management system, and, except for the California location, we decided to wait to implement our system at the LCs until their new version was online. Our goal is to have every distribution point online with "inventory visibility" by 31 December 2004. This technology solved the problem of being unable to "see" the inventory in SAP. To give you an idea, if one of the JIT hubs is using fax, and the fax came in signifying the product had arrived but had not yet been entered in SAP, we couldn't see it. If it turned out we had the material for the customer, we would put a sale at risk.

Costs

KG: Hitachi owns the solution; it is customized for them. We have since developed the Global Goods Tracker software (with wireless CRM), and it is purchased rather than licensed. For the customer who buys it, we provide the Java source code. Other cost elements include the servers, which we sell at a flat rate per processor. We also have a per-device charge for the wireless units, which declines as the quantities purchased rise.

MP: What we have spent on this system is relatively small as a portion of Hitachi GST's overall IT budget. IBM knows the technology: When we were going to install the Japanese hubs in December and January, we needed a Kanji [Japanese character system] version of the PDA interface. IBM did it in 45 days, including a field test with a Japanese employee who turned it around in 48 hours. They also brought it in under budget!

I do have some hardware costs this year: I plan to replace our four-year-old primary and development AIX servers. We are considering a hosted solution that will allow us to focus less on hardware and software, so we can spend our time in our primary function, SCM. Cost containment is a way of life in our business, and one of the reasons we have been able to do this in such a cost-effective way is that we were willing to invest some of our own resources. We had a willingness to learn the technology and make it ours. We didn't want an ERP-like multiyear IT consultant campout with millions in cost. We probably have saved $500,000 over the course of the project, and we own and run it. By investing in super users, we have planned for internal knowledge transfer and succession on the system.

METRICS

Kaster (Yamas): We had three metrics: 1) time processing (these are the time sheets for payroll); 2) gross margin on time and materials; and 3) number of recommended repairs per hundred work orders (a quality measure as well). In addition, we are performing some "soft" measurements using surveys of field personnel. On the gross margin, we have gained four points, which is double our expectation. As far as the recommended repairs, we are at 42% of our target in the first six months (June-December 2003). Our time processing was where the biggest bumps came: it actually went way up initially, but we expect to see that smooth out. We never actually calculated ROI as a percent and that's probably a good thing, because we ended up leaving out so many costs. We believed our payback period would be 4.3 years without including any additional revenue captured. However, counting the

captured revenues, the payback is running at 2.5 years.

Cranford (CLP): How fast does the order get into the system? We were moving from a "paper/fax/phone/multiple database/slip-through-the-cracks" system, completely dependent upon operator proficiency and knowledge. We shipped 94% of orders within a 72-hour period, but often customers did not receive the product for two to three weeks. Our systems didn't provide us enough information to determine the cause. We discovered that shipments ended up stalled at a freight hub or misplaced in the customer's warehouse. Unfortunately, our customer's perception that it took two to three weeks to get their product from Continental led to overstock of our products, excessive spending on express shipping, and lost business to competitors. With the new system, 96% of all orders are shipped within 48 hours of receipt. The customer receives order and shipment confirmation and can track orders online. Another metric we used was back orders. They have improved 2% to date. Under the old system, we had to run special reports and manually check them for accuracy. We were not proactive in our approach to back orders, which has caused frustration for our sales force, dealers, and customers. Now we can quickly check status and take action.

Ranganathan (Parryware): Before, the sales force spent a lot of time worrying about past order shipment and payment status. Now, they have that data first thing in the morning; it is pushed out to them as an SMS message. I estimate this has saved 20% of the time of our salespeople; now they have more time to sell new accounts. Before we implemented this system, customers used to call the factory two to three times a day to check on shipment status. The immediate benefit of the wireless system is that their telephone costs have dropped to zero. It is a 1,000% return!

Pastor (HGST): In phase 1, where we replaced faxes and e-mail with screen-scraping, the number one metric was reducing the error rate to zero. When we started, we knew that three out of five data transmissions were not received, were blurry and had to be resent, or required followup of some sort. At that time, it took 24 to 48 hours to get into SAP from the JITs. In phase 2, the real-time interface with the PDAs allowed us to improve days' sales outstanding immediately for invoicing by recording good issues in real time. That meant collections were one day faster and that we had cash one day faster. This provided us with several million dollars of savings.

Garner (IBM): Initially the objective was to reduce inventory cycle — there was sometimes as much as a 30-day lag — and to eliminate errors introduced through the double entry at the warehouse and into SAP. The JIT hubs data entry involved five to 10 screens. You would scan and then enter 15 keystrokes per screen. Compression of the user interface has saved a lot of data entry.

UNINTENDED BENEFITS

What unintended benefits did CLP, HGST, Parryware, and Yamas realize?

Cranford (CLP): The discovery of the true cost of our service promise. We offer free shipping for orders meeting minimum purchase requirements. We had never quantified the cost of this service by customer and its impact on our bottom line. Now (through the use of real-time data) we can easily see the cost and adjust our minimum order requirements accordingly. Customers are beginning to consolidate their orders, which has saved them money and helped us to meet our goal to triple the average order size.

Pastor (HGST): Our customers know what we are doing. We are still in implementation mode and evaluating performance improvements. We are paying close attention to how we can link this technology to other back-end systems for our customers or their JIT vendors. Introduction of the technology has opened discussions

about this and other EDI-type opportunities.

Ranganathan (Parryware): This system has helped us to get closer to our customers. Sharing the data with them is an important competitive advantage. We have also used this for immediate "all points bulletins" to personnel. For example, when India recently went to Pakistan to play cricket, it was a historic event and we wanted our staff to see that game, so we sent an SMS message and told them to take time to watch it.

Kaster (Yamas): We are really beginning to see the power of knowledge management, and it is allowing us to customize our service business. With new customers, it is a big plus. It really binds the customer to us. We never anticipated how it would help the customer with regulatory compliance. (There are many safety and environmental regulations in the industries Yamas serves.) Customers want performance-based maintenance, and the system gives us the performance metrics. We haven't implemented this as yet, but we have the capability to do it. And downstream, we will add e-services. It will be a hybrid; using wired access, the customer will be able to query the database. And one of the options we have in the future is to create a service bureau to implement the customer's desire for one-stop shopping.

ISSUES SPECIFIC TO WIRELESS

Garner (IBM): Wireless is so complex. In the Hitachi solution, our initial goal was to map the information flow directly into SAP. But the "low-hanging fruit" was to eliminate the paper systems to allow automatic update into SAP instead of being typed into an SAP terminal a week or so after the inventory had left the JIT hubs. Once that phase was accomplished, we moved to update the larger warehouse management systems in the four logistics centers in California, Europe, and the Far East that receive storage devices directly from the factories. The challenge was to send a single transaction to multiple systems, a warehouse management system for the 3PLs, and SAP for Hitachi's supply chain inventory. We had to maintain data integrity in a wireless environment where two disparate applications had to be updated simultaneously.

Kaster (Yamas): The biggest problem was the wireless side. Our system runs on CDPD, and we had no idea it was to be obsoleted by the FCC [US Federal Communications Commission]. It meant we rolled out systems knowing we would have to migrate them. We are on the AT&T Wireless system in northern California, Utah, Nevada, and Idaho, and with Verizon Wireless in Los Angeles. FieldCentrix was blindsided as well, and they supported us very aggressively after the announcement. We just did not appreciate the complexity of wireless: we didn't realize how many things we didn't know, and that is a continuing issue for us.

Burbidge (FieldCentrix): Our solution uses a smart-client architecture, which is a message-based system. We are not accessing the server via a Web-based browser. We are sending only data, highly compressed and encrypted. The average usage per month per service worker is 1MB. In extreme cases, it might get to 5MB. Everything is resonant: it can be completed whether the worker is in or out of coverage. The system has a queuing mechanism on both ends, so that if a transaction fails, it is resent. Our system supports 12 different wireless air interfaces: among them, Wi-Fi, GPRS, 1xRTT, EvDO, and satellite. Our patented system uses a protocol that allows single-server simultaneous access to multiple devices in real time. Part of Yamas's system is currently running on CDPD, but because of our system, we have the options to migrate [Yamas] readily to a different air interface as [CDPD] is phased out.

Ramaswamy (Air2Web): We had no wireless issues. SMS is ubiquitous in India, and all the users already had wireless phones, so there was no real training required. Our message traffic latency is pretty low, perhaps 20 seconds, and I am being conservative in my estimate. It may be 15%-20% lower than that. SMS

messages are standard at 160 characters and are intelligently split when they exceed that, but I would say 99% of the messages do not exceed that.

Cranford (CLP): We have been consistently characterized as an early adopter. The problem with this approach is the unknowns that come with new technology. I believe we were the first company to roll out a wireless CRM program using 3G cellular technology. Initially, we experienced significant issues with transmission speeds and latency issues. Frankly, our initial assessment of the technology was not positive, and we came very close to killing this part of the program. Fortunately, Zumasys quickly identified the problems we were experiencing and suggested that we use a Citrix server. After some due diligence, we invested in a new Citrix server, which adequately bridged the gap in speed between the host and the wireless device. We were firm about maintaining device independence. Our current field device is a Panasonic Toughbook, but our new system will allow almost any device that has an Internet connection.

ADVICE TO BUSINESS OFFICERS

Cranford (CLP): Understand and have consensus on the project's goals and objectives. Be clear on what is needed and necessary, and measure the practicality of each tool, otherwise you will end up buying expensive toys. Second, create a comprehensive, multiphase plan, implement slowly, and keep an eye on the big picture.

Kaster (Yamas): Setting up the database and getting feedback on it from the field took the longest; in fact, it is ongoing. My advice to others is to do a lot of inspection and do it frequently. We could have done a better job if we had done more. In the pilot, we were all focused on the integration issue, not the database. We needed to get the system installed immediately, because the cost of delay far outweighed the cost of having a perfect database. Remember, we were moving off a paper system with no metrics. We would still do this over again in a heartbeat. When you implement new technologies — and wireless data is new — you are going to have problems. I am not sure you can anticipate all of them.

Pastor (HGST): Ask questions, ask questions, ask questions! Functional-area management must be engaged with the IT experts. If you don't partner with your IT team, you may envision a mousetrap but misdirect them into building you a doghouse. We found clear communications of our goals to be key in a successful engagement.

Choose your vendor wisely. We have built up tremendous trust with IBM. We were fortunate in already having a relationship with them, but we have certainly been free to select others at any point.

Ranganathan (Parryware): Make sure the solution is suited to your business. It was a wonderful fit for us because of the SAP software.

ADVICE TO CIOs

Ramaswamy (Air2Web Asia Pacific): Start with the final point of use in designing the system. If you define the scope for the home office, the sales guys will come back with 20 questions. I also am a big believer in a fixed-cost contract. Finally, in choosing a vendor, stay focused on credentials: the referenceable customers and the wireless experience of the team who will manage the project.

Burbidge and Gail van Luit (FieldCentrix): You really need to choose a vendor who understands the technology. That means verifying that they have had successful customer applications. There are a lot of "newbies" out there with great Web sites and no referenceable customers! It's important to understand the customer's business process and to establish KPIs that are geared to it. Technology cannot "fix" an inefficient business process. Some of the CRM software companies have tried to take a back-office process and push it out to the field users. Finally: don't try to eat the whole elephant at once.

Giobbi (Zumasys): Do it with someone that's done it before. Of the 125,000 systems integrators in the US, very few have ever implemented a wireless solution, let alone a wireless WAN solution. Do not put the project in the hands of the carrier. You have got to pick the right infrastructure software. Everything should be tested and optimized to run over low bandwidth, because that's what cellular is.

Garner (IBM): Don't underestimate the complexity of wireless. Start small with a prototype. It will dovetail into other opportunities created by the availability of untethered data.

OBSERVATIONS ON THESE SOLUTIONS

1. Each of the vendors had in-depth experience in deploying wireless enterprise solutions.
2. None of the customers used an RFP; all relied on referrals.
3. Each of the customers was undertaking its first wireless project.
4. Each of the customers moved from a paper system directly to wireless inputs, using the project to clean up databases and streamline data collection.
5. Each of the customer solutions was designed from the end-user perspective.
6. Each of the customers tested its system in pilot or beta tests.
7. Each of the customers had an operational manager who owned the productivity gains actively involved in the implementation.
8. All of the customers relied on their wireless carriers only for transport medium.
9. Each of the customers achieved returns in excess of expectations.
10. Each of the customers used benchmarks and had defined metrics, but all achieved unintended benefits.

LESSONS LEARNED

As a veteran in the implementation of greenfield enterprise wireless data applications with new technologies, I was not surprised to see the striking similarities among these diverse solutions. The strong involvement of an executive sponsor, well-defined benchmarks and metrics, phased approaches using trials and pilots, and engaging vendors with in-depth wireless experience has long been acknowledged as critical to successful implementation. To these I would add four observations for future wireless CRM projects that were triggered by these cases. They center on:

1. Air interface independence
2. Security
3. Regulatory compliance benefits
4. Customer performance metrics

Air Interface Independence

All of the cases in this *Executive Report* used cellular networks for wide-area transmission. However, as we learned from the 9/11 attacks and the massive power outage on the US East Coast in 2003, *cellular systems are not redundant*. Therefore, for mission-critical systems, some kind of backup to cellular transmission should be provided. I believe that managed satellite services, which previously have been extremely expensive, are emerging as reasonable options for disaster recovery. Managed satellite services are up and running today that provide ubiquitous coverage of North America and cost about five cents for short transmissions (for example, monitoring a location or sending an inventory bar code). In addition, Ka-band spot beam satellite services (which carry data at high speeds) are already available in Europe and are slated to be launched in North America in the summer of 2005. Since CRM applications are often mission-critical, IT officers should have these options for wireless transmission on their radar screens.

Security

Since it has long been cited as a barrier to wireless CRM, I was pleased to see security applied in these cases in proportion to the sensitivity of the data transmissions. For its sensitive customer data, Continental chose CDMA, a transmission protocol based on spread spectrum technology

developed for and used by the US military. Yamas also used CDMA, as well as CDPD, a wireless transmission protocol developed specifically for the enterprise with a security protocol that has never been broken. Neither Hitachi nor Parryware was transmitting sensitive customer data: pallet identifiers and order status could be sent with normal corporate security. A caution about the use of Wi-Fi networks is in order, though. If you intend to use Wi-Fi for any part of your wireless CRM system and you anticipate transmission of sensitive customer data, you should conduct a propagation test to make certain that the range of the Wi-Fi signal does not exceed the secured perimeter of your campus, warehouse, or office building. Radio signals at 2.5GHz, commonly used in so-called "hot spots" (public access 802.11b installed in coffee shops, airports, and hotel lobbies) extend well beyond the confines of the served area. You may wish to investigate 5.2GHz (802.11a), which has a shorter radio signal. There are also a number of proprietary security solutions available for Wi-Fi (802.11a and 802.11b).

Regulatory Compliance Benefits

Because of the ability to capture real-time data at remote locations and (sometimes) directly from the customer, wireless CRM systems offer a viable method for public companies in the US to track contract compliance in order to meet Sarbanes-Oxley Act requirements such as contract termination or reduction in business relationship. Costs of service related to contracts and compliance with contract terms can be captured on a continuous basis. For those in the biomedical and pharmaceutical industries, wireless CRM offers an opportunity to track processes subject to FDA (US Federal Drug Administration) audits. OSHA (Occupational Safety and Health Administration) requirements for workplace safety and EPA (Environmental Protection Agency) standards for environmental testing are other examples of compliance data readily captured by wireless CRM systems. In Australia and New Zealand, wireless CRM offers an opportunity to capture compliance data required for Standard AS/NZS 4360:1999 risk management. This standard covers occupational health, safety, and the environment. Wireless CRM systems also offer a vehicle for data capture to address emerging standards for risk management in the UK and the European Union. For example, the Institute of Chartered Accountants in England & Wales provides "Turnbull guidance," a risk-based system of internal controls that is linked to its Combined Code on Corporate Governance to the Listing Rule for the London Stock Exchange. Whatever your industry or geographic location, if you are thinking about a wireless CRM system, incorporating capture mechanisms to address regulatory compliance data is a good investment for both the company and its customer. However, if compliance data capture is anticipated, I strongly recommend including a business intelligence (business analytics) capability in the wireless CRM design. If there are no tools to organize and evaluate it on a timely basis, reams of transactions data can easily end up useless in a data warehouse.

Customer Performance Metrics

The holy grail in customer service is to be proactive rather than reactive. Just as wireless CRM helps to create visibility into the supply chain, it can help expose ways to improve service delivery. Wireless CRM gives your company the opportunity to design performance-based service contracts with confidence in what it will cost to deliver that service. The measurements you build in to evaluate CRM benefits may be turned to good use in developing customized service programs. Janey Kaster of Yamas Controls reported her customers' desire for such tailored programs. Wireless CRM gives you the real-time data to refine service pricing, sharpen response time, add service variables, and develop early warning systems for status changes. In designing your wireless CRM, think ahead to how you may use the audit trail for measuring your ongoing service effectiveness and the data you capture for enhancing service to your customer. Much as Scott Cranford of CLP discovered, real-time data captured may change your

understanding of the actual cost of service to your customer.

Finally, what is common to all four cases is the sense of urgency; the underlying need to get these CRM projects done. That urgency gave each of these early adopters the will to utilize still evolving wireless transmission protocols and devices, in spite of the inevitable difficulties encountered in using new technology.

I extend heartfelt thanks to the report participants and their support teams for their time and generosity in sharing their experiences. I hope that these success stories will inspire other successful projects.

ABOUT THE AUTHOR

Brenda Lewis is President of Transactions Marketing, Inc. (www.transactionsmarketing.com) in Greenwich, Connecticut, USA. Beginning with her 15-year corporate career in international energy, bulk shipping, and metals, she has been continuously active in the design and development of pioneering data communications services, including the first interactive, real-time, wireless global vessel communications and control system in 1974. She formed Transactions Marketing in 1982 to manage new ventures in real-time enterprise services for digital commerce, mostly in wireless data communications. Pioneering applications that she has managed include PDQ for Telerate, the first wireless quotation service in the money markets (1984); the first financial services trial of AT&T Pocketnet (1996); the first wireless Internet conference (1998); and the first private wireless logistics service in China (2001). A cum laude graduate of Smith College in economics, Ms. Lewis holds an MBA from the University of Connecticut, graduated from Harvard Business School's Program for Management Development, and earned a certificate in Telecommunications Management from New York University. A charter member of the Wireless Data Forum, she sits on the advisory board of Polaris Wireless, Inc. and is an advisor to Shanghai-based Zero Global, Inc. She can be reached at WirelessCRM@transactionsmarketing.com.

REFERENCES

1. Bucher, John. "Wireless Data in the Enterprise." Gerard Klauer Mattison, November 2001.

2. Preslan, Laura. "Investment Priorities for CRM in 2004." AMR Research Alert Highlight, 8 January 2004.

3. Schmaier, David. Keynote presentation, *DCI's Customer Relationship Management Conference*, 25 May 2004.

4. Shariq, Katherine. "Global CRM, Interactive CRM, and Mobile CRM: Initiatives and Forecasts." Frost & Sullivan, July 2002.

5. "Wireless Developer: Spring 2002." Evans Data Corporation, 2002.

6. "Wireless Developer: Spring 2004." Evans Data Corporation, 2004.

APPENDIX

Information on Vendors

Here is some additional information on vendors mentioned in this report.

Air2Web (www.air2web.com): Founded in 1999, Air2Web is a private wireless applications service provider (WASP) based in Atlanta, Georgia. The company targets *Fortune* 1000 companies, providing productivity solutions that enable ERP, SFA, CRM, and EAI applications. Customers include UPS, InterContinental Hotels, Société Générale, Telefonica, and AXA. Partners include Nextel, BellSouth, and Cingular Wireless; OEM solutions partners include Digital Insight and IBM Global Services. Air2Web Asia Pacific was founded in August 2000 and employs 25 people. It has about 20-25 blue chip customers, including large banks like Citibank and ABN AMRO, and it has also deployed wireless CRM in manufacturing environments such as India Cement.

FieldCentrix (www.fieldcentrix.com): FieldCentrix is a privately owned company that deployed its first wireless application in 1998. Headquartered in Irvine,

California, FieldCentrix targets *Fortune* 1000 companies with service organizations that dispatch personnel. Customers include Honeywell, Ingersoll-Rand, Praxair, and Atlas Copco. The company offers a licensed software solution. Enterprise partners include Maxwell Systems and J.D. Edwards.

IBM Corporation (www.ibm.com): There are about 100 practitioners in IBM's National Wireless Practice, about 40 of them focused on handheld development and 60 on telematics, telephony, smart cards, and other delivery means. The National Practice serves very large customers (those with more than 20,000 employees) and may do five to 10 handheld mobile computing projects per year. They have completed about 60 — a small subset of the thousands of wireless solutions IBM has completed outside of the National Practice. IBM also offers a low-cost wireless solution — IBM Data Collection — for the small-to-medium-sized business market, which has been successfully implemented at more than 1,000 customers in the past eight years.

Zumasys, Inc. (www.zumasys.com): Zumasys was founded in October 2000 and currently has 14 employees headquartered in Lake Forest, California. The company focuses on wireless WAN applications for small-to-medium-sized businesses (those defined as firms with 50-1,000 employees). The typical Zumasys customer has $20 million in sales and 200 employees of which 30-50 will be wireless system users. The company works with three primary partners: Sierra Wireless, Microsoft, and Citrix.

Other Vendors

Siebel Systems (www.siebel.com) and Salesforce.com (www.salesforce.com) distinguish wireless CRM customers on their Web sites. Other vendors of CRM systems who may have wireless customers include the following:

- Microsoft Corporation: www.microsoft.com
- Onyx Software: www.onyx.com
- Oracle Corporation: www.oracle.com/mobile
- PeopleSoft, Inc.: www.peoplesoft.com
- Pivotal Corporation: www.pivotal.com
- SAP: www.sap.com

Index of published issues

> Business Intelligence Advisory Service

Upcoming Topics

- ***Digital Identity Management*** **by Stowe Boyd**
- ***Metadata and Business Intelligence*** **by Adrienne Tannenbaum**
- ***Digital Asset Management*** **by Ken Orr**

This index includes Business Intelligence *Executive Reports* and *Executive Updates* that have been recently published, plus upcoming *Executive Report* topics. Reports that have already been published are available electronically in the Online Resource Center. The Resource Center includes the entire Business Intelligence Advisory Service archives plus additional articles authored by Cutter Consortium Senior Consultants on the topic of business intelligence.

For information on beginning a subscription or upgrading your current subscription to include access to the Online Resource Center, contact your account representative directly or call +1 781 648 8700 or send e-mail to sales@cutter.com.

CUTTER CONSORTIUM
ACCESS TO THE EXPERTS

Executive Reports

Vol. 4, No. 6 *High Payoffs Drive Growth in Wireless CRM* by Brenda Lewis
Vol. 4, No. 5 *A Comprehensive Approach to Managing BI/BPM Implementation Costs* by Greg Mancuso and Al Moreno
Vol. 4, No. 4 *Making Enterprise Search Work* by Dan Sullivan
Vol. 4, No. 3 *The Business-Accessible Data Warehouse* by Michael Schmitz
Vol. 4, No. 2 *Meeting Today's Data Management Challenges* by Dr. Peter H. Aiken
Vol. 4, No. 1 *Finding the Value in Metadata Management* by Dr. Ken Collier
Vol. 3, No. 12 *Social Tools: Ready for the Enterprise?* by Stowe Boyd
Vol. 3, No. 11 *Data Quality Is Not Optional* by Larissa Moss
Vol. 3, No. 10 *Finding the Hidden Value (and Avoiding the Danger) in E-Mail* by Arun Majumdar
Vol. 3, No. 9 *Web Content Management: The Race to Repurpose* by John Harney
Vol. 3, No. 8 *Outsourcing Your Business Intelligence: Maximize Impact and Minimize Investment* by Dr. Ken Collier
Vol. 3, No. 7 *Data Modeling and Migration Issues for Customer Relationship Management* by David Loshin
Vol. 3, No. 6 *Reaping the Benefits of the Enterprise Portal* by Brian J. Dooley
Vol. 3, No. 5 *The Seven Frames of Marketing Intelligence* by Dr. Raymond Pettit
Vol. 3, No. 4 *Boosting Company Performance Through Business Measures* by Jeffrey McMillan

Executive Updates

Vol. 4, No. 12 *How Do Data Warehousing Practices Affect BI Efforts?* by Curt Hall
Vol. 4, No. 11 *A Game of Truth or Consequence: The Value of Testing* by Tom Burzinski
Vol. 4, No. 10 *Who's Using Enterprise Analytics and How?* by Curt Hall
Vol. 4, No. 9 *Technology-Driven Transportation* by Ralph Menzano
Vol. 4, No. 8 *Corporate Adoption of Enterprise Information Portals: Part VI — Major Issues Confronting EIP Initiatives* by Curt Hall
Vol. 4, No. 7 *Bridging the BI Disconnect Between Corporate IT and Business* by Greg Mancuso and Al Moreno
Vol. 4, No. 6 *Corporate Adoption of Enterprise Information Portals: Part V — Functionality and Features* by Curt Hall
Vol. 4, No. 5 *Text Mining: Integrating Structured and Unstructured Data* by Dan Sullivan
Vol. 4, No. 4 *Corporate Adoption of Enterprise Information Portals: Part IV — Use of Portal Products* by Curt Hall
Vol. 4, No. 3 *The State of CRM: 2004 and Beyond* by Paul Greenberg
Vol. 4, No. 2 *The Role of IT in Leveraging Pricing to Boost Profits* by Edgar Ortiz
Vol. 4, No. 1 *Corporate Adoption of Enterprise Information Portals: Part III — Success and Benefits* by Curt Hall
Vol. 3, No. 14 *Corporate Adoption of Enterprise Information Portals: Part I* by Curt Hall
Vol. 3, No. 13 *Increasing Customer Self-Service and Identifying Sales Opportunities at Xerox* by Curt Hall

About the Practice

Business Intelligence Practice

The strategies and technologies of business intelligence and knowledge management are critical issues enterprises must embrace if they are to remain competitive in the e-business economy. It's more important than ever to make the right strategic decisions the first time.

Cutter Consortium's Business Intelligence Practice helps companies take all their enterprise data, augment it if appropriate, and turn it into a powerful strategic weapon that enables them to make better business decisions. The practice is unique in that it provides clients with the full picture: technology discussions, product reviews, insight into organizational and cultural issues, and strategic advice across the full spectrum of business intelligence. Clients get the background they need to manage technical issues like data cleansing as well as management issues such as how to encourage employees to participate in knowledge sharing and knowledge management initiatives. From tactics that will help transform your company to a culture that accepts and embraces the value of information, to surveys of the tools available to implement business intelligence initiatives, the Business Intelligence Practice helps clients leverage data into revenue-generating information.

Through Cutter's subscription-based service and consulting, mentoring, and training, clients are ensured opinionated analyses of the latest data warehousing, data mining, knowledge management, CRM, and business intelligence strategies and products. You'll discover the benefits of implementing these solutions, as well as the pitfalls companies must consider when embracing these technologies.

Products and Services Available from the Business Intelligence Practice

- The Business Intelligence Advisory Service
- Consulting
- Inhouse Workshops
- Mentoring
- Research Reports

Other Cutter Consortium Practices

Cutter Consortium aligns its products and services into the nine practice areas below. Each of these practices includes a subscription-based periodical service, plus consulting and training services.

- Agile Project Management
- Business Intelligence
- Business-IT Strategies
- Business Technology Trends and Impacts
- Enterprise Architecture
- IT Management
- Measurement and Benchmarking Strategies
- Risk Management and Security
- Sourcing and Vendor Relationships

Senior Consultant Team

The Senior Consultants on Cutter's Business Intelligence team are thought leaders in the many disciplines that make up business intelligence. Like all Cutter Consortium Senior Consultants, each has gained a stellar reputation as a trailblazer in his or her field. They have written groundbreaking papers and books, developed methodologies that have been implemented by leading organizations, and continue to study the impact that business intelligence strategies and tactics are having on enterprises worldwide. The team includes:

- Verna Allee
- Stowe Boyd
- Ken Collier
- Clive Finkelstein
- Jonathan Geiger
- David Gleason
- Curt Hall
- Claudia Imhoff
- André LeClerc
- Lisa Loftis
- David Loshin
- David Marco
- Larissa T. Moss
- Joyce Norris-Montanari
- Ken Orr
- Raymond Pettit
- Ram Reddy
- Thomas C. Redman
- Michael Schmitz
- Karl M. Wiig