The Future of Enterprise Mobile Computing

An updated view from 2002 of the trends driving enterprise mobile strategy.
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The Future of Enterprise Mobile Computing

An updated view from 2002 of the trends driving enterprise strategy.

Introduction

In late 1999, Synchrologic introduced the now-classic executive white paper The Future of Enterprise Mobile Computing. It included a summary of trends in the mobile computing world and recommendations on how to capitalize on them. In particular, the white paper made a rallying cry for companies to form a coherent mobile computing strategy for today and tomorrow.

Here we are two years later. The world has changed in many ways, not the least of which are the trends and realities of deploying mobile computing technologies in an enterprise environment. This revision to the white paper offers updated facts, figures, quotes and recommendations for 2002 and beyond.

One thing that hasn’t changed, though it has grown more urgent, is for organizations to make sure they have a mobile strategy in place to capitalize on new developments and outpace their competitors.
Industry Trends

Despite the economic situation and recent world events, the basic drivers of growth in mobile computing are as strong as ever. In fact, telecommuting and decentralized workforces are options many companies are looking at increasingly as they reevaluate their physical security vulnerabilities and develop risk management plans.

Meanwhile, executives and business development staff are still traveling to meet with customers, prospects and partners. Field service teams are still out keeping equipment up and running. Transportation and shipping companies keep moving containers and packages. Utility companies are still rolling trucks to install and maintain their networks. The booming home healthcare industry is keeping increasing numbers of doctors and nurses on the move. The list goes on and on.

So what are the key trends driving enterprise mobile computing strategy today? We review several below.

Device Capabilities and Proliferation

Even a cursory survey of the mobile device market reveals some striking changes, particularly in the handheld space. Where they once engendered a sense of elite coolness, handhelds have fully entered the mainstream with less expensive models. Microsoft® has launched a major Tablet PC initiative, and has strengthened its position in the handheld space with the recent success of the Pocket PC platform. Palm® market share was trending down into mid-2001, though they appear to have stabilized near the end of the year. The number of manufacturers producing handheld devices is growing rapidly, increasing price pressure and leaving buyers with more choice than ever before.

Mobile devices have become significantly more powerful, and in many cases smaller and lighter versions are available. For handhelds, the industry is rapidly moving towards color screens as the new standard – though lower price and longer battery life keep monochrome units selling too. Storage and processor speeds have advanced as expected.

Growth in laptop sales continues unabated, disproving those who two years ago claimed the handheld would replace the laptop. Instead, handhelds often serve as companion devices for the typical laptop-lugging mobile professional. Laptop fans point to the ability to author content and run more sophisticated applications that require more screen real estate, storage, and processing power.

Almost all mobile devices now offer wireless connectivity add-ons. These have tended to be somewhat expensive and bulky thus limiting adoption. We expect that all device manufacturers will soon offer wireless connectivity as a standard integrated feature – at least in their high-end models. Research in Motion® (RIM) appears in retrospect to have been truly visionary in this area, though they still remain somewhat of a niche player with strong presence in financial services, law firms, and the upper echelons of executive management.

"The Palm OS market share has reversed the slow but steady decline that had occurred since Pocket PC devices began ramping up toward the end of [2000]."

-Gartner Dataquest
The debate over mobile device convergence continues, with most high-power analyst groups still expecting to see users carrying multiple devices. Combine the continued sales of email pagers, laptops, WAP phones, and handheld PDAs; with the early interest in Linux handhelds tablet PCs, and Microsoft smart phones … and it seems that there will indeed be more device choices, not fewer, in the coming years.

On the other hand, convergence believers look to the new Handspring Treo as proof of the their vision. The Treo offers Palm OS® PDA capabilities, is a GSM phone, has wireless internet browsing, and boasts “always connected” wireless Email with an integrated thumb keyboard. European telecomm provider mmO2 has announced the xda, a similar device based on the Pocket PC platform.

The implications for enterprise computing are important. Increasingly powerful devices will support a broader array of applications. Mobile computing will provide cost savings and productivity boosts to a wider variety of business processes.

**More Networking Choices**

New forms of wide area networking (WAN) are available to connect the mobile devices back to the corporate IT environment. POTS (Plain Old Telephone Service) dialup modems have stabilized at maximum speeds of around 56K. DSL and Cable modem technologies, lumped under the heading “broadband,” are being successfully promoted to both consumers and businesses.

For the most part, wireless networks don’t feel terribly different than they were two years ago. The over-hyped 3G networks of the future are probably still at least several years away due to spectrum allocation issues, technical glitches, and the monumental network build out effort required. In the meantime, many telecomm firms are realizing that 2.5G services such as GPRS might be easier to provision and quicker to revenue in the short term.

Reasonably far along in Europe and parts of Asia, the Americas have seen only extremely limited pilots for 2.5G in select test metro areas. We expect the telecomm companies to continue to over-hype both the bandwidth and timeframes they can deliver in.

The reality is that aggressive companies are making wireless investments, building their skills and realizing a return on investment (ROI). Many more are sitting on the sidelines watching cautiously. There is a sense that big bandwidth, universal coverage, and total reliability are still a long way off for wireless. But certain situations offer compelling reasons to move ahead regardless, relying on the right technology to compensate for occasional inability to connect.

We also urge companies to remember that going mobile doesn’t necessarily mean relying exclusively on wireless. There are many applications which support the business goals using occasional synchronization over a wire line connection.

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Cost of Ownership Issues

Companies are increasingly looking at device proliferation and connectivity options, and weighing the costs and benefits of going mobile. As noted above, the price/performance ratio of mobile devices is improving steadily thanks to both technology gains and price wars. The current low-end Palm device sells for less than 30% of what we remember a similarly equipped model costing three years ago. Palm’s web site indicated pricing of $99 for the M-100 in mid-January 2002.

Due to recent research published by analyst firms, there is heightened awareness that the total cost of ownership (TCO) of handhelds exceeds the simple cost of the device. The cost of providing support, network connectivity, replacement units, training, and software all contribute.

Fortunately, companies can take steps to dramatically reduce the cost of ownership of both laptops and handhelds. Commenting on their computation for TCO, Gartner writes “End-user operation costs represent about 40 percent of all costs, primarily due to the time investment required to keep PDAs synchronized with user desktops or servers.” Centrally-managed mobile infrastructure software can mitigate the need for manual device synchronization, thus dramatically reducing TCO by paring back this dominant cost component.

Mobile device TCO can be further reduced by enforcing policy management and technology for automatic healing of devices. Because traditional LAN-based systems management tools do not work well for mobile devices and remote connectivity, the mobile infrastructure components must provide the systems management functionality. Payoff on these types of investments is quick and can yield major reductions to TCO. See sidebar.

Thus there are a variety of steps that corporations can take to limit mobile device TCO to a reasonable figure. Many are tied to the mobile infrastructure technology that will support any mobile initiatives.

Mobile Infrastructure Focus

As companies expand their mobile computing deployments, the need for mobile infrastructure software becomes more evident. Some components, such as data sync or email sync, are simple pre-requisites to certain mobile initiatives. As noted above, systems management and server synchronization also play a key role in minimizing TCO.

Many short term infrastructure component decisions are being made on a project-by-project basis. Companies should anticipate the need to support a variety of initiatives, and select a standard infrastructure solution that offers broad device support and deep functionality.
Unlike two years ago, many more mobile middleware vendors have now sensed this trend and moved to respond with a “complete” solution. Unfortunately, many of these “complete” solutions are the result of bundling several non-integrated point solutions together through acquisitions and partnerships. This approach doesn’t solve the problems created by deploying multiple point solutions. Beware of non-integrated solution bundles, they may actually drive up cost of ownership despite vendor promises.

Sync Powering Offline Access

Many people make a subconscious assumption that enterprise mobile computing implies a specific type of application architecture. They assume online real-time access to corporate information via thin clients on mobile devices. The problem with this approach is that spotty network coverage or unavailability of phone ports can render thin-client applications useless – often when they are needed most.

Many corporations have experimented with the online access model and found their workers unable to connect to the network when they need access to data and applications. Only an offline model based on synchronization can support their needs. This is why vendors that offer toolkits or solutions focused on pure real-time access have been forced to re-architect their solutions or partner for offline capabilities.

Gartner comments on this trend in a paper about the Wireless Application Gateway (WAG) market – once dominated by a focus on real-time access. See sidebar. UK analyst group Quocirca echoes these sentiments in their write up of survey results from interviews at the November 2001 event “Mobilising the Enterprise”:

“WAG support for offline work is on the rise. The limitations of thin-client/online browser metaphor mode over suboptimal wireless networks are causing WAG vendors to extend their functionality to include support for offline work in future releases.”

-- Gartner

Another driver is the cost of the network connection. If the application must be network-connected whenever it is in use, connectivity costs can be unnecessarily inflated. Offline access based on synchronization can drastically reduce these communications costs.

Mobile B2E Outpaces M-commerce

M-commerce was the subject and driver of much of the early wireless hype. Proponents envisioned a world where consumers shopped happily via wireless web devices including phones and PDAs. Consumers, particularly in the US, have been slow to shift buying patterns as expected. Limited screen size and slow performance are to blame.

A study released in mid-2001 by management consulting firm A.T. Kearney quantifies the change in attitudes as the hype has died down. The Industry Standard summarized the study, publishing the following:
“Researchers surveyed more than 1,600 mobile phone users throughout the U.S., Europe and Asia and found that only 12 percent said they intend to engage in m-commerce transactions. That’s down from 32 percent just one year ago. And less than 1 percent have actually made any purchases with their phones in the past year.”

The place that mobile technologies are gaining the most traction in the enterprise is with Business-to-Employee (B2E) applications. Companies are finding cost-savings and productivity increases by arming their staff with mobile devices and mobile information access.

In a recent article highlighting the results of a META Group study titled “Wireless Adoption, Trends, and Issues,” CyberAtlas notes the following:

“As might be expected, organizations with heavy use of pervasive devices by employees are more aggressive in implementing leading-edge wireless/mobile infrastructure components. Several studies have found that the first priority of implementation is for business-to-employee (B2E) applications, because these applications deliver the most immediate productivity return for organizations.”

We look at a wide variety of such applications in the coming sections.

**IT Spending Trends for 2002**

Despite the economic slowdown, several surveys indicate that IT budgets are up in 2002, if only slightly. Network World, in a November 2001 article, quotes recent studies by Gartner Group and IDC as offering predictions of 1.5% and 1.0% growth respectively. CNET News.com offers a similar prediction of 2.0% growth referencing a Morgan Stanley study. InfoWorld quotes a Merrill Lynch report predicting 3.0%. These are presented in the order they were published – note the steady increase in optimism from the November Network World article up through early January’s InfoWorld article.

These modest growth predictions hide very mixed priorities for different types of technology products. High on the priority list for increased investment in nearly every study is security. Customer Relationship Management (CRM) and e-business applications are consistently ranked near the top as well. Mobile technology is very often wrapped up in these types of projects. The Network World recap of the Gartner study showed PDA devices being in the top four categories targeted for enterprise IT dollars in 2002. The growth in these categories is at the expense of PC upgrades and outsourced IT services, both noted in several reports for a decrease in spending.
A Value Curve and Two Approaches

Synchrologic has observed two patterns to the typical evolution of mobile computing deployments within different corporations. The following graphic depicts a range of mobile computing initiatives available. It highlights that the greatest potential value add and ROI is with mobilizing the core enterprise application set.

Interestingly, companies tend to start at one of the ends and move toward the other. Some focus first on the big wins of mobilizing enterprise applications before pursuing other initiatives. Others start small and inexpensive, providing basic productivity tools first, and moving up the curve as they gain confidence.

Wireless or Wire Line, Take Your Pick

While the promise of the broadband wireless future is great, many companies find a hybrid mix of wire line and wireless to be a more realistic approach today. Depending on their changing circumstances and location, users may employ whatever type of connection is available at any given moment. Other companies find the higher costs and lower performance of today’s wireless networks to be unacceptable. Of course, in the right circumstances and with careful design, firms can successfully deploy high value-add solutions based purely on wireless connectivity.

The decision on connectivity comes back to cost considerations, the value add of the application, frequency of information update, geography, business processes supported, and a variety of other factors. Many times, wire line does the job or plays an important role. People tend to forget this and get caught up in the wireless hype.
The Enterprise Seizing Control

A big change in the past several years is the move towards greater IT control of handheld devices within the enterprise. Companies are beginning to take control of the handheld invasion. Common recommendations are for IT to approve standard devices that business units can choose from to meet their specific needs. Actual purchases may be made centrally to secure volume pricing.

With centralized purchasing comes the need to track the devices, driving growth in the mobile systems management market. Enterprise IT departments that ignore the adoption of handheld devices by mobile workers risk repeating the pains of the PC invasion of the early 1980’s.

Another trend is the movement away from desktop synchronization of handhelds towards a server-based model. Desktop sync was simple to set up for individual users, but lacks the security and central administrative tools that server sync offers. The server-based approach also allows users to sync their handheld from a wireless modem, without being cradled into a companion laptop or PC.

Forces Driving Enterprise Mobile ROI

Enterprise mobile computing initiatives have delivered significant value to organizations that have deployed them over the past few years. Three goals are the most common drivers:

- Boosting mobile worker productivity
- Cutting costs by automating existing processes
- Building competitive advantage

The first two goals typically involve up front ROI analysis that quantifies the benefits. Just as often, we find companies that see such clear competitive advantage that no formal ROI calculation is necessary to secure funding. And for many deployments, there are elements of all three benefits. Let’s take a look at some examples.

Boosting Mobile Worker Productivity

Gains in mobile worker productivity can come from a variety of sources including time savings, ability to service more customers, elimination of unnecessary administrative effort, and many more.

Mutual Funds Company

Technology solutions provider Pyxis Consulting, based outside of Boston, MA, services a large mutual funds company. They built an SFA application for Palm handhelds to complement an existing laptop-based SFA solution that was not widely adopted. The users are channel sales representatives who manage relationships with third-party financial advisors. The handheld platform worked better because of the instant-on capability, and small form factor for easy carry-along.
The application enables the field sales representatives to engage in more revenue-producing sales meetings by setting up replacements for cancelled meetings, and identifying prospects for opportunistic walk-in meetings. They also now have historical sales information at hand during sales meetings. These capabilities make the users more effective, and less reliant on calling into the inside sales call center to get information. Based on the added revenue from optimized field and inside sales activity, the company is ahead of schedule for a two-year payback based on added revenue.

**Government Agency**

A large government agency used handhelds to automate the process of delivering and retrieving radioactive materials throughout their office and laboratory campus. Couriers used to stop in at a central office to pick up and drop off paperwork at the start and end of each day. Now they synchronize a handheld device remotely to pickup their daily route and send back the completed electronic forms.

The couriers spend more time on their core function, and less time worrying about the administrative end. They are able to complete more pick ups and drop offs, keeping up with growth in demand for their services without requiring more headcount. Savings were also found in the reduced cost of producing the paper forms and of the data entry associated with the old forms.

**Pharmaceuticals Firm**

One of the top global pharmaceuticals firms recently put in place a standard platform on which to deploy multiple sales automation applications. Previously, the company used applications that were based on a real-time dialup architecture. Users found dialing in too inconvenient and slow. And without mobile systems management tools, it was too time consuming and overly expensive to update the software with any frequency.

Using web-based technologies and an offline application architecture supported by synchronization and mobile systems management, a new generation of applications has been rolled out. These include literature ordering, product launch scheduling, viewing product information, scheduling marketing events, and managing their marketing budgets.

When conditions change, or new products are launched, the IT staff can respond quickly. It is now possible to build and deploy applications within several months, eliminating 80% of the previous cost. Though the cost savings is impressive, the true goal of the effort was to improve responsiveness to changing business needs and give the sales force pervasive access to productivity-enhancing tools.
Computer Accessories Manufacturer

Executive management for a computer accessories manufacturer rely on daily updates to key executive reports including “sales versus plan” analysis. And their fast-changing product line requires new pricing and product information updates for the sales team several times per week. All of this information existed in a variety of files and reports that were easily available in the office, but not on the road. Executives and sales people phoned in to the central office frequently for this information, even though they already carried handheld devices.

IT management saw an opportunity to make everyone more productive with easy access to this vital information. Using file distribution technology, they automatically route the daily updates to the handheld devices of executive management and the sales team. These users have instant access without doing anything different or worrying about how the data gets there. IT bought the server-based software, and had it up and running within a day for a quick, inexpensive productivity boost.

Telecommunications Provider

A mid-size telecommunications carrier wanted to boost mobile worker productivity by enabling mobile access to Email. After a successful initial pilot with corporate management, it rolled out the technology to a broader base of customer-facing employees. Staff are able to recover productive time between appointments, at airports, etc. Email doesn’t pile up while they are on the road, allowing them to be more responsive to their peers and customers. In addition, they are able to directly demonstrate the benefits of the wireless data services they sell to customers.

The time savings and increased effectiveness resulted in clear ROI that justified continuation and expansion of the project. With the cost of devices and the Email sync software as low as they are, you don’t need to save too many hours of staff time to justify this type of project. Assume a TCO of $500 for the handheld, based on aggressively pursuing the TCO-limiting tactics identified above. If a professional earning $100K per year (fully burdened) gains an extra two hours of productivity per week, the up-front project costs pay for themselves in less than two months. The ongoing ROI against monthly connectivity charges is almost 800%. Regardless of industry, any organization can benefit from this type of scenario.

Cutting Costs by Automating Processes

Small investments in mobile technology can dramatically cut expenses ranging from telecommunications costs to the cost of printing and shipping paper reports. Each of the following projects had a compelling ROI justification based on reduced costs.
Diversified Commercial Products

A large US manufacturer leverages their relentless product innovation to dominate in a wide variety of commercial products sold to industry and government. To help their divisional sales teams effectively manage their territories, a comprehensive portfolio of sales analysis reports was shipped to each sales rep several times per month. With dozens of divisions each with hundreds of sales reps, the annualized cost of sending these reports was significant.

An application was created to allow sales staff to view the same data. It offered interactive querying and analysis to make it easier to get meaningful information. Mobile systems management and file distribution allow the company to send updates to the application and data files each week via a quick 5 minute sync session. The cost savings from eliminating paper report production and shipping is roughly $3,000 per representative per year…adding millions of dollars to the corporate bottom line.

Shipping and Logistics Company

The international shipping and logistics company Maersk Sealand needed to enable mobile use of a container tracking and sales forecasting system. Before integrating advanced data sync software, users had to endure lengthy dialup sessions to get updated information. By shifting to new technology that efficiently supports offline application use, telecomm costs were reduced by over 95%.

The sales reps spend less time dealing with communication delays, and more time managing customer accounts. Based on these benefits, the project was easily justified given a payback period of 7 months and a three year ROI expectation of over 1,500%.

Commercial Cleaning Solutions Provider

Ecolab, with $2 billion plus in annual revenue, provides complete cleaning, sanitization, pest control, and maintenance solutions to commercial clients ranging from grocery stores to hospitals. Keeping track of a growing customer base and all of their specific service needs is a challenge that demands good data and analytics. Ecolab deployed Synchrologic technology as a standard mobile infrastructure solution to power a variety of applications and functionality for several divisions.

Clear benefits included enabling territory managers to better serve existing customers, allowing district managers to spend more time on high value-add mentoring activities, shortened sales cycles, and quicker invoicing. These hard to measure benefits were compelling, but Ecolab also was able to predict a payback on the initial project of less than one year based solely on the elimination of paper forms and data entry.
Oil & Gas Services Firm

A Fortune 500 company provides diversified oil and gas field services to the energy industry. Working closely with one of the Big 5 consulting firms, they have built standard methodologies for providing unmatched quality of service. New practices and technologies are tested aggressively and rolled out to field operations via an intranet site which houses documentation, reference materials, and important forms.

Field employees are often located in challenging remote sites without any consistent network connection. To ensure they had access to these critical materials, the intranet site was burned onto CD and shipped to each employee periodically. The cost was roughly $100 per year each for over 30,000 workers. This expensive process was replaced by deploying file distribution software that is thoroughly optimized for intermittent connections. It is expected to save over 50% of the above amount and pay for itself in less than a year.

Building Competitive Advantage

The right choice is obvious when a company can quantify the productivity gains and cost savings of deploying mobile technology. For many companies, the need to operate better, move faster, and stay ahead of competition is so compelling and obvious, that no formal ROI calculation is necessary.

Property & Casualty Insurer

Royal & SunAlliance (R&SA) is a dominant player in the global property and casualty insurance market. In addition to providing insurance products, R&SA offers risk engineering services to help identify and address risk areas such as environmental or fire damage to facilities. Inspections of customer facilities result in assessment reports that were previously forwarded to customers via mail for receipt weeks after the inspection.

Royal & SunAlliance pioneered a new way of doing business. Risk engineers complete their assessments onsite using a laptop application which synchronizes wirelessly back to a central data store. Customers can view their site visit reports in the database using a Web browser – within hours or days, not weeks. This added capability is a powerful differentiator for R&SA in competitive selling situations.

Armed Forces Recruiting

Competition for potential recruits is fierce between branches of the armed forces. A limited number of candidates and a narrow window around high school graduation make timing and performance the keys to meeting recruiting mission goals. Time-honored practice at one branch of the US military involved routing inquiries by potential recruits through the chain of command using triplicate paper forms to facilitate tracking. The situation was similar at the other major branches, resulting in inevitable follow-up delays of at least a week.
This branch of the military is streamlining their process by eliminating the paper forms using laptop and handheld devices, a streamlined candidate scoring application, and mobile infrastructure software. With the new system, inquiries will flow into hands of the field recruiters within 24 hours of receipt. Officers throughout the chain of command can view summaries of recruiting performance against goals. Most importantly, this branch will be able to respond faster during the critical window of opportunity, ensuring their continued leadership in this area.

**Franchise Restaurant Company**

A large restaurant company relies on independently owned and operated franchise locations. A major initiative was to standardize the software and systems throughout their entire network of over 6,000 stores. A key element of this plan is using mobile computing software to back up the operational data from each store daily at the company headquarters in a central database.

Using the backed up data, executive management at the corporate headquarters get summary reports of daily chain operations by noon each following day. They are able to analyze the results of promotional campaigns and make adjustments with incredible speed, outmaneuvering their competition. In addition, franchises benefit from an improved support of their systems, including having vital data backed up at the headquarters server in case systems are compromised in their location.

**Executive Recruiting Agency**

The success of an executive recruiting firm is defined by its ability to quickly locate suitable candidates to meet pressing client needs. Dealing with high level candidates and client contacts demands extreme professionalism and responsiveness. To keep ahead of the curve, one leading global firm has outfitted their consultants with wireless handheld access to Email and the Contact and Calendar information stored in their Microsoft Exchange server.

Their associates are able to access and respond to inquiries, and be just as reachable via Email as they are by cell phone. Other corporate intranet applications are also available over the wireless connection. By being quicker and more connected, they continue to outperform their competition and provide unmatched service levels.

**Life Insurance Provider**

USAllianz is a division of one of the world’s largest insurance companies, Allianz AG. USAllianz sells variable annuities, a product typically sold through third-party wholesalers who maintain relationships with independent insurance agents. USAllianz decided to take the wholesaling function in-house. They hired and trained a new sales force, and gave them CRM tools powered by mobile infrastructure software for access anytime, anywhere.
With the mobile CRM solution, USAllianz gained control over sales and marketing activity, and built stronger relationships with the agents who sell their products. The company is also able to quickly adjust sales tactics in reaction to market trends.

**Consumer Electronics Company**

A consumer electronics company recently armed their route sales team with tablet PCs and a custom-developed merchandising application. Point-of-sale displays, shelf space, and adequate inventory are the difference between winning or losing the market share battles that dominate their industry. Using a mobile application powered by mobile infrastructure, reps visit retailers to monitor and collect data on store layout, inventory and competitor promotions.

This gives the marketing strategists at corporate headquarters a huge advantage in competitive intelligence. The users benefit from having a tool to help them schedule their activity and place orders for product and promotional materials. Based on the competitive impact of the deployment, the project team received a special award from the CEO of the corporation at a recent company meeting.

### Getting Started on Your Mobile Strategy

Mobile computing offers these benefits and many more. Some applications are relatively obvious. But careful examination of business processes, familiarity with available technology, and some creativity can help you unlock the hidden opportunities within your environment.

META Group analyst Peter Firstbrook offers some solid summary advice:

> “Start by defining a business problem that can be solved with wireless technology, rather than focusing first on the technology or hardware. Above all else, keep applications simple and avoid feature creep at all cost. Focus on the two or three top functions that mobile users really need to get the job done. Because users will roam in and out of network coverage, design server applications to save state and client software to work offline and queue messages. Create a pilot with a small number of technologically savvy users first to get the bugs out.”

21
Core Recommendations

How should business unit leaders and IT professionals get started? Consider also the following points:

- Select a standard mobile infrastructure software solution
- Analyze potential users and business processes for fit
- Standardize on the right devices for each user community
- Remember you can go mobile without relying on wireless
- Develop a plan to mobilize existing enterprise applications
- Look for new applications that can improve processes
- Look at connectivity options that are right for today
- Enable basic connectivity to groupware, files, intranet, etc.
- Deploy systems management tools from the outset
- Look for ways to enhance services and products
- Engage key services and product partners in dialogue
- Begin to build key skills now with pilot deployments
- Keep up to date as mobile technology develops rapidly

Other Resources

Synchrologic offers an executive white paper “CIO Outlook 2001: Architecting Mobility,” which offers additional guidance for getting started. It is available at www.synchrologic.com/whitepapers.

Synchrologic also offers a free weekly industry newsletter comprised entirely of information from leading news sources – not vendor hype. Signup online from any page on our website.

Mobile Infrastructure

A key element of all your mobile computing initiatives will be the mobile infrastructure software that powers individual applications, moves content to and from mobile devices, and helps IT manage the devices centrally.

We highly recommendstandardizing on a single mobile infrastructure platform. As this paper draws to a close, we identify the benefits of adopting a single solution, and then look at a variety of business goals that your mobile infrastructure solution should support.

The Benefits of a Single Infrastructure Solution

Supporting multiple mobile initiatives through a single platform has a host of extremely intuitive benefits. Unfortunately, through lack of CIO level coordination, many companies have deployed a variety of point solutions and been unable to reap these benefits. We urge all IT professionals to look to the long term and big picture, and power their mobile initiatives with an infrastructure solution that will serve the full needs of the organization today – and tomorrow. Embracing a standard comprehensive solution delivers these benefits:
• A single point of administration requires less training
• Decreased effort to evaluate and negotiate with vendors
• Decreased costs by consolidating your purchasing power
• Simple experience for users based on a single client interface
• No vendor finger pointing when resolving support issues
• No cost associated with doing unnecessary integration work
• Elimination of duplicate administrative tasks
• Ability to more easily and quickly roll out new applications
• Decreased hardware costs based on a standard platform
• Overall lower license, maintenance, and support costs
• Elimination of duplicate administrative tasks
• Ability to more easily and quickly roll out new applications
• Decreased hardware costs based on a standard platform
• Overall lower license, maintenance, and support costs
• Protects the investment in existing mobile hardware

In summary, organizations that choose a standard mobile infrastructure see stronger contributions to the bottom line and improved ability to compete as they leverage the power of enterprise mobile computing.

What to Look For

The discussion below highlights key attributes that IT should look for in mobile infrastructure solutions, organized by the business imperatives supported. These lists present only key high level requirements and are not comprehensive. If you have a specific initiative under way, Synchrologic’s sales and consulting teams can help you define detailed requirements.

Contain the TCO of Devices

Existing systems management tools typically don’t support the full range of new mobile devices, and are not at all optimized for the reality of mobile communications. Low bandwidth, occasional connections, and frequently dropped lines wreak havoc with traditional systems management solutions. Yet these systems are vital for managing upgrades, rolling out new software, planning for hardware replacement, and facilitating remote user support. Luckily, systems management solutions that are truly optimized for the mobile environment are available as part of your mobile infrastructure. Look for these features in a mobile systems management solution:

• Remote software installs and upgrades
• Mobile device hardware and software inventory
• Administrative alerts to avoid device failures
• Wizards for configuring install/updates without coding
• Non-proprietary coding for advanced requirements
• Check-point restart, byte-level differencing
• Publish and subscribe model to support different communities
Cover Basic Productivity Needs Securely

One of the most basic needs for mobile staff is the ability to easily and quickly access Email and PIM data such as Calendar, Address Book and Tasks. The handheld device is more and more frequently the platform of choice due to its form factor and instant-on capabilities. This requires integration between the handheld device and the Microsoft Exchange or Lotus® Domino™ groupware server. Look for these features in a handheld Email and PIM sync solution:

- Multiple sync setting profiles for different situations
- Server-based approach for security & wireless support
- Wide range of configurations to tailor to individual needs
- Advanced logging & reporting to facilitate troubleshooting
- Automatic mailbox discovery for changed server locations
- Support for multiple simultaneous authentication methods
- Proper handling of “Read” marks and meeting requests
- Proper handling of recurring events and exceptions to them
- Automatic connections to server to stay “always updated”

Cut the Costs of Sending Information

Mobile workers need access to a wide range of reference materials, reports, documents, and other information typically stored in files or on intranet and web sites. In order to ensure this material is available whenever its needed, vital content should be stored locally on the mobile computing device and automatically updated. This approach can also drastically cut networking costs, and eliminates the expense of producing and distributing physical documents. Look for these features in a mobile file and intranet/web publishing solution:

- Wizards for configuring information delivery without coding
- Intranet/web site spidering to further simplify configuration
- Non-proprietary coding for advanced requirements
- Check-point restart, byte-level differencing
- File backup from device to server
- Publish and subscribe model to support different communities
- Automated scanner to detect updates and coordinate staging
- Transcoding of common formats for viewing on Palm devices
- Guaranteed delivery and versioning of documents
Streamline Processes and Mobilize Enterprise Applications

Handheld devices are ideal for supporting new applications that streamline existing data collection, inventory, surveys, and other business processes. Both handhelds and laptops are capable platforms for mobilizing your existing enterprise Customer Relationship Management, Sales Force Automation, Enterprise Resource Planning, and Supply Chain Management applications. Data synchronization technology ensures that business can proceed as usual even when network connections are unavailable. Look for the following features in a data synchronization solution:

- Store-and-forward architecture for offline use
- Field-level change capture to streamline communication
- Change capture options including ODBC, triggers and logs
- Wizard-based configuration and mappings – no coding
- Support for data sharing logic and complex schema
- Sophisticated error handling and notification
- Detailed logs for troubleshooting and recovery
- Flexible data collision management and resolution
- Compression, check-point restart, transaction serialization
- Non-intrusive to applications and database schema

Guaranteed Performance and Manageability

It is important that the mobile infrastructure components perform to enterprise standards, and are reliable to provide a consistent user experience. Administrative capabilities should be comprehensive, powerful, and easy to manage. Look for the following enterprise-class attributes in your mobile infrastructure solutions:

- Single integrated management console for all functions
- Support for laptops, tablet PCs, handhelds, phones
- Encryption and secure client authentication
- Clustered servers with fail-over and dynamic user assignment
- Uncomplicated user experience with a single client interface
- Integration with LDAP, Active Directory, iPlanet
- Support for major wireless protocols
- Support for all major client and server databases
- Seamless integration with existing business applications
- API’s for integrating with existing applications & processes
- Remote administration capability
Closing

We hope you find this executive presentation of trends and recommendations helpful in building your organization’s mobile strategy. Mobile computing is an exciting area that offers rapid payback from cost reductions and increased productivity and revenue. Despite the economic conditions in early 2002, we are encouraged by the number of companies we deal with that are pushing ahead to build competitive advantage and contribute to the bottom line.

If you would like additional assistance from Synchrologic in pursuing your mobile initiatives, please contact us as noted below.

About Synchrologic

Synchrologic’s mobile infrastructure solutions create competitive advantage by increasing mobile worker productivity and decreasing total cost of ownership of mobile devices. The company’s flagship product, iMobile Suite, mobilizes enterprise applications, automates the delivery of documents and Web sites, and provides mobile systems management tools – for laptops, handhelds, and smart phones.

Synchrologic offers an intuitive and user-friendly experience, robust administrative capabilities, open platform architecture, and the most comprehensive mobile infrastructure functionality available. With Synchrologic, mobile workers have access to the information they need – wherever and whenever they need it. System administrators benefit from a central administrative console for securely managing mobile devices and the information they receive.

Key customers and partners include 3M, Citicorp, Domino’s, Hertz, Nintendo, Pfizer, Microsoft, NEC, AvantGo and Accenture. The company is privately held with headquarters in Atlanta, Georgia, and European offices in London, Munich and Milan.

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Footnotes