

SYBASE®

**SYBASE AND INTEL:
THE UNWIRED ENTERPRISE**

WHITE PAPER

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THE
ENTERPRISE.
UNWIRED.

FURTHER INFORMATION: WWW.SYBASE.COM/UNWIRE OR WWW.INTEL.COM/UNWIRE

“THE UNWIRED ENTERPRISE FOCUSES ON THE POINT OF ACTION;
IT DRAMATICALLY ADVANCES A BUSINESS’S APPROACH TO
DECISION MAKING AND CUSTOMER RELATIONS, AND AVOIDS THE
TRAP OF DOING THE SAME OLD THING WITHOUT WIRES.”



—MARTY J. BEARD, SENIOR VICE PRESIDENT, CORPORATE DEVELOPMENT AND MARKETING, SYBASE, INC.

SYBASE AND INTEL: THE UNWIRED ENTERPRISE

Sybase and Intel are leading the industry into the Unwired Decade. Together we’re re-envisioning the enterprise for mobility.

During the last few years, fundamental changes have been taking place in the communications and technology industry—changes that are enabling new opportunities for the unwired enterprise. The business advantages made possible by the technology and prospects implicit in wireless will impact all business sectors through the end of the decade.

Just as the debut of the “wired” Internet required companies to rethink essential business models, the new mobility of people and information enabled by the “unwired” enterprise creates a mandate for rethinking enterprise information technology solutions. By leading the industry in developing technologies for mobilizing the enterprise and by working with leading companies who implement them, Sybase and Intel have discovered core insights that go well beyond taking a company wireless, revealing new business fundamentals for the unwired enterprise.

“ENTERPRISE ARCHITECTURE IMPACTS THE HEALTH OF YOUR BUSINESS. THE RIGHT ENVIRONMENT CAN HELP REDUCE COSTS, INCREASE EFFICIENCY, AND EXTEND THE REACH OF YOUR SOLUTION AND YOUR BUSINESS. THE WRONG ARCHITECTURE CAN BE ENORMOUSLY EXPENSIVE, COSTING HUNDREDS OF THOUSANDS OF DOLLARS EACH YEAR IN OUTMODED PROCESSES, LABOR OVERHEAD, AND MISSED OPPORTUNITIES.”



—CHRIS S. THOMAS, CHIEF STRATEGIST, INTEL INC.

THE NEW BUSINESS FUNDAMENTALS FOR THE UNWIRED ENTERPRISE

Sybase and Intel have led the industry by helping thousands of organizations better understand how their business processes can be improved by adopting mobilized solutions. From these experiences, three insights stand out, which every business can and should take advantage of.

THREE FUNDAMENTAL INSIGHTS WHICH EVERY BUSINESS CAN AND SHOULD TAKE ADVANTAGE OF:

- Moving information to the point of action increases the efficacy of the decisions and transactions that your staff and your partners make.
- “Solutions-induced labor costs” inherent in wired solutions can be reduced with mobilization.
- Enabling unwired solutions can increase the resilience of the organization.

Individually these gains are significant. Together, they can upgrade a company from a market player to a market leader.

#1

FUNDAMENTAL #1—EMPOWERING THE POINT OF ACTION

Many companies mistake the use of mobile phones or mobile devices as mobilizing the enterprise. While they have taken the first step in untethering the physical organization, these solutions stop short of making the data and the processes in their organizations mobile as well.

It is essential to shift relevant information down to the actual points of action in an organization—from sales, decision support, and manufacturing to supply chains, field service, and retail sales, to name a few. Once it is there it's key to consider what new things become possible. Does your sales force have the information at their finger tips to make the best use of the time in front of your customer? Does your vendor have the statistics needed to anticipate your needs? Is your retail team able to be creative about their environment and selling strategies?

Let's look at a case where mobilizing and enabling the point of transaction provided a business with new ways of relating to their customers, as well as allowing cost reduction and new means of understanding all aspects of its point-of-sale.

Hyundai Department Store offers a sophisticated, high-end shopping experience to consumers in South Korea. The company's new wireless point-of-sale (POS) application embeds Sybase SQL Anywhere and enables sales clerks to process a purchase from anywhere in the store using a handheld device. As a result, shoppers no longer have to wait in long lines at cash registers and tend to shop longer at the stores, often purchasing more products and services. In addition, Hyundai has realized a 40 percent reduction in total POS hardware costs and a 30 percent reduction in administrative costs through improved tracking of sales and more efficient deployment of store personnel.



#2

FUNDAMENTAL #2—REDUCING SOLUTIONS-INDUCED LABOR COSTS

Many of the technologies implemented in the last few decades increased a company's ability to capture information about "people and things" but this information is not always in the optimal place to increase efficiency in the organization. In some cases, the task of getting to the information has added what we call a "solutions-induced labor cost." That is the cost of getting from where you are, to where the information requirement is, and back again.

For example, inventory systems often require staff to come off the line to input information. Customer service may have an attendant travel across the store to a kiosk, or wait for someone at the end of a phone line, to find out about inventory. Even more frustrating can be the time that customer service has to wait for a page to download just to find another page to download, and then another. This is what we mean by solutions-induced labor costs. By empowering workers at the point of action and reducing the latency in the system, the cost saving and production benefits can add up fast. Let's look at a case where even the customer didn't know where the increased productivity came from until they had implemented an unwired solution.

Intel worked with **Tinker Air Force Base** to mobilize its aircraft maintenance system. They deployed a Wi-Fi enabled Centrino mobile technology tablet-based solution and moved its primary information system to the point of action. Team Tinker reduced its aircraft maintenance cycle time by 6 weeks—or 25 percent—and created a potential savings of \$2.5 million a year in direct maintenance costs. This was done by removing inefficient labor forced on the system by the old model—namely walking back and forth to the information systems for data or updating. The increased productivity was a surprise to the team who never realized all of the latency and time wasted while walking to and from various systems.

#3

FUNDAMENTAL #3—INCREASED RESILIENCE

The initial wireless boom was predicated on ubiquitous connectivity. Many of those connecting with mobile phone service and PDAs were in search of the always-on mode. Since then, we've learned that the mobilized workforce requires information resilience no matter the connectivity available. In some cases, connectivity may be intermittent due to coverage or happenstance, but in a well-designed system, connectivity is not a necessary pre-condition for continued unwired transactions. A system built around connectivity is a system built for failure. What matters is "always available data and applications" in an "occasionally connected network" environment.

Indeed, for many applications the asynchronous mode may be more appropriate and cost beneficial to the company. Synchronizing on occasion allows the IT department to plan connectivity schemes most appropriate to the department. However, using some of the occasionally connected models and forms-based mobile applications reviewed earlier, we start to see even more significant benefits during unforeseen downtime. In the simplest cases, a user can continue working and the system will recover without the user even knowing there was a connectivity problem. More importantly, one can now design for resilience, continued operation, and graceful recovery.

Let's look at an example where this level of robustness in design led to continued operation and sales dollars as well as uninterrupted customer service.

Sybase worked with partner **Retalix** to install a mobile solution at a retail customers' location. Using Sybase iAnywhere technologies, the solution provided offline continuity for three days when a store's main server went offline by providing mobile, mini-databases, and associated mini-applications that reside on actual devices.

Check-outs proceeded without a hitch, as the PC-based registers accessed their localized product database on their individual systems. They did not have to rely on constant communication to the main server. Once the server was repaired, the three days of transactions were synchronized.

This was a real solution to a retail emergency. In the past, without the Sybase solution, registers were 'dumb terminals' which would have been unable to operate without the main server. Check-out would have been greatly impaired, having to be done on paper forms until the server could provide communication.

An extra benefit: The retail customer can also use the mobility features by physically moving registers to where the sale is—on the sidewalk, in the parking lot, or at a street fair. This provides electronic checkout, avoiding human error on manual registers or paper order forms.

“WE ARE THRILLED WITH OUR DECISION TO USE SYBASE IANYWHERE MOBILE AND WIRELESS TECHNOLOGY. OUR PREVIOUS SYSTEMS COULD NOT SUPPORT AS MANY CONNECTIONS AS THE SYBASE IANYWHERE TECHNOLOGY. WITH SYBASE IANYWHERE, WE NOW HAVE A TWO-PRONGED BENEFIT: IT HAS OPENED UP A WHOLE NEW MARKET WITH LARGE MEDICAL CLINICS AND HOSPITALS, AND INCREASED THE STABILITY OF OUR SMALL CLIENTS’ DATA.”

—SCOTT RIEDEL, NATIONAL MARKETING MANAGER, MEDINOTES CORPORATION

THE CONTEXT FOR THE UNWIRED FUTURE: KEY DRIVERS

The world of people, devices, and data is going through a phase transition from a static, fixed, “solid” state to a dynamic, mobile, “liquid” state. Businesses must adapt to this transition if they are to survive and grow in the next decade. It is important to explore how and why companies are becoming unwired, and the trends that are driving this change.

KEY DRIVERS IMPACTING THE UNWIRED ENTERPRISE TODAY AND IN THE COMING DECADE:

- Comprehensive wireless capability
- Connectivity options that allow for productivity in both a connected and asynchronous mode
- Real time analytics and data management solutions to deal with data explosion
- Expanded use of distributed and peer-based computing
- Productivity benefits promised by Web services
- Impact of public policy on data in the Unwired Enterprise
- Changing population structures present new challenges and opportunities for some industry sectors

By the end of this decade, every business will be unwired. The convergence of computing, communications, and mobile technologies coupled with requirements for “liquid” data, is driving demand for more, and better, unwired productivity.

These key drivers form the foundation of the emerging unwired enterprise—and are the capabilities that businesses can, and should, take advantage of in the coming decade.

#1

KEY DRIVER #1—COMPREHENSIVE WIRELESS CAPABILITY: THE NEW AGE OF CONNECTIVITY

Wireless has come of age. During 2003, Wireless Fidelity (Wi-Fi) (also called 802.11, a high-speed wireless LAN technology used for high-speed wireless Internet access) went from a fringe application



for rogue networkers to an important and reasonable consideration for many critical business transactions. Intel's launch of Centrino mobile technology in 2003, which integrated 802.11 technology with the processor, opened up the possibility for cost effective, broad adoption of mobile wireless technology. Sybase's mobile and enterprise data management technologies provide industry leading software infrastructure and solutions based on "Always Available. Occasionally Connected" computing, enabling workers to be productive regardless of network availability. With this combination of hardware and software designed for the challenge of the wireless environment, companies can ensure that they have everything they need to deploy successful unwired enterprise applications.

According to many industry sources, it will be virtually impossible to buy non-wireless enabled devices within three years.¹ The ability to connect is growing and expanding at a similar rate. By 2005, there will be 700 million mobile handsets, more than 80 million WLANS (wireless local area networks) in use worldwide, and nearly 13 million wireless home networks in the United States.²

Historically, cellular providers have offered wireless access capability, but we now see a wider variety of options including advanced 3G technologies and Wi-Fi providing new and innovative approaches. The U.S. government has seen the possibilities and is attempting to ensure that the innovation in this area is ongoing and stable for businesses.

During 2003, the FCC commissioners began to see the opportunities and possibilities for Wi-Fi applications in what was otherwise considered "junk" spectrum, and are now looking at how their work over the next few years can provide alternative connections to make *ad hoc* and *mobile mesh computing* possible. In a recent press release the FCC announced an 80 percent increase of unlicensed spectrum in the 5 GHz band in order to promote innovation and flexibility of use for new business applications.³

Bottom line, it means that there will be more spectrum available for emerging applications, such as local person to person, car to car, and object to object. Starting with Wi-Fi, the next few years will see the full complement of connectivity. This will include expanded radio technologies that incorporate capabilities such as ultra wide band connectivity, allowing short range, low power, low cost, high bandwidth wireless communications and intelligent roaming, or ad hoc networks where wireless users can connect directly to each other. It will also allow the implementation, on top of the Internet, of a new layer of connectivity that will prove vital in key market segments such as transportation, healthcare, and government.

Medinotes Corporation is an example of a healthcare company that has developed an application extending the reach of physicians using Wi-Fi technology. Medinotes' flagship product, Charting Plus, is a marriage of Sybase iAnywhere's small footprint database and Intel's Centrino technology. This application has made it possible for 3,400 physicians to manage their practices. Using this Wi-Fi enabled application, physicians can focus more on patient care and less on day-to-day office administrative tasks such as referral letters, patient instructions, prescriptions, and billing statements. As a result, physicians implementing the Medinotes application have seen a tremendous cost saving and productivity increase.

¹ Gartner, October 2003

² IDC

³ November 13, 2003, Federal Communications Commission; http://braunfoss.fcc.gov/edocs_public/attachmatch/DOC-241220A1.doc

#2

KEY DRIVER #2—CONNECTIVITY OPTIONS: ALWAYS ENABLED DOES NOT MEAN ALWAYS ON

Growth in wireless is not necessarily about being connected all the time. While we will be mostly “on,” and frequently able to be on wirelessly, there are important benefits to an asynchronous mode, where we can be on or off and continue to be productive. With the liberation of the laptop and PDA, whether we are moving in and out of wireless zones or have lost connection by choice or consequence, persistent connections are no longer required to support the way we work.

This is not just true for the road warrior but for everyone who is looking to keep their operations running under any scenario. The major events of September 11th, the Great Northern Blackout and the more basic problem of limited battery life have shown that the need to support accessibility under any circumstance is critical for day-to-day commercial operations. Can the systems we rely on be made to operate and be effective even when we are not connected? Within the enterprise, great care must be taken not to compromise the data integrity.

The new world of increased connectivity, computation, storage, and data mobility requires that we rethink how we look at our devices, where we store our data, and where and how we process transactions. By looking at what’s really required to keep the information and transaction elements of a mobilized solution working regardless of the connectivity, you can create a new form of resilience in the organization.

McKesson Corporation, a *FORTUNE* 35 corporation, is the world’s largest supplier of management and healthcare information technology. Distribution is a critical component of McKesson’s business, and its pharmaceutical distribution business serves over 30,000 customers through 32 distribution centers with over 2,600 drivers. McKesson wanted to replace its paper-based delivery process with an automated system using mobile devices in order to improve customer service levels, while reducing costs and improving productivity. A major challenge was that McKesson’s drivers are located all over the country—and many do not have continuous access to a wireless network—so the company elected to implement Sybase M-Business Anywhere as an offline application that connects to McKesson’s systems at the beginning and end of each day. With this system, there is also the flexibility to use the application in a wireless mode. They get the best of both worlds: information where and when they need it and connectivity when possible and appropriate. The results provide a straightforward look at the impact of an unwired enterprise solution in both cost savings and customer service. Calls for delivery errors dropped to nearly zero, imaging costs have been eliminated, legal claims were reduced by 50 percent, and delivery claims reduced by 30 percent. Now customers can access same day package tracking information. The back office benefited as well—management reports are now available to track delivery performance.

#3

KEY DRIVER #3—THE DATA EXPLOSION

Operational processes and email communications have already unleashed an almost unmanageable data torrent on the enterprise. That situation is going to explode. The world of data and information will soon be much more about objects than people. We are on the cusp of significant adoption of wireless technologies that allow for *more information about things* to be transmitted than ever before. Conservative estimates have indicated that there will be more than 10,000 devices sensing and transmitting wirelessly for every man, woman, and child on the planet.⁴ You may wonder how this is possible. Wal-Mart, Procter and Gamble, The U.S. Postal Service, Pepsi, and Home Depot are among the founding supporters of this technology and are leading its deployment.⁵

In Singapore and Helsinki, DHL tested RFID tags in anticipation of tracking the 160 million packages it ships annually. In Arkansas, the world's biggest retailer, Wal-Mart, is requiring its top 100 suppliers to put RFID tags on all cases and pallets by 2005.

The government has just mandated the use of RFID tags for all objects it procures by 2005. The RFID policy and the corresponding RFID tagging/labeling of Department of Defense (DoD) material are applicable to all items except bulk commodities such as sand, gravel, or liquids.⁶

This data from RFID and other sensor devices will add to the growing amount of transactional data in storage. According to a recent University of California at Berkeley study, the quantity of new information stored in 2002 was five exabytes, or five quintillion bytes. That amounts to the print collections of the Library of Congress—500,000 times over. More importantly however, while large, this five exabytes of stored information *pales* in comparison to the amount of information transmitted electronically in 2002, which the study estimated to be 18 exabytes. A paradox results from this data explosion—the more data an enterprise produces, the less useful it becomes.

Securing the means to successfully manage and access these data assets at a reasonable cost is becoming more and more of a business challenge. Data is often stuck in the storage system associated with its original application making re-use prohibitive. Information may be stuck in tape “graveyards” making it virtually unavailable for compliance, governance, analysis, or customer service. Access to a large enough data set for historical or large-scale analysis may be not be possible if the data management systems are too slow or aren't tuned for this type of work. Managers may be unaware of material events as they happen—even though the transaction has been captured—because they lack systems to alert them to changes in acceptable thresholds. According to analysts, real-time analytics and massive data management will emerge as the most important business application by 2007.⁷ The ability to federate data from multiple sources and make it available to any system at the time when it is needed most will be critical to business success.

Nielsen Media Research uses Sybase's IQ technology to unlock the value of data, analyzing and providing information about television viewing trends for the television media industry. Sybase helps Nielsen Media Research subscribers determine which television programs provide the most valuable advertising opportunities through analysis of data stored on a multi-terabyte database. Thanks to the extreme efficiency of Sybase's data management solutions, Nielsen is also able to achieve significant savings on disk storage costs for such a large database.

4 [Linked](#). Albert-Laszlo Barabasi, 2002

5 www.epcglobalinc.org

6 *The Register*, 10/24/03

7 Gartner, *The Future of IT*, 2003

#4

KEY DRIVER #4—THE POWER OF THE PEERS

Over the next few years, we will continue to see the growth of *emergent computing* technologies which take advantage of our abilities to be “mostly on.” Much like the ad-hoc direct connectivity we talked about in the wireless arena, this direct ability to connect is continuing to play out in the computing space. Peer-to-peer (P2P) technologies are leaving the music realm and moving into business and government applications that allow better group creation. P2P computing is the ability to directly connect to another user or device without necessarily going through a server. One of the main benefits of this type of computing is that it uses resources on the edges of the network. As the liquidity of data increases, we anticipate seeing more and more applications for P2P in areas such as data storage, messaging, identity management, and security.

An Intel Project, the **Skool platform**, developed at the Intel IT Innovation Centre, received the World Summit Award Leader in e-Learning and creativity at the World Summit on the Information Society in Geneva. Skool uses a peer-based technology to leverage the expertise of the top teachers in their fields, as well as key members of the syllabus and examination boards for the sourcing and development of content. This form of distributed learning is one of the benefits of mobilized data systems that can be used in all sectors.

#5

KEY DRIVER #5—THE PROMISE OF ENTERPRISE INFORMATION INTEGRATION

The emergence of Enterprise Information Integration (EII) will completely change the way we think about applications and data. The widespread use of information from multiple sources coming together in new ways may come from *Web services*, *mobilized software*, *composite applications*, *networked data applications*, or *federated data systems*. Now, the stabilization of data standards and the increased portability or liquidity of information is creating *new* means for productivity for the user, and new business models for many of the organizations coming together to supply the resources. From identity to supply-chain, we are continuing to see how the nature of dynamic data usage and enhanced wireless connectivity are prompting new mechanisms for creating trusted data partners and the means for exchanging data.

In the past, tight integration with business partners has been prohibitively expensive except in the case of the top 20 business processes, with the top 20 suppliers in major firms. Now, with some of the fundamental standards in place, such as Web Services Description Language (WSDL), this type of interrelationship and new use of data can be implemented in all business environments. Not only can it create efficiencies and new understanding in your own business processes, but it also makes it significantly easier to create more intimate customer/vendor relationships.

Data liquidity is allowing companies to change the way they access and input information as well. The key next phase of information systems development is a move to a forms-based model of thinking about mobility versus a Web-based model. This shift allows active use of the form, whether

connected or not, and allows for the rapid design of intelligent/dynamic content management interfaces. It also yields a decrease in the time and effort required to collect and process data, allows easy integration of e-Forms with existing and future applications, decreases application life-cycle costs, and centralizes the management of e-Forms and content.

#6

KEY DRIVER #6—PUBLIC POLICY AND THE UNWIRED ENTERPRISE

With data mobility comes even higher security concerns. However, the new technologies supporting data, and contracts around usage, transactions, and storage, are coming into maturity. Public policy is also catching up with data use and technology and digital rights management, permissions, and audits are being recrafted to work with this decontainerized data. Over the next few years, we anticipate seeing more policy constraints—some externally mandated by partners or regulatory compliance and some internally created as companies develop new data asset management strategies.

While there were some economic short term concerns with the implementation of new regulations, what we are seeing from Sarbanes-Oxley, HIPAA compliance in healthcare, and with homeland security data issues is that more new and more structured data are opening up more of the network opportunities for usage and providing business gains. In an *Information Week* study, nearly 40 percent of companies surveyed said that complying with regulations has had a positive impact on their business, with another nearly 40 percent experiencing neutral impact to date but gains are expected.⁸

In the coming years, we anticipate a rise in the use of digital rights management for data assets. Today, Sybase provides integrated, end-to-end software architecture for extending the reach of e-Business applications, enterprise data, and Internet content to mobile, wireless, remote, and embedded devices. The Sybase Unwired Enterprise platform supports security features including full permissions management and user authentication, strong encryption of database files, and strong encryption of client/server and synchronization communications. It also provides a comprehensive infrastructure for developing and deploying thin-client applications for mobile devices, including built-in login filters to enforce user authentication and restrict access to Web applications.

Intel has made an industry commitment to a future with more trustworthy computing. Currently, Intel is a founder and leader in The Trusted Computing Group (TCG). TCG is an industry alliance comprised of computer and device manufacturers, software vendors, industry experts, and others with a stake in this topic, focused on building increasing levels of trust into devices while maintaining user rights and privacy. In the future, we will see more from Intel's LaGrande Technology (LT), the code-name for a set of hardware components designed to enhance the security capabilities of the PC. Expected to launch in the next two to three years, LT will provide a hardware-based security foundation that will help enable greater levels of protection for information stored, processed, and exchanged on the PC and provide more confidence in an environment of increasing user engagement and data assets.

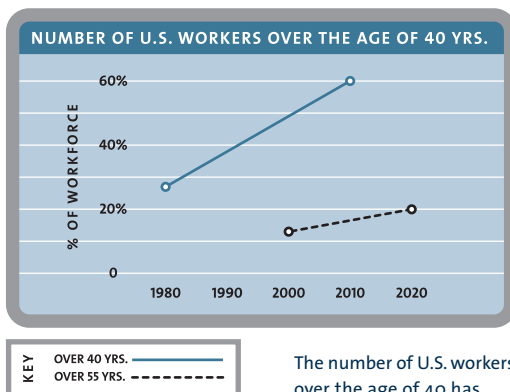
⁸ *Information Week* Compliance Study, October 2003

#7

KEY DRIVER #7—MEGA TRENDS IN PEOPLE AND MARKETS INCREASE

THE BENEFITS OF MOBILIZATION

These shifts in technology coincide with some fundamental societal changes affecting consumers and the work force. In fact, the changes are having an impact on major industry segments such as healthcare, transportation, and financial services, all of which can take advantage of the new power provided by the Unwired Enterprise approach to take on the new challenges.



The number of U.S. workers over the age of 40 has increased significantly. By 2010, 60 percent of the workforce is expected to be over the age of 40, a 33 percent increase since 1980, while the portion of the workforce aged 25 to 39 will decline 5.7 percent.

At the same time, the median age of U.S. workers has continued to rise and is expected to increase in six years, from 34.6 to 40.6, by 2010. The number of workers aged 55 and older will grow from 13 percent of the labor force in 2000 to 20 percent in 2020.

In the U.S., we are moving toward a changing workforce. Our population is aging but hardly ready for retirement. By 2010, *60 percent of the population will be over 40* as both the last Boomers and all of the Generation Xers cross over. It is highly likely that these groups will not be retiring before 70, if at all. They will be changing careers and jobs, and the technologies that enable such change will be the systems of choice. Mobile sales force automation, distributed learning systems, and mobile workplace options will all be enablers of this critical change. The intelligence that can be built into these systems will allow this new and shifting workforce to come up to speed quickly. The face of services and design will fundamentally shift to deal with this change. Aging in-place (staying at home as long as feasible), health management, transportation, and finance are being fundamentally affected by this trend.

Other fundamental changes will result from the U.S. population increase of *50 million people* by 2025. A good deal of this growth will come from immigration, again changing the dynamics of the workforce and systems. Data systems that consider multilingual concerns are but one part of the equation. The population is continuing to grow in already dense urban and suburban coastal regions, prompting rethinking about how we live and move.

Smart data management approaches such as those that are enabled by Sybase's iAnywhere mobile technologies help bring the changing workforce up to speed quicker. Reeducation and training are easier and employees can have all the information needed to do their jobs at their fingertips, no matter where they are.



SECTOR PRESSURES AND OPPORTUNITIES

These external pressures, coupled with advances in mobility and liquidity of data, are creating new opportunities for business.

HEALTHCARE

The healthcare systems are responding to these shifts. Doctors and hospitals are looking for new mobile- and data-centric technologies in order to be more responsive. Sharing timely information on vital signs is allowing a more integrative approach to wellness. This new, highly fluid data, coupled with data modularity and structure, is allowing all of the stakeholders in the healthcare system to find more viable and cost effective solutions.

Harvard Medical School (HMS) is one of the world's preeminent institutions in medical education and research. The breadth and depth of its scientific and clinical disciplines are unsurpassed. The Medical School is the largest of Harvard's graduate faculties and has traditionally been a trendsetter for many university-wide initiatives. HMS third- and fourth-year medical students are highly mobile, moving between the hospital, library, classroom, and home. The solution, custom developed on top of the award-winning Sybase M-Business Anywhere platform, leverages HMS's existing technology infrastructure to provide students and faculty with instant, interactive access to important learning information.

In less than six months, the mobile automated process has saved HMS over \$150,000 in paper survey costs and is on track to easily pay for itself within its first year in deployment. Additionally, HMS has been able to improve transcription errors that were caused by incorrect manual entry and eliminate the costs associated with some full-time data entry positions. Survey feedback compliance has gone from 20 percent returned up to six weeks after course completion to 80 percent returned in near real-time.

“BRITANNIA AIRWAYS IDENTIFIED THE NEED TO REPLACE THE CURRENT ON BOARD POINT-OF-SALE SYSTEM, BUT RATHER THAN REPLACE LIKE FOR LIKE, WE WANTED TO FIND A TECHNOLOGY THAT WOULD ALLOW US TO COMPLETELY REWORK THE WAY WE INTERFACE WITH OUR CREW. BY SELECTING A PDA, RATHER THAN A DEDICATED POINT-OF-SALE DEVICE, WE HAVE A VISIONARY PIECE OF TECHNOLOGY.”

—EDDIE MARSDEN-JONES, INFRASTRUCTURE PROJECT MANAGER, BRITANNIA AIRWAYS

TRANSPORTATION

The transportation industry is looking to wireless technology to help offset the growing burdens on systems in urban and growth areas. Infrastructure costs are high, but better resource allocation can emerge with investment in technology solutions. From simple solutions like mobile alerts and next available transit, to more complicated solutions on dynamic configuration of traffic and distribution requiring mobile communications, ad hoc networks and data, and sensors, the increased movement of people and things will be greatly aided by wireless and data driven options.

LogicaCMG leveraged Sybase iAnywhere mobile technology to create a flexible mobile employee information system for Britannia Airways’ cabin crews and pilots. The application provides more than 2,300 airline employees with access to crew rosters, passenger information, air traffic control notices, safety notices, updated destination details and duty free sales information using a Wi-Fi network in the airport crew rooms prior to take-off. As a result of this deployment, Britannia Airways has saved £500,000 per year by automating paper-based workflow processes.

FINANCIAL SERVICES

The financial services sector has already benefited from many of the capabilities afforded by technology advancement, and they will continue to be in the vanguard. We are seeing how market mechanisms are shifting, and the business end of financial services is continuing to move toward a highly distributed, yet coordinated model—relying on technology to facilitate these changes. The new challenges will lie in the use of technology to provide services and advice for individuals who are not currently being served by the high-end or retail segments. Financial services will also be setting the pace with new payment mechanisms and identity systems, facilitated by mobile wireless transactions.



En route to the ultimate goal of straight-through processing (STP), **CICM**, a subsidiary of Commerzbank, enlisted the help of Sybase's integration solutions to streamline its trade processing systems. Using e-Biz Integrator™ at the core, CICM was able to reduce the number of manual processes and improve the trade cycle times, resulting in a faster and more resource efficient solution. Business CICM Fund Management needed to automate its equity trading, as a first step toward a fully automated STP environment.

CICM Fund Management implemented a solution that has increased the efficiency of its equity trading by 50 percent and extended the automation to cover both transfer agency and securities lending. As a result, this has improved profitability and removed the burden of manual processing from their staff.

“FOLLOWING THIS SUCCESS, WE HAVE SINCE TRANSPORTED OUR TRANSFER AGENCY AND SECURITIES LENDING ON TO THE NETWORK. THE EFFICIENCY SAVINGS ARE EVEN MORE IMPRESSIVE IN OUR TRANSFER AGENCY DEPARTMENT, WHICH FORMERLY REQUIRED UP TO SIX MANUAL INPUTS PER TRADE. WITH THE NEW SYSTEM, THAT NUMBER IS NOW DOWN TO ONE PER TRADE—SO OVER 13,000 TRADES WE HAVE BYPASSED THE NEED FOR AROUND 75,000 INPUTS.”

—PADRAIG FLANNERY, IT MANAGER, CICM FUND MANAGEMENT

ENERGY

Energy is sometimes called the “mother milk of the information age.” With the push toward advances in our grid systems, a move to distributed energy, and the expansion of new energy solutions such as hydrogen fuel cells, significantly more data will be generated in mobile and complex environments. The processing power and liquidity of information to facilitate the management of these systems is inspiring new and creative uses of both mobile and data technologies for this critical infrastructure.

Sybase partner **SAT Corporation** developed a mobile workflow management application for Lyondell-CITGO Refining, which is a joint venture between Lyondell Chemical and CITGO Petroleum and is one of the largest refiners of heavy crude oil in the United States. Leveraging Sybase's iAnywhere technology, SAT's IntelaTrac software enables field operators—using an RFID asset identification system integrated in a handheld computer running on a wireless LAN—to improve key performance indicators. As a result of this mobile solution, Lyondell-Citgo Refining has reduced the cost of maintenance work orders by 30 percent and cut the time between equipment failures by more than half in several of the process units where the system is deployed.

So what insights can Sybase and Intel bring to your business and how can you start thinking about unwiring your enterprise?

BUILDING FOR NOW AND THE FUTURE

What should businesses looking to an unwired enterprise future be considering now to give them the most strategic and productive outcome through the end of the decade?

1 Look for processes where more information at the point of activity will significantly affect decision quality or improve customer and partner intimacy, such as in the field, at the point-of-sale, in customer support, or between supply chain partners.

2 Explore existing environments to see where unwiring the workforce might allow you to fundamentally reshape how business is done, in retail or manufacturing. How can flexibility in these environments improve your effectiveness and your margins?

3 Open up dialogue about how to keep productivity up even when not connected. Look to designing tools and applications that allow for the highest degree of capability, both when connected to the network and when freestanding.

4 Reconsider the integration of your high value front office systems. Are you getting the information you need from your legacy systems?

5 Plan for modularity in development; look for products now that have the ability to provide the liquidity of data needed for modular and rapid application development. The benefit of Web services environments is that you can expand and develop as your business needs without the issues of interoperability.

Find out how Sybase and Intel can help your business save money and be a leader in your industry by becoming an unwired enterprise.

More information is available at www.sybase.com and www.intel.com.



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Tara Lemmey is CEO of LENS Ventures, a network of leading thinkers focused on innovation writ large—from science, technology and medicine; to design, architecture and sustainability; to public policy, law and economics. She advises leading-edge companies such as Nokia and Intel on their next-generation strategies and products. She is a member of the blue ribbon Markle Task Force for National Security in the Information Age, where she chairs the Technology Working Group.

Ms. Lemmey is a regular commentator in *The New York Times*, NPR, and CNN on technology, innovation, and the public, as well a speaker on these issues to audiences such as Future Trends, the Working Women CEOs forum, and the *Forbes* Top 500 CEO Summit. Her essays have appeared in numerous publications, including *The Harvard Business Review*, *Business 2.0*, *Internationale Politik*, and *Wired Digital*, and she is a frequent lecturer at universities, including Berkeley, Stanford, and Harvard.

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Marty Beard is responsible for Corporate Development and Corporate Marketing functions at Sybase, including all aspects of strategic planning, acquisitions and investments, global partner development, branding, advertising and public relations. Since joining the company in 2000, Beard has been a consistently significant change agent: leading Sybase toward the vision of the unwired enterprise by building on the foundation of database, integration, and portal technologies; extending the company's reach and ecosystem by creating several industry-leading partnerships; and revitalizing the way Sybase communicates with the market—customers, suppliers, partners, and analysts.

Prior to joining Sybase, Mr. Beard spent several years at Oracle Corp., most recently as vice president, Oracle Online—a group responsible for driving Oracle's transformation to an e-Business, as well as managing its flagship e-Commerce site, *Oracle Store*. Beard earned a BA from the University of California, Berkeley, and an MBA from Georgetown University.

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Considered one of Intel's visionaries charting future directions for industry and computing, Chris S. Thomas drives key e-Business marketing and architecture activities within Intel's Solutions Market Development Organization and is an active Industry spokesperson and organizer. His teams have been chartered with developing an enterprise/Internet architecture and vision for Intel, resulting in driving Web services, 3rd Generation Internet Business activities and creating the Distributed Enterprise Architecture Lab. Also at Intel he was Director of Industry Strategic Marketing in the Enterprise Server Group, and managed core technology teams designing Intel LANDesk® solutions.

Mr. Thomas is well known for his work driving industry standardization specifically in the networking and systems management arenas. He was founding chairman of the Distributed Management Task Force (DMTF) advocating the Desktop management Interface (DMI) standard. He has extensive background in developing enterprise solutions involving some of the earliest TCP/IP based client and server integration to mainframe systems. Prior to joining Intel in 1988, he managed systems engineering and technical support for Information Technologies, Inc. pioneering early development of LAN gateways to enterprise systems.

Mr. Thomas received a BS in Computer Science and a BA in Spanish from Carroll College in Waukesha, Wisconsin.

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