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mobile data

• M A G A Z I N E •

NEWS

Empowering people in the field [12]

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Mobitex at your service!

THIS ISSUE OF Mobile Data Magazine marks the end of our first full year of publication. Since starting the new magazine in late 1997, the response from our readers has been tremendous. You have clearly indicated that there is a great need for the magazine and that it plays an important role in your marketing activities. Encouraged by your positive response, we are working hard to make the magazine even better.

Field service, which is the theme for this issue, is a classic application area for mobile data. By their very nature, field service organizations depend on a highly mobile workforce, and nowhere are wireless data solutions so effective. In this segment, end-user companies report that even the simplest applications typically pay for themselves in a year or less.

This is also a highly profitable application segment for operators and wireless solution providers. As noted in this issue, RAM Mobile Data UK, for example, derives as much as 50 percent of its sales from field service. In few other segments is the business case for wireless data as clear as it is in field service applications, and the field service market naturally attracts many equipment and software vendors.

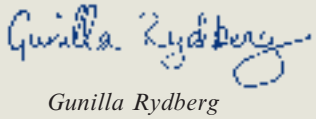
With so much activity in this market, we could not hope to provide an overview. Instead, we have tried to introduce field service applications in our theme article and to present examples of three different approaches to field service that each have their own merits.

In other news presented in this issue, we welcome Telcel as a new Mobitex operator in Venezuela. The Venezuelan operator, which will be marketing its service under the name T-Link, has ambitious plans for its network, which will open for commercial service in the first quarter of 1999. Initial applications will include point-of-sale and credit card verification, but Telcel is also closely following the development of interactive messaging.

The Mobitex community is expanding on other fronts, as well. Recently, the Mobitex Operators Association revised its statutes to allow associate members. The ranks of associate members, which are presented in this issue, are growing and adding new life to an already dynamic organization.

For some industry analysts, this high level of activity in the Mobitex community may be surprising. There are many reasons for Mobitex' success, but the MOA story illustrates an extremely important factor. Unlike proprietary technologies that lock customers into a single supplier's solution, Mobitex is an open and international standard, backed by industry leaders who encourage partnerships. For this reason, Mobitex continues to flourish, while rival technologies flounder.

Of course, even we continue to be surprised by the many applications of Mobitex technology. In this age of cybernauts and steadily advancing technology, who would ever have believed that policemen on horseback would be using wireless data to apprehend criminals. It may be a strange world out there, but at least Mobitex makes it just a little bit better.



Gunilla Rydberg
PUBLISHER

mobile data news

Telcel of Venezuela joins the Mobitex family

Ericsson recently signed a contract with the Venezuelan mobile telephone and data operator, Telcel, to supply and install the country's first Mobitex network. The network is currently being installed in the capital city of Caracas, a major metropolitan area with more than five million inhabitants.

Telcel is one of Venezuela's leading telecom companies with a 60-percent mobile telephony market share and more than one million subscribers. It is also the first company to offer mobile data services, which will be marketed under the name T-link. It is expected that T-link will be placed in commercial operation by the first quarter of 1999.

In view of the demand for wireless data communications in Venezuela, Telcel plans to expand its network to cover all of the nation's major cities. This will enable corporate users to transfer data to branch offices and subsidiaries in remote areas with inadequate infrastructure.

Some types of services will be available immediately once the network is placed into operation, such as wireless ATMs, interactive messaging, wireless e-mail, field sales support, telemetry and point-of-sales for credit card verification.

In terms of POS applications, Telcel is confident about the market opportunities for T-link, especially in the banking sector. Dial-up lines are frequently unreliable in Venezuela. This often requires a dedicated private network. Moreover, the response time for a transaction is 35 seconds on average, as opposed to only 5 to 8 seconds on the Mobitex network.

Enrique Garcia Viamonte, president of operations at Telcel, relates, "One of the main advantages with Mobitex is that the network is separate from the mobile telephone network, in which voice has priority over data. Thanks to Mobitex, we will be able to provide mobile data services with guaranteed delivery and the maximum level of reliability and security." Gunilla Rydberg, manager of marketing and sales of Mobitex infrastructure at Ericsson Mobile Data Design, says of the agreement, "We are very pleased to have received our first contract in Venezuela. Telcel shows great promise as one of the new players in the mobile data industry. Together with Ericsson's technological leadership in wireless telecommunications, we are well-positioned to serve the burgeoning Latin American telecom market, where a rapid growth in demand for mobile data services, such as credit-card verification and interactive messaging, is highly apparent."

A dynamic and relatively young company formed in 1991, Telcel is partly owned by BellSouth and Comtel, with BellSouth owning an 80-percent share. Telcel has extended its presence into important sectors of the Venezuelan telecom market, not only expanding its cellular services, but also developing new services, such as T-data (private networks), T-net (Internet Service Provider), pay phones, T-master (private cellular PBAX) and, most recently, T-link. As a result of its commitment to advanced technology and high-quality service, Telcel has become one of the world's fastest growing telecommunications companies.

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Helsinki beefs up its network

Sonera, the Finnish Mobitex operator, has decided to install an 8K network in the capital city of Helsinki by connecting a number of base stations to the existing network. Initially, the 8K network will be limited to the greater Helsinki area, covering a population of one million citizens and a number of new applications that are presently not covered by the 1.2K technology. Sonera believes that this will attract new customer segments and lead to expansion possibilities in other cities. The network will be put into commercial operation by the first quarter of 1999.

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Mobile data increasingly popular among police

The Sussex Police in the U.K. has signed a contract for mobile data communication services using RAM's Interim Mobile Data Network (IMDN) and software developed by APD Communications. The service will give Sussex police wireless access to the Police National Computer (PNC), allowing officers to make vehicle and name inquiries via the RAM Network from mobile data terminals fitted to patrol cars, in addition to providing secure two-way messaging. The service will initially be rolled out to 100 patrol cars, which will be equipped with specially designed mobile data terminals from Petards Datax.

Sussex Police is also adopting a new local mobile data gateway that will be integrated into the force's operational information system. It will provide a direct link between patrol cars and the command and control center, allowing vehicles to be dispatched and providing live incident log updates, resource location information and status managing.

The decision comes after a six-month national trial revealed that the implementation of mobile data via the RAM Network led to higher arrest rates and faster database checks. Trial results also showed that 80 percent of officers actually preferred using mobile data to voice radio.

Use of the IMDN PNC service has dramatically shortened user training times. A hands-on session of less than two hours can now replace the standard five-day PNC training course.

The managing director of Petards Datax, Richard Hill, relates that the Sussex police force is the first in the U.K. to choose in-dash color touch-screen terminals for its mobile data requirements.

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Mobitex goes equestrian

The Cleveland police force in the U.K. has equipped one of its horse-mounted officers with Europe's first one-piece, hand-held mobile data terminal with real-time wireless data communications via the RAM Network. Within an hour of installing the portable data terminal, constable Graeme Smiles, whose horse is called Erimus (stable name Sid), had run a live check which led to an arrest.

The purpose-built, ruggedized, touch-screen terminal is manufactured by A2S and operates over RAM's Interim Mobile Data Network (IMDN) service, which provides real-time wireless communications between the control center and Cleveland's traffic, beat, and now horse-mounted, officers.

The portable data terminals, with software from APD Communications, are able to dispatch officers to incidents and provide live mobile access to various databases, including the Police National Computer (PNC).

Sgt. Kay Braithwaite, project manager at Cleveland Police, says, "Horse-mounted officers play an important role in our community. We have equipped them with these portable data terminals so that they can now enjoy the same levels of communication as our traffic and beat officers."

Constable Smiles adds, "The portable data terminal has improved the quality of my patrol. I have direct access to information on incidents and local criminals."

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NTE widens BellSouth's network

BellSouth Wireless Data recently migrated to Mobitex NTE, since more nodes were needed in its network in order to obtain better coverage. BellSouth previously had more than 1,500 base stations in its networks, but with the NTE migration, that number can be significantly increased.

Mobitex NTE was introduced to support larger Mobitex networks. It enables an increased number of nodes to be deployed in a network, from 1,400 in the R14E to up to 4,000 with Mobitex NTE. It also increases the number of subscriptions that can be entered in a network compared with the R14E. Mobitex NTE also provides a better platform for additional functionality, as well as client/server functionality for the NCC, GUI NCC, Access Control of NCC Operators, and Improved Alternative Top Node. Future functions will include internetwork traffic and roaming, and on-line monitoring of traffic.

With Mobitex NTE, the network is also divided into several smaller subnetworks, which improves maintainability.

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Riding in silence and style

BostonCoach, a leading executive transportation provider in the U.S., bases its reputation on its unrelenting commitment to quality service and customer satisfaction. Owned by Fidelity Investments and headquartered near Boston, Massachusetts, BostonCoach has enjoyed steady growth since 1985 – growth that in recent years has led to communications difficulties due to increasing business volumes and higher efficiency standards.

In 1994, the company had partially replaced its two-way voice radio with a mobile data dispatch and communications system. The benefits in terms of reduced radio chatter and greater dispatch and response accuracy were immediately apparent and appreciated by both drivers and passengers.

However, as BostonCoach grew and expanded into new cities, a more advanced wireless data solution was required. The coverage was inadequate, the terminals were too big to be taken out of the vehicle, and it did not integrate well with some of the two-way radio systems used by BostonCoach in other cities.

The company has recently replaced its old wireless data and voice radio system with a new state-of-the-art solution.

Dispatch software provided by Dynamic Mobile Data (DMD) runs on Hewlett Packard HP 360LX handheld computers that use the Microsoft Windows CE operating system and RIM Wireless Type II PC Card modems. DMD also provided the middleware components of the wireless solution, which integrates the handheld PCs with the BellSouth Intelligent Wireless Network.

The new wireless data solution provides BostonCoach with the ability to communicate with its drivers at any time. BellSouth Wireless Data has excellent coverage where BostonCoach does most of its business, such as airports and downtown areas, enabling drivers to stay connected to fleet control when they're in their cars, in office buildings or in an airport terminal.

Since the implementation of wireless data, BostonCoach has doubled its daily ride volume from 700 to more than 1,400 per day in the greater Boston area, while minimizing the number of support personnel. The same number of dispatchers can effectively manage 20 to 30 percent more drivers with wireless data than was possible in a voice environment. The increase in efficiency means that BostonCoach now averages eight rides per vehicle per day, versus five rides in the past.

The atmosphere of both the fleet control room and the inside of the vehicles is quiet and professional. Gone is the incessant radio chatter passengers were subjected to so that drivers could receive dispatches and hear periodic traffic alerts. The use of wireless data transmission thus reinforces the high-quality service that BostonCoach's exacting clientele both demand and expect.

But even before its new wireless data solution was implemented, BostonCoach stood apart from its competitors with differentiated service. Unlike passengers of other limousine services, BostonCoach passengers simply sign a voucher at the end of their ride, since neither payment nor tipping is accepted. Vehicles are often Volvos or Mercedes due to their outstanding safety records, and the chauffeurs are full-time BostonCoach employees, not contractors.

"In addition to improving our efficiency, our driver-dispatcher communications and our meet-and-greet services, the wireless data solution is impressing our customers," says Bill Gemmell, senior vice president of operations for BostonCoach.

With its wireless data solution, BostonCoach delivers the best transportation service available in the market today. And given the company's recent increase in business volume, it's safe to say that customers are noticing the difference.

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Palm computing goes wireless

The announcement of 3Com's Palm VII™ Connected Organizer marks a milestone in wireless history. This revolutionary new device, which was recently introduced at the Palm Computing® Platform Worldwide Developers' Conference held on December 1 – 4 in Santa Clara Calif., represents a breakthrough on several fronts.

First and foremost, the Palm VII includes a wireless modem for the Mobitex network operated in the U.S. by BellSouth Wireless Data, making use of Ericsson's latest system enhancements to extend battery life for the handheld device to several weeks using two standard AAA batteries. Now users have an integrated Mobitex modem in a device that is convenient to activate, carry and use.

Another obstacle to wireless computing and Internet access overcome by the Palm VII Connected Organizer is the lower speed and longer latency of wireless networks compared with fixed connections. To address this issue, 3Com took a radical step by introducing a technique called web clipping as an alternative to web browsing and lining up an impressive list of information providers to support the new technique.

Users on the move need the information that web sites and corporate intranets can provide but do not want to waste time or money downloading graphics-intensive web pages. Several solutions have been proposed to accommodate such users, but 3Com has taken a new approach with web clipping that allows users to query web sites for the information they need.

Instead of browsing, all user interaction is based on a simple query and response. The application is partitioned so that a query portion is stored locally on the Palm VII, and UDP (Universal Datagram Protocol) is used instead of TCP for communication with the server. This reduces data transfer requirements for typical queries to about 50 bytes sent and 500 bytes received, resulting in a dramatic increase in speed over the Mobitex network.

To date, more than 20 content providers have been signed up to provide financial, news, reference, travel and entertainment information. According to 3Com, creating content for the Palm VII Connected Organizer is extremely simple. Often, the web page does not need to be changed.

The BellSouth Wireless Data Network gives Palm VII users wireless Internet access in more than 260 metropolitan areas. For more information, see www.bellsouthwd.com

Instead only a request form component needs to be added.

In addition, 3Com has developed iMessenger, a wireless Internet messaging application, for the new Palm VII that operates over BellSouth Wireless Data's Mobitex network. As with web clipping, iMessage is a streamlined version of the traditional Internet e-mail client that strips attachments and compresses the message text.

"Wireless data communications will make the Palm VII an even more compelling product," says Gunilla Rydberg at Ericsson. "Already, millions of mobile users have discovered the benefits of 3Com's personal organizers for managing their schedules, contacts and other critical personal and business information on their desktops and remotely. Now, with Mobitex, this impressive feature list will be extended to include e-mail and Internet information services."

The Mobitex-enabled Palm VII, which will be available later in 1999 for less than $800, will undoubtedly be hailed as a new breakthrough. As pocket-sized and palmtop devices become more powerful and gain more communication capabilities, they will change how people manage information and how they view computing. Now that they can communicate anywhere at any time, personal organizers will become an even more indispensable tool for an ever greater number of mobile users.

New 8k network in Sweden

On December 15, 1998, a contract was signed with Mobile Wireless Communications AB (MOWIC) for an 8k, 400MHz network in Sweden. The network, which will eventually cover all major cities in Sweden, will be up and running in January 1999. Plans are also being made for further expansion into the Scandinavian market.

A press release will be available in January 1999.

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A closer look at MOA's associate members

The Mobitex community has undergone some fundamental changes in the past year, with one of the more remarkable being the inclusion of non-operators as official members of the Mobitex Operators Association.

Starting early this year at the Executive Board Meeting in Gothenburg and continuing through our recent congress in Amsterdam, companies with close ties to Mobitex have applied for and received membership in the association. In a relatively short time, our associates have become important and influential members of the Mobitex family.

Since being founded in October 1988, MOA took its mission from its name – it was an association run by and for Mobitex operators exclusively. The ties that bound the group together were the common network infrastructure that each company had deployed and the common challenge of operating public wireless data networks. Most of the association's work revolved around the technology itself: administering the Mobitex specification, assigning network identification numbers, and solving roaming and interconnection issues.

Business development activity was limited, and rarely were vendors asked to participate in any way, other than to show their products.

In 1997, the operators realized that their association needed to more accurately reflect the way that they did business. Every customer installation involves a tightly coordinated integration effort among terminal suppliers, middleware houses, radio modem vendors, application developers and the network operator. By including these partner companies in the association and actively encouraging their participation, MOA hoped that the result would be new applications, unmatched technology, and a generally more robust Mobitex community.
At its meeting in October 1997, the Executive Board voted to amend the organization's charter to allow non-operators to participate and began actively recruiting partners. This outreach, coupled with our partners' willingness to participate, has already begun to pay dividends. Associate members are active contributors in designing network enhancements. Associates have designed new radio modems which take advantage of coverage and battery life improvements. They are also collaborating with network operators on gateway specifications and design, and are leading important discussions, such as on product standardization, not only in the Technical Guidance Council, but also among the Executive Board members.

MOA believes that continuous participation by non-network operators is vital to the growth of Mobitex, thus we are actively encouraging both vendors and customers to join our community. Mobitex will undoubtedly face new challenges in the future, but with the reinforcement of our associate members' contributions, we are more ready than ever to answer the call.

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Infowave Wireless Messaging Inc.
Founded in 1984, Infowave Wireless Messaging is based in Vancouver, Canada. The company develops and markets specialized software solutions for wireless connectivity on the Mobitex network. Since 1993, Infowave has been pioneering the development of efficient, easy-to-use wireless client/server software that enables enterprise messaging, communication and groupware services. Having developed strategic partnerships and business relationships with international companies, system integrators and network infrastructure providers, Infowave can provide complete turnkey solutions to enable wireless connectivity.

Infowave's showcase product, the Infowave Office Enabler, combines the power of Microsoft Exchange with the convenience of wireless data communications over a Mobitex network, allowing users to send and receive electronic messages on a laptop computer or handheld PC when out of the office. The IOE also enables wireless connection to corporate databases and networks, bringing business processes closer to customers and helping companies more fully leverage their computer hardware and software investments.

Mobix Communications, Ltd.

Based in Israel, this leading software developer has focused on the growing wireless communications market since its inception in 1994. The company's numerous wireless solutions, sold under the MobiCell brand name, can be found in a wide variety of applications, such as banking (ATMs), wireless security systems, emergency services, bank card validation, telemetry, fleet management, remote database access and Internet applications. Mobix also provides wireless solutions and system integration for embedded systems and custom applications. Customers include Northrop Grumman, Schlumberger, GEC-Marconi, Olivetti and Ingenico.

Nomadic Communications

Nomadic Communications of Australia was formed in 1994 as a specialist Mobitex modem designer and manufacturer. The company's decision to specialize in Mobitex was based on the firm belief that wireless packet data communications had emerged as a significant medium, and that Mobitex was destined to become the most widely accepted and used network standard. Radio modems is an area of expertise in which Nomadic can focus on developing its own technology based on customer needs.

Nomadic's technologies and products are adapted to the needs of both metropolitan and regional area networks. These include network access devices (the NMX series of radio modems, MACSI intelligent meter controller, WINK Wireless Intelligent NetworK controller, etc.), software (application development toolkits and APIs), development tools (test tools and simulators) and OEM products (standard, integrated and embedded).

Product and partner support is provided on a regional basis in Australia, Asia, North America, South America and Europe.

Research In Motion, Ltd.

RIM is a world-leading company that designs, manufactures and sells wireless electronic access technology for the consumer and business-to-business markets. The company's current product portfolio includes the revolutionary two-way Inter@ctive Pagers, wireless personal computer card adapters, software connectivity tools and embedded wireless radios.

Based in Waterloo, Ontario and listed on the Toronto Stock Exchange, RIM is a knowledge-based company with innovative technology development in-house. It has a proven track record in electronics design, software development, printed circuit-board layout and prototyping. Customers include a diversified range of major multinational companies, including wireless network suppliers and value-added resellers.

The engineering teams at RIM focus solely on wireless data products, a commitment which has produced significant performance improvements, such as longer battery life and superior indoor operation. RIM's products combine custom RF modules and ASICs developed at RIM, with the latest low-power digital components and innovative new devices jointly developed with key suppliers.

Extending corporate data to handheld devices

A new class of handheld devices is gaining attention for which even a small-footprint database is too big. To extend the reach of corporate databases to handheld and pocket devices with very limited memory capacity, Sybase has developed UltraLite™ deployment technology for its industry-leading Adaptive Server™ Anywhere mobile database product. UltraLite technology will give RIM's Inter@ctive Pager 950 and soon a host of other handheld devices embedded database technology for accessing corporate information.

▲ *Having access to a relational database gives developers the freedom to create data-rich applications to meet the needs of mobile workers.*

TODAY, BUSINESS TRANSACTIONS are no longer confined to the traditional head office. To remain competitive in today's dynamic business environment, companies must be able to complete business transactions anytime and anywhere. To that end, companies need mobile and embedded database software with a tiny footprint.

Service and support teams, for example, are constantly on the move, working directly with customers to provide them with top-notch service. The ability to provide these workers with immediate access to business applications and corporate data can constitute a significant competitive advantage.

Sybase, the industry-leading mobile database provider, seeks to empower occasionally connected users with accurate, up-to-date information and give them the flexibility to conduct business anywhere, whether it be at a self-service kiosk, in the field using a sales force automation system, or using a handheld device for remote access.

Sybase recently announced a strategic alliance with Research in Motion (RIM) and BellSouth Wireless Data to extend the reach of its mobile database to the RIM Inter@ctive Pager 950, using UltraLite, a small "fingerprint" deployment option of the company's Adaptive Server Anywhere product. Now, field sales and service representatives will be able to access and update client information from their Inter@ctive Pager. UltraLite deployment technology also allows data to reside locally on the pager and includes replication technology that supports bi-directional synchronization of data with the corporate database.

From footprint to fingerprint

"We are very excited about the many smaller size devices being introduced in the market," says Cristina Lorentz, manager for embedded database products at Sybase. "Of course, adapting a full-featured relational DBMS to fit the memory limitations of such small devices is a challenge. Part of the problem is solved by Sybase UltraLite deployment option for SQL Anywhere, which can reduce the footprint from perhaps one megabyte for a traditional mobile DBMS product to about 40K for the Inter@ctive Pager."

Moving from a footprint to a fingerprint is a bit of technical wizardry that is accomplished in three steps: develop, analyze and deploy. At the development stage, the application must be written in C or C++ using static, embedded SQL to define statements and cursors. After the code has been generated, Sybase analyzer technology is used to examine the application and determine what elements of the database schema are required by the application. At the deployment stage, the results of this analysis are used to extract only the components of the database engine needed to execute the application's commands

and link them into the executable to be installed on the target device.

"With UltraLite deployment technology, the application contains exactly the desired functionality," notes Cristina Lorentz. "Whatever features, functions and tables the developer specifies are included. In addition, the application is fully ODBC 3.0-compliant and supports two-way synchronization. UltraLite technology supports application-optimized databases that can be as small as 40K without compromising functionality."

In a class by itself

These features put Sybase Adaptive Server Anywhere with UltraLite deployment technology in a class by itself. Having access to a relational database gives developers the freedom to create data-rich applications to meet the needs of mobile workers. Because data can be stored locally on the Inter@ctive Pager, mobile workers have immediate access to business-critical information. Yet, because UltraLite supports two-way wireless data synchronization over the Mobitex network, users can also download and upload mission-critical data, ensuring that up-to-date information is available both in the palm of their hands and at the corporate office.

As an example, a field service representative can have an application that queries an inventory database stored locally on the pager. This database can be synchronized with a corporate database to ensure that it is always up-to-date. The service engineer may need to order a replacement part while working at the customer site. With Sybase Adaptive Server Anywhere on the pager, the technician is not only assured that the part is in stock. A transaction may be initiated that deducts the item from stock and forwards it to the customer.

Truly enabling technology

With support for Windows CE devices and strategic partnerships announced not only with RIM, but 3Com (Palm Pilot) and Symbian (next-generation smart phones), Sybase's UltraLite technology has a bright future. Cristina Lorentz is extremely enthusiastic about its prospects and sees the technology as enabling in two respects.

"First and foremost, we are excited about what we regard as a shift to a more compelling form factor for mobile applications," she notes. "Handheld and pocket devices with wireless data communications and relational database technology will empower users in new ways that we have not yet begun to imagine. The instant access to enterprise data provided by Mobitex and Sybase UltraLite will dramatically increase productivity and customer service in almost any business application."

While the new power of these ultra-small devices may be extremely compelling, Cristina sees another factor as more important over the long term. "Total cost of ownership (TCO) decreases dramatically with these new devices, and UltraLite database technology will be deployed to a much larger user base. In fact, our vision goes beyond mobile applications to embedded systems and includes a new type of intelligent appliances."

It may take a while before the beverage vending machines start predicting demand for caffe latte or freight containers begin reporting their availability for new consignments, but this day is not far off. Empowering the dumb appliances that surround us with wireless data and mobile database technology is now possible. ■

Mobile and embedded computing at Sybase

With corporate headquarters in Emeryville, California in the U.S., Sybase is one of the ten largest global software companies, helping businesses to manage and deliver applications, content and data anywhere they are needed. Sybase's products, combined with its world-class professional services and partner technologies, provide a comprehensive platform for delivering the integrated solutions that businesses need to be successful.

Leveraging its existing strengths in enterprise data management and application deployment, Sybase is focused on delivering end-to-end solutions for mobile and embedded computing, data warehousing and web computing environments. Recently, Sybase formed the Mobile and Embedded Computing (MEC) division to advance its leadership position and reputation as a technology innovator in this market and to address new opportunities for embedded database technology in emerging markets.

Sybase's Mobile and Embedded Computing division is committed to helping organizations realize the promise of information anywhere. With Sybase SQL Anywhere Studio, an integrated product set which includes the company's market-leading mobile database Adaptive Server Anywhere 6.0, replication technology and the new Sybase UltraLite deployment option, users are able to seamlessly synchronize data across the enterprise – from laptops, handheld computing devices and pagers to intelligent appliances.

Field service: Extending IT support to mobile workers

Field service is a classic application segment. Few other business segments have as large a workforce that by definition is almost entirely mobile. The need among field service personnel for IT support, as well as real-time access to customer and product data also makes wireless data solutions ideal.

THERE IS AN ALMOST INFINITE variety of field service applications. As companies increase the focus on the customer, more business activities are being performed in the field and the diversity of field service applications becomes greater. The three cases featured in this article are therefore by no means a representative sample, but simply examples of well-conceived field service applications.

More than just dispatching

Dispatching is a core component of field service applications. This function allows personnel in the field to receive new customer orders without returning to the office. Normally, the dispatching function includes routines for managing a mobile workforce, or perhaps a fleet

of vehicles, and supports planning and resource allocation so that customer calls are carried out more efficiently. In many cases, the dispatching function is supplemented by equipment and software for positioning, usually using GPS (Global Positioning System), so that order dispatchers know the location of field personnel at all times. Dispatching, as a core component in a field service application, can also be packaged, as in the case of the RAM Despatcher portfolio featured in this article.

A field service application involves more than just dispatching, however. In most cases, work performed during a customer call requires access to customer and/or product data that is stored on a central system, either in a database or on a corporate intranet. In some cases, a product catalog, service manual or other information will be available as a static local copy downloaded to a portable PC before going out into the field, but field service applications that leverage the full power of wireless data communications will typically make this data available in real time. World-class field service applications, then, will normally involve wireless database access and/or wireless access to the corporate network.

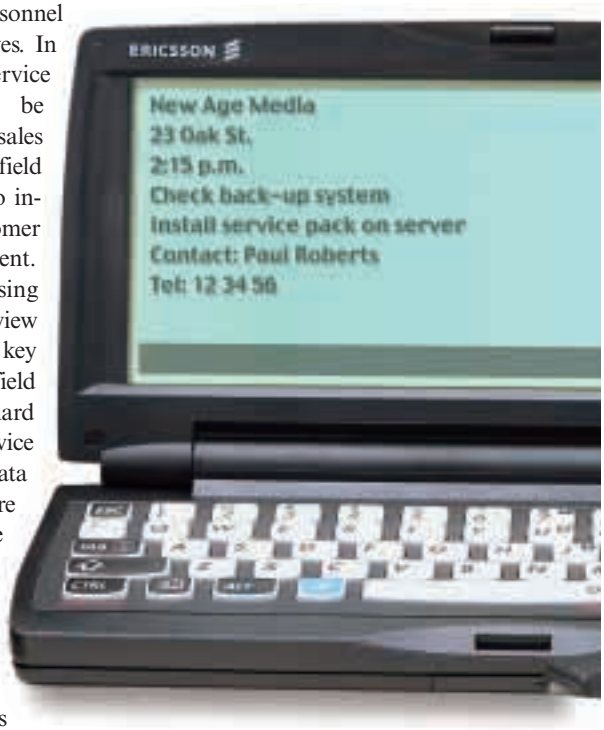
Order processing is another important component of field service applications. In a field service application, the dispatch order received by field personnel should be a live customer order, and its status in the order processing system should change as work progresses. Ideally, the field service representative should be able to print out an invoice or a delivery slip at the customer site and forward the complete order back to the office for further processing. In many cases, it is also desirable to be able to accept some form of payment, perhaps a credit or a debit card. This means that a field service application may contain an element of EFT/POS (Electronic Funds Transfer/Point of Sale), which was the theme for the previous issue of Mobile Data Magazine.

Ideally, a field service application uses wireless data communications to extend IT support for business processes to activities being performed in the field by a mobile workforce. Although they are working out of the office, and in cases like Swedish network operator Telia may almost never come into the office, field service personnel are as much a part of the organization as if they were working from the office and connected to the network at all times.

Re-engineering business for the field

Field service is in some respects an arbitrary designation. In many organizations, the distinctions between service, sales and marketing are blurring. It is natural that a service representative who visits a customer site to repair office equipment, for example, should also enter orders not only for spare parts needed for the repair, but also for other items, such as toner cartridges and document feeders. The service representative may also be the first one to note that the installed equipment no longer meets the customer's business needs and to suggest purchasing a new, more powerful unit.

In many organizations, the customer need identified by the field service representative will be handled by a sales representative, who then contacts the customer. However, in many cases, it is not viable to view field personnel as merely service representatives. In many organizations, field service personnel can and should be included in the marketing and sales process. This means that the field service application will need to include more functions for customer tracking and contact management.



"We are seeing an increasing number of customers who view business re-engineering as a key component in developing a field service application," says Richard Pullin, director for field service business at RAM Mobile Data UK. While not all companies are ready to fully merge the service and sales organizations, it is increasingly clear that extending IT support to the field and giving mobile workers access to corporate databases and intranets requires rethinking business processes.

These trends will intensify in the years to come. Today, however, field sales applications remain narrowly focused, and most Mobitex operators make a distinction in their marketing strategies between field service and field sales. Typical business operations supported by field service applications include servicing office and computer equipment, ATMs, vending

machines, elevators, heating and ventilation systems and production machinery in variety of industries. Field service applications thus typically serve a range of vertical markets. The Banksys field service application featured in this article is an excellent example of such an application.

Team effort required

Vertical applications are often highly customized solutions that combine basic functionality such as dispatching and off-the-shelf components with specialized hardware and software designed for a specific business operation. Handheld computers and PCs supporting pen input, for example, are very popular choices in field service applications, despite the fact that these devices have not proven popular in mainstream computing applications.

As the three case studies in this theme article illustrate, interfacing the field service application to legacy systems and mainframe-based database systems is often an important consideration. Although middleware products are available for this purpose, a custom solution is often required. With the increasing popularity of the Internet, many companies are taking an alternative approach based on web technology and the corporate intranet that reduces the need for middleware. Although this simplifies the client application used in the field, the result is usually a three-tier application that pushes the problem of interfacing up a level to the web server, which is now responsible for accessing the database on behalf of the remote client.

For these reasons, successful implementation of a field service application is often a team effort involving at least three parties: the IT department at the end-user company, a systems integrator and a supplier of terminal and data communications equipment. In the Mobitex community, operators also frequently take a leading role by partnering with systems integrators and suppliers to offer end-user companies a complete package that can be quickly tailored to customer requirements. The RAM Despatcher services offered by the U.K. operator are an excellent example of such packaging. In addition, many companies, such as Banksys in Belgium, start on a small scale with a relatively simple field service application that can be enhanced as business requirements dictate.

Working in new ways

Regardless of the complexity of the application, field service organizations almost unanimously report very substantial savings from wireless data solutions. Improved efficiency, measured as the increase in the number of customer calls completed per employee and per day, are typically on the order of 20 to 30 percent and can exceed 50 percent in some operations where customer visits are brief and travel time between calls can be lengthy. With such dramatic improvements, most companies quickly decide to deploy the application throughout their organization.

As mentioned above, however, dispatching is only one component in a field service application. Correspondingly, the benefits of a sophisticated field service application are not limited to increased efficiency. Improvements in customer service are even more important, although more difficult to quantify. Many companies find that wireless data and a field service application improve their business by allowing them to do things that were impossible before.

One example is FedEx, which uses Mobitex and a wireless field service application in its delivery service. Now FedEx customers can track the progress of parcel deliveries in real time on the web. Using pen computers, FedEx drivers can even transmit actual signatures on delivery slips back to the central system, which can display them for customers on a web page. ■

▲ *In a field service application, the dispatch order received by field personnel should be a live customer order, and its status in the order processing system should change as work progresses. Ideally, the field service representative should be able to print out an invoice or a delivery slip at the customer site and forward the complete order back to the office for further processing.*

Sweden: Telia practices what it preaches

Swedish network operator Telia took the initiative in developing the first Mobitex network. The company is a strong believer in Mobitex technology and uses it extensively in its own operations in a field service application called Mobiflex. By its own estimates, Telia saves millions each year thanks to Mobiflex.

THE MOBIFLEX FIELD SERVICE APPLICATION, which is now owned by Telia Network Support, has a long history. Originally developed as a simple application for dispatching work orders to service technicians, Mobiflex has been enhanced and extended over the years and is now an extremely sophisticated application with many functions and extensive interfaces to Telia's other data systems.

For its relatively small population of 8.5 million inhabitants, Sweden is a large country with many sparsely populated areas. In many regions, particularly in Northern Sweden, Telia's service technicians are responsible for an area covering several hundred square kilometers. Traveling back to a central dispatching office for the next work order is simply not an option.

Luckily, the Mobitex network in Sweden offers almost total geographical coverage, even in the country's most remote areas. For Telia, using Mobitex to dispatch orders to field service technicians was a no-brainer. Using Mobiflex, service orders could be dispatched directly to the service vehicles and returned after completion to the central system.

Self-managed teams

A new twist was added with Mobiflex, however. Instead of trying to track the position of field service technicians and plan order dispatching, Telia decided to let its technicians take responsibility for planning their own work. Service orders are thus posted and made available in the field to every technician, who is then able to choose the work order closest to his or her current location and proceed to the customer site.

This means that field service personnel almost never have to report in to a central office. Their workday begins when they walk out the door and get into their vehicles. Service orders, many of which have been automatically generated by network monitoring systems that have detected faults, are immediately available in the vehicle. Not surprisingly, Telia has discovered that Mobiflex has reduced the number of persons required for dispatching by 50 percent. Thanks to more efficient utilization of resources, Mobiflex also reduces field personnel by 20 percent, as well as significantly reducing the number of miles traveled.

"These are very significant benefits for us," says Tommy Hoffberg at Telia Network Services. "Today we simply wouldn't be able to work without Mobiflex. Our technicians would scream if we took it away. With Mobiflex, they have become self-managed teams that work much more efficiently."

Mobiflex pinpoints faults

Enhancements of Mobiflex include reporting functions that reduce personnel administration, as well as a variety of network services that

▲ *Service orders are posted and made available in the field to every technician, who is then able to choose the work order closest to his or her current location and proceed to the customer site.*

▲ *Customers experience better quality service because they know a service person will arrive at the scheduled time. As Sweden de-regulates its telecom markets, Telia is increasing its competitive advantage.*

allow technicians to work more efficiently. Lunch breaks can be scheduled by the technician according to his or her schedule. Because the technician is able to choose work assignments in advance, automated testing can also be performed before traveling to the customer and the results delivered to the vehicle.

Armed with this information, the technician can correct faults more quickly. In many cases, Telia's systems allow the technician to order tests that extend all the way down to the local subscriber loop. Test results can then be printed out in the vehicle and then studied, perhaps during lunch or over a cup of coffee. Once the fault has been pinpointed, the technician can often proceed directly to the location of the equipment in need of repair.

"Automating our work in this manner and extending the power of network monitoring systems to field service technicians has taken a long time to develop," says Tommy Hoffberg. "Of course, we know what information is available in our systems and what information is most useful to the technician in the field. Gathering information from many different systems and getting it out to Mobiflex, however, was a challenge."

Safety for solitary workers

The Mobiflex function that is perhaps most appreciated by users is the alarm function. In most cases, field service technicians work alone, many times in remote areas. Their work may also include climbing poles or towers or servicing equipment in locations where high-voltages are present. Working alone in such a potentially hazardous environment is not a prospect that anyone relishes or that Swedish labor laws encourage. In fact, without the alarm function, Telia would be required by law to use two-man crews on such jobs.

With Mobiflex, the solution was a simple but extremely useful alarm function, which includes a GPS receiver in the vehicle for accurate positioning information. When the technician leaves the service vehicle, a small transmitter is carried in a pocket, which can send an alarm back to a receiver in the vehicle that is connected to the Mobiflex terminal. When the bearer of the alarm transmitter presses a button, an alarm will be generated and sent out via Mobitex that includes the user's position.

The alarm is received at Telia within about 45 seconds. No more than 60 seconds later, an SOS Alarm Center has been notified and begins dispatching rescue services. In most cases, a vehicle is on its way in less than five minutes from the time the button was pressed on the alarm transmitter.

Short pay-back time

With the Mobiflex application, Tommy Hoffberg admits that his organization has stuck out its collective neck. "We have put the pressure on ourselves by guaranteeing 24-hour service times throughout the country," he notes. "With Mobiflex, we know that we have the support that we need to guarantee this level of service, and for Telia in an increasingly deregulated market, this is extremely important for increasing customer satisfaction."

Although greater customer satisfaction is the most important benefit, Mobiflex also pays for itself. "The pay-back time for Mobiflex is a mere 1.2 years," notes Tommy, who adds that this very short pay-back time was achieved despite the fact that a more powerful portable PC than required by the application was chosen in order to increase computer skills among Telia's technicians.

With such powerful incentives in terms of improved quality of service, substantial cost savings and short pay-back times, Telia continues to enhance the Mobiflex system. Over the next two or three years, the entire application will be migrated to Telia's intranet and given a web interface. In the meantime, Mobiflex proves that for Mobitex operators who practice what they preach, the benefits are impressive. ■

Belgium: Cash more readily available

When you need cash for a taxi or to make an unplanned purchase, the last thing you want to see is an out-of-service message on the ATM. In Belgium, however, such messages are becoming less frequent thanks to a new field service application developed by Banksys in cooperation with RAM Mobile Data and software designer Quinsy.

BANKSYS IS A BELGIAN COMPANY that specializes in the installation and maintenance of cash-dispensing ATMs (Automatic Teller Machines) and various kinds of payment terminals for service stations, restaurants and small retail outlets, as well as larger stores. The company is responsible for operating the electronic payment network (Bancontact/Mister Cash) in Belgium and designs and manufactures terminals for the system. Banksys has also developed Proton, a cash card system for smaller purchases that includes cash-issuing terminals. Banksys has some 50,000 customers and is responsible for more than 70,000 terminals nationwide.

The company's more than 80 service technicians thus have many customers to serve in a wide variety of locations. Most of the technicians working with ATM maintenance face guaranteed response times of 2 to 24 hours. This means that they frequently must respond to a service call for an ATM that takes precedence over a scheduled work assignment. Rapid dispatching of service orders is also essential for Banksys' ability to meet its service level commitments to customers.

When Banksys decided to evaluate new alternatives for dispatching and supporting its field service technicians, RAM Mobile Data was a logical partner. The Belgian Mobitex network offers nationwide service with guaranteed capacity, reliability and quality. RAM business partners, such as systems

designer Quinsy, were also well equipped to meet Banksys' requirements.

Successful pilot

A pilot project involving five technicians was started at the end of 1997. In February of this year, this number was expanded to 75 technicians, who now use a portable PC with a Mobitex modem and software specially developed by Quinsy. The initial application focuses on dispatching and acknowledgment of work orders.

Technicians are distributed throughout various sectors, including banking, service stations, distribution and third-party maintenance. A dispatch department is responsible for efficient scheduling. For ATMs, for example, a technician is not sent out for every technical fault. A Tandem computer registers all faults in the ATMs managed by Banksys in real time and determines whether the incident requires intervention by a service technician. The system first runs a diagnostic test to determine if a bank card is stuck in the ATM and then transmits the status and location of the machine to the supervision department via the Banksys Network. Staff at this department can access the defective machine and correct most faults remotely.

Some 23,000 calls are processed each month, with only about 15 percent requiring intervention by a technician. In these cases, the supervision department alerts the dispatch department by e-mail, which is forwarded instantaneously over the Banksys Network.

The technician selected by the dispatch department to handle the call receives all relevant information on the portable PC via the Mobitex network from RAM Mobile Data. This information includes the type of machine, customer data, opening hours and the terminal's "case history." When the repair has been completed, the technician enters the number of kilometers traveled, the actual service time, spare parts used, actions performed and any information to be forwarded to the customer.

The speed advantage

"Communication via the Mobitex network is quick and effective, and we are also very satisfied with RAM Mobile Data's efficient service," says Marina Bollens, internal IT manager at Banksys, who adds that the company intends to further develop the application. Desired functions to be added to the system include assigning work orders to technicians automatically, based on such factors as distance to destination and work load.

The technicians are also very pleased with the new application, reports Marina Bollens. "This is the first time that users have contacted us to express their satisfaction with a new system. Speeding up communications is perceived as a major advantage," she says. ■

Banksys is a Belgian company that specializes in the installation and maintenance of cash-dispensing ATMs and various kinds of payment terminals for service stations, restaurants and small retail outlets, as well as larger stores. The company is responsible for operating the electronic payment network (Bancontact/Mister Cash) in Belgium and designs and manufactures terminals for the system. Banksys may not be able to guarantee that you will have the money to afford what you need, but at least the ATM should be working so that you can easily obtain cash.

U.K: Packaging the RAM Despatcher

RAM Mobile Data UK offers a portfolio of services called RAM Despatcher that makes deploying a field service application significantly easier. Realizing that dispatching is a core component of field service and many other types of applications, the British Mobitex operator decided to package this service to help customers get started with wireless data.

RAM DESPATCHER SERVICES help service organizations provide better customer service, improve productivity and reduce communication costs, all for a fixed monthly fee. The monthly charge includes hardware, software, unlimited airtime, training and support. All RAM Despatcher services can operate stand-alone or be integrated into existing service management solutions.

This flexibility, combined with the benefits of a fixed-cost, turnkey solution, make it easy for customers to get started with a simple field service application. To date, more than 1,000 RAM Despatcher units are in operation, and the Mobitex operator reports that the field service segment accounts for approximately 50 percent of total sales.

Market leader

Recently, RAM appointed Diazone Computer Services (dcs) as its first reseller for the field service market. "Indirect sales are becoming increasingly important to RAM as communication via the RAM Net-

work becomes more and more mainstream," says Richard Pullin, director of RAM's Field Service Business. "We have enjoyed huge success in the field service industry to date and look forward to working with dcs to expand our share of the market."

"RAM is clearly recognized as the market leader in wireless data communications for field service organizations and we are delighted to have secured this appointment for RAM Despatcher products," says Steve Precious, divisional director at dcs, whose product offering also includes pen computing platforms for field service applications.

With the RAM Despatcher services, customers are able to boost productivity and realize efficiency gains almost immediately. These savings can then motivate a service organization to refine the field service application with a view to further improving the quality of service. As Richard Pullin notes, an increasing number of customers are expressing interest in business re-engineering to help them work in new ways.

"There are many examples in which the combination of business process re-engineering and IT transforms cost-inefficient and poor-quality operations," he observes. "A notable case in point is retail banking, which is dramatically improving customer satisfaction and efficiency, while progressively downsizing. This revolution is being driven by transaction processing, customer information systems and innovative CTI solutions."

Richard Pullin believes that the lack of effective IT platforms has prevented service organizations from following such examples but that the situation is changing. "Through wireless communications, service organizations now have access to the innovations that have fueled the service revolution in other areas of business," he notes. "At last the technology exists to achieve cost reduction and service quality simultaneously. In fact, the potential gains from these technologies are far greater, simply because the field service workforce has never effectively deployed the last generation of control strategies. Too often, the remote worker has been left to his or her own devices in structuring working practices."

Premier supplier

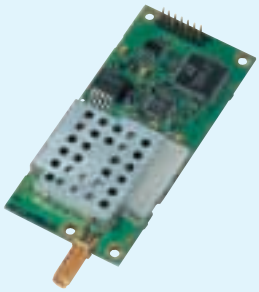
RAM Mobile Data UK offers a full range of solutions for field service organizations from the packaged solutions in the RAM Despatch portfolio to platforms and tools for solution development. In many cases, the British Mobitex operator is able to offer solutions developed by its many business partners, allowing the customer to choose the most suitable approach. In addition, RAM can provide project management and professional services based on a wealth of experience.

"RAM UK knows the service sector well and has a long track record in developing and implementing solutions," notes Richard Pullin. "We adopt a proactive approach to the market, working with customers to develop applications. We also enlist consultants to draw up the business case for mobile data and can offer fixed tariffing, professional services and training."

This flexible approach and the highly successful RAM Despatcher portfolio have paid off handsomely for the UK operator. With 50 percent of total sales deriving from field service applications and a growing market share, RAM is the premier supplier for field service organizations. ■

▲ *Potterton, the UK's number-one manufacturer in the domestic gas heating market, gives its technicians access to the RAM network to report their work progress, order parts, check stock and send information back to the call center for automatic updates on the company's service management system.*

A quantum leap in modems



With the announcement of the M3000 Mobitex wireless modem, Ericsson Mobile Data Design is completely revamping its product strategy for Mobitex terminal products. The M3000, which is based on a new platform that it shares with D-AMPS and GSM mobile phones, is the first of a new product family. Existing products will continue to be supported as long as there is demand for them.

Entirely new platform

A transition to an entirely new platform, with new radio circuits, a new processor and a new development environment, was made in about six months. Accomplishing this feat and rising to the many challenges involved is a testimony to the dedication of Ericsson's Mobitex design engineers and their conviction that the M3000 is the platform for the future.

"The new platform allows us to leverage Ericsson's very substantial investments in digital mobile telephone technology," says Tuomo Keinänen, general manager for Mobitex modems at Ericsson Mobile Data Design, who reveals that test deliveries of the new modem will begin in the first quarter of 1999.

"Our primary objectives in introducing the M3000 are to streamline our product offering and achieve higher volumes for network access products," continues Tuomo. "We are also adapting our strategy to market demands. Although the current M2100 series of PC Card modems, which is also an OEM product, have been very popular, few business partners have offered them as end-user products for portable PCs. Instead, our PC Card product has been incorporated in various kinds of customized terminal equipment."

By replacing the PC Card interface with a much simpler serial interface, the new product better meets customer requirements while costing significantly less than the previous product. Pricing had not been determined when this article went to press, however, Tuomo predicts that the M3000 will be price-compatible.

Accomplishing the impossible

To hear project manager Magnus Packendorff describe it, designing the new modem was a simple process. "We started with a CDPD design and replaced the radio circuit and the software. Otherwise, the new modem uses the same ASICs (Application Specific Integrated Circuits) as a standard D-AMPS phone," relates Magnus.

Of course, to anyone familiar with the challenges of designing radio modems, replacing the radio circuit and the software is virtually the same as developing a new product from scratch. Doing this in the time frame available to Magnus and his colleagues is a task few people would attempt.

"Although it is a difficult project, everyone finds it extremely stimulating," continues Magnus. "For design engineers, working with a new processor and using a new platform and new tools is like a child getting new toys for Christmas. Everyone is very motivated and takes considerable pride in developing the new product."

Leveraging world-class designs

Of course, Magnus and his team received help from other Ericsson design centers around the world. In particular, the Ericsson design center at Research Triangle Park in North Carolina in the U.S. acted as a mentor for the project. The Research Triangle Park facility played the lead role in developing the latest generation of digital phones for the D-AMPS mobile telephone system used in North and South America and many other parts of the world, so this was an auspicious choice.

"We wanted to leverage existing technology where Ericsson already has world-class products," notes Tuomo Keinänen. "The new M3000 therefore uses the same components and leverages the advances made in terms of ASIC design, miniaturization and production technology, as well as benefiting from economies of scale."

The new modem is a state-of-the-art product. Yet, as can be seen, the circuit board is sparsely populated, leaving room for additional functionality to be added. In fact, the

▲ *Wireless data applications for the automotive industry are numerous, with examples that includes route support, remote door locking and automatic notification of airbag deployment.*

prototype on which this article is based included a GPS receiver. Although no decision has been taken on offering this as a standard option, the ability to easily add additional equipment to the Mobitex modem will undoubtedly interest many vendors.

Strengthening partnerships

The new product strategy should be welcome news for many of Ericsson's business partners. Ericsson has nurtured many fruitful partnerships in other areas of Mobitex technology and will now strengthen its position as a partner in the terminal vendor area. The M3000 technology provides Ericsson and its partners with an excellent opportunity to develop other products, such as C-Flash modems.

"However, our goal is to focus the business more sharply on our core competence, which in wireless data communications is digital radio technology. This is an area where Ericsson is a global leader, and as competitive pressures mount, we intend to maintain and strengthen this position," states Tuomo.

"Ceding the terminal market to third-party suppliers is a logical consequence of our decision to focus on radio technology," he explains. "However, once we accepted that fact, we realized that the new product strategy could actually help us to strengthen relations with our business partners. Terminal manufacturers can see Ericsson not as a competitor, but as a key partner with a long-term commitment to supplying a core technology for their products."

Enhanced customer support

Evidence of this commitment will be forthcoming as the new network access device is rolled out. Ericsson Mobile Data Design already operates a test facility in Gothenburg at which OEM customers can test the technical compliance and compatability of their product. This test center is now being expanded to support the M3000.

"Previously, some customers were reluctant to work with Ericsson in testing their products, because they did not want to reveal design details," notes Magnus Packendorff. "Now we can basically open the doors of our lab and invite any customer to conduct tests here. Ericsson can verify that the radio components have been implemented correctly and assist with the measurements and testing required for type approval."

In addition to making its expertise in radio technology more available, Ericsson is developing new software and support products to help customers more fully exploit the enhanced performance and functionality of the new modem. The objective is to provide a single tool to handle all aspects of integrating the M3000 into OEM equipment. This tool will include new drivers, as well as user-friendly APIs that fully leverage new network functionality provided by the latest release of the Mobitex system software.

"An important feature of the platform is that it also has the processing power and capacity to include third-party application software," notes Tuomo Keinänen. "Today only a small portion of the M3000 processor and memory capacity are used for internal functions, which gives us an excellent opportunity to reduce our partners' costs by allowing them to tap into the power of the new platform."

The way of the future

Of course, the M3000 is just the beginning of a new product generation that will take Mobitex technology to new heights. A key factor in continued development of the product will be the ability to quickly take advantage of advances in Ericsson's mobile telephone technology.

"The M3000 uses state-of-the-art components and ASIC technology, making it relatively easy to produce extremely compact, yet powerful handheld devices," notes Tuomo Keinänen. "Although negotiations are still in progress, several of our major OEM customers are planning new devices based on the M3000 that will extend Mobitex applications into new settings and add features that no other technology can provide.

"I am particularly excited about the possibilities being opened up by the ability to integrate third-party electronics, such as a GPS receiver, into the modem. The companies that I am talking to have some very creative ideas that are really going to open some eyes in the industry," promises Tuomo.

C-Flash wireless modems the size of a postage stamp. Handheld devices that always know where they are. Multi-mode modems that support several wireless communications systems. The mind boggles at the possibilities. As wireless data communication continues to advance, however, one thing remains certain. Mobitex technology once again shows the way of the future. ■

Perilous Atlantic crossing

Maybe it was getting off the long flight to London early in the morning when my body knew that I should still be sleeping. Whatever it was, I felt completely out of it, as I stepped out of Heathrow's Terminal 4 and headed for my hotel. Looking "right, then left, then right again," as I had learned as a child, I nearly got killed when I stepped off the curb.

That was when I looked down at my feet to see that the words "Look left" were painted on the sidewalk. After experiencing a number of cultural shocks on my previous travels as a roaming reporter, I had been looking forward to visiting a country where my own language was spoken and the culture would be familiar to me. Apparently, I was in for some surprises.

I felt better after I reached my hotel, which was also located at Heathrow, close to my hosts at RAM Mobile Data. The desk clerk gave me the key to my room and told me to take the lift, which I quickly realized was the elevator. Perhaps things wouldn't be so bad after all.

That was before I headed out on foot to RAM's Heathrow office. I asked a taxi driver for directions. When the driver replied that I should "carry on to the next round-about, take the subway under the motorway and proceed to the next petrol station," I admitted defeat and climbed in the taxi. I'd heard the joke about the British and the Americans being two people separated by a common language, but here was proof that it was true.

The people at RAM, however, soon had me feeling right at home. We talked about recent contracts in the field service sector and other RAM success stories. The excitement of the people at RAM was unmistakable. With Mobitex taking the field service market by storm and the Interim Mobile Data Network service used for accessing the Police National Computer being deployed on an ever-wider scale, the British operator is gaining nationwide recognition for the quality and reliability of its services.

As I learned from the RAM officials, this success had taken considerable time to achieve. With typical British understatement, they said that the company was quite familiar with its target markets and had a proven track record in developing solutions together with its customers. As it turns out, several of the major contracts announced by RAM over the past few months had taken several years of hard work to land. Talk about perseverance.

Of course, the news item about mounted police officers using Mobitex fired my imagination. I simply had to see for myself, even if it meant taking a trip to Yorkshire at my own expense.

The Cleveland police officers were extremely polite, but I had the feeling that they were smiling indulgently as I told them about my interest in mobile data and background as an equestrian. Nonetheless, I knew that I simply had to meet the world's first mounted police officers to be equipped with a wireless data terminal.

The police officers who took me to the stables were extremely kind. They even offered to let me ride Sid, as the horse used by the Mobitex-equipped officers is called in the stable. Consternation was evident in their faces, however, as I approached Sid and thinking of my experiences driving on the left-hand side of the road innocently asked: "On what side should I get on?"

Amazingly, they still let me ride Sid. As I put him through the paces and showed the officers that I really had been an equestrian, I reflected that at least when it comes to riding horses, some things are universal.

HELENA WILLIS

Links.

Mobitex information:
http://www.ericsson.se/mobitex

Mobitex e-mail addresses at Ericsson:
Marketing and sales: mobitex.info@erv.ericssson.se
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Logistics: mobitex.logistics@erv.ericsson.se
Mobitex training center: mobitex.training@erv.ericsson.se

Ericsson links:
Ericsson Mobile Systems: http://www.ericsson.se/wireless
Ericsson Mobile Data Design: http://www.ericsson.se/mobitex

Mobitex operators & associations featured in this issue:
BellSouth Wireless Data, US: http://www.bellsouthwd.com
RAM Mobile Data, Belgium: http://www.ram.be
RAM Mobile Data, UK: http://www.ram.co.uk
Sonera, Finland: http://www.sonera.fi/english
Telcel, Venezuela: http://www.telcel.net.ve
Telia, Sweden: http://www.mobitex.telia.com

Companies and organizations featured in this issue:
Banksys, Belgium: http://www.banksys.be
BostonCoach, US: http://www.bostoncoach.com
Dynamic Mobile Data, US: http://www.dynamicmobiledata.com
Infowave, US: http://www.infowave.com
Nomadic Communications, Australia: http://www.nomadic.com.au
Mobix Communications, Israel: http://www.mobix.co.il
Research In Motion RIM, Canada: http://www.rim.net
Sybase, US: http://www.sybase.com
3Com, US: http://palmpilot.3com.com/home.html
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