



## **Can high speed wireless handhelds work in your business?**

### **What you need to know to put the high speed networks and phone-PDA devices to work on real business problems.**

There is a big push now to bring wireless handheld computing into the world of business practicality. There are wireless networks as fast as dial-up 56K modems, which is pretty impressive. There are messaging pagers, advanced PDA's, pocket computers and sophisticated hybrid devices that combine the handheld and cell phone in one unit. So how do you connect the dots between the technology collections and the business problems at hand? You will need to decide what collection of network, device, software and in-house commitment will provide the functionality needed to address real problems like portal access, custom application deployment and even secure email. Here is where a breakdown and analysis can offer some help.

This article will cover the three areas of decision making that will go into building a wireless solution. You need to pick a carrier network, pick a handheld devices (or group of devices), and pick the software that will enable the task at hand. You may think that the business software comes bundled in with the network or device, but it doesn't. It is in fact the area that is currently least clear-cut, and thus requires the most thought. But first, we look at the other considerations.

#### **Let's get the network question settled first**

Basically, a data transmission rate of 40-70 KB per second is considered high speed right now. That's the same speed as your old dial-up 56K modem (and thus the need for special software that speeds up data transfer). Whether it is from Sprint, Verizon, AT&T, the differences in performance will be the same as with your cell phone. Got good coverage where you need it? You're all set.

If you are inside your campus, or at a wireless "hot spot" at a coffee shop or airport, you can take advantage of wireless LANs (802.11a or 802.11b, also known as Wi-Fi). They work great, and are about as fast as DSL or cable modems, but once you are outside of the building you must use a cellular service.

### **Classes of devices and their general application**

There is a range of handheld devices in different shapes, sizes, and prices. The important items for this discussion can be seen in four categories.

There is the text messaging specialty device, a category pretty much owned by the Blackberry devices. If your business problem can be addressed by straight text messaging, look no further. These work off the old pager system, and so they carry the inherent value of instant message delivery -- as long as the device is on and the messages are simple and short. For large deployments, dedicated servers and software are needed, which can run up a pretty penny to fully implement. But many opportunities to capitalize on mobile access are missed by the narrow constraints of the text messenger.

There is the PalmOS based PDA, a category that has undergone a metamorphosis with the appearance of the PDA-phone hybrid, or combo device. The combo device brings a nice color screen, built in networking capability, and a cell phone. These lovely little sci-fi items are now quite smart and with relatively long lasting batteries. They can do a lot. One such device is the Handspring Treo. With third party software, this device can access browser-based email, attachments, public web documents, and with customization, have access to intranets, portals, and custom data base applications. Until you bump up to the higher powered and larger PocketPC devices, these are the workhorses.

Finally, there is the PocketPC handheld computer, Microsoft's answer to the PalmPilot. This category includes the popular IPAQ's, and now combo devices such as the T-Mobile. All of these have more hard core computing power, for beefier tasks. Engineers and others with demanding technical tasks will gravitate to these devices. Complex

custom apps in VisualBasic are often written for these devices, and now with a network connection and third party software, these applications can be mobilized and either batch synced or have real time access to central servers.

### **Why go wireless at all?**

This is clearly not the economy to jump onto any technology bandwagon without careful consideration. But this is the right time to save money, offer customers better service or value, and to gain competitive advantage in pressured market segments. Mobilized computing could be of service. Before outlining three scenarios that offer promise for business advantage, let's first look at the initial criteria for any business considering going mobile. And note that if a text messaging system is all that your organization needs, you've already stopped reading.

The prerequisites for the "mobile" decision are as follows. Enterprise data, knowledge and communications are accessible through web, intranet or other networked computer resource. In other words, the organization is fundamentally up to date. Also, there must be personnel that perform significant tasks away from their desks. These could be senior, middle or junior personnel, and the economies of any system purchase decision will vary accordingly. What's important is that the tasks they perform materially affect the business. Finally, these people in the field are faced with dynamic situations, requiring flexibility in response, and thus precluding pre-packaged solutions. It could mean accessing data as volatile as inventories or financials, referencing diagnostic surveys in an emergency room, or obtaining the latest and most accurate regulatory requirements or safety data. All in the field. All on demand.

Scenario One: Rapid Response Technical Service. There are many situations where tech service on demand is part of the relationship between company and customer. Keeping things up and running is a critical issue from high-tech integrated circuit manufacturing down to the creakiest fossil fuel power plant. In this scenario, the whole ball of wax is response time. If a field person can access information about a problem on the spot, and further, if they can take action as a result, then the potential exists for generating a viable

return. In essence, the meter is running, and if you can shave time off a costly problem for your customer, you can either charge more or cement your relationship. Both of material value. (Please see sidebar case history relating to server uptime monitoring.)

Regarding devices, you will have to determine whether a combo device like the Handspring Treo is sufficient, or whether you need to bump up to a PocketPC platform. Software and in-house resources will be determined by the complexity of the applications in question. Simple text information can be carried easily and cheaply, but most tech service that is demanding enough to be seriously time sensitive will also be fed by secure intranet data and/or custom apps. That means you will need software. Yes, more than came in the box with the handheld and more than from the phone company. A discussion shedding light on this critical topic follows our scenarios.

Scenario Two: Streamlined Field Data Gathering Consider the case of personnel gathering data for medical or financial or emergency services. The information could be diagnostic or prognostic. The circumstances are typically haphazard, one-on-one. A handheld device, whether PalmOS or PocketPC, makes a fast, flexible short-term capture mechanism. Connectivity is important for batch downloads of data, which can be achieved in a synced mode or through a network connection. However, without a clean and clear cross-platform software path to the central servers (and related desktop users), the advantages of going “direct to digital” in the field are partially negated. In handling the custom apps written for the task, the software on the handheld and its counterpart server components need to be as seamless and low maintenance as possible. The cost of setting up separate, parallel systems for desktop and handheld use would be enough to kill this scenario. But a clean throughput could make it sing, cutting costs and getting to answers faster and easier. (Please see the sidebar case history relating to a custom diagnostic application.)

Scenario Three: Remote access to critical information. This case involves improving field responsiveness and initiative by providing access to a wealth of significant information. For example, a utility could take faster, more cohesive action by having mobile access to

all the “home office” technical drawings, street cabling diagrams, safety procedures and up-to-the-minute regulations. Here is an instance where network reliability will make a difference, as will software to cushion the blow of lost connections by permitting local review and manipulation of data already transmitted. Also, material of this nature is often intrinsically visual and diagrammatic. Therefore, third party software that permits zooming and dragging on the screen becomes essential.

- There are numerous other possibly viable scenarios, from field sales to financial. Each can be seen in light of the confluence of network, device and enabling software.

### **Tying the pieces together – the software decision**

If you only need text messaging or access to specialized “kiddy meal” PDA versions of public web material, then you can absolutely get by with bundled offerings from network service providers and handheld device vendors. You enter the dreaded “gray area” once you start asking for secure services, browser based email, attachments, or viable access to sophisticated public web sites. It is very likely that you will need stand-alone servers and additional software investments to make just these things work up to the expectations of a business user. Once you get into intranets, enterprise portals and custom apps, you are well out of the gray area and definitively into the realm of complete software implementation, with all the attendant in-house commitments of time and resources. Let’s look at software categories, as they exist in this mutable moment, and how they match up to business criteria.

### **Small packages for specific capabilities**

You can buy specific capabilities, such as mirrored email delivery, or stripped and clipped web content. The software to do these things will typically be add-ons to general service provided by the device or network vendor. The question is whether the business problem you are trying to solve fits neatly in the narrow service offering, or has to be shoe-horned in. For the three scenarios described above, you can’t go this route. Some time, thought and at minimum, server software customization has to be factored in. You can, with third party software, get a more rounded capability, but once again that

precludes custom apps, full enterprise portal functionality, and other non-standard fare. But it is worth investigating if your business information is public web accessible, such as for sales force support, with secure access and password protections. Just be sure that the third party software can handle forms, browser-based email, attachments and the other real-world requirements of basic field access.

### **Powerful toolsets to address business complexities**

More than likely, you will need to go beyond the front-end software offering and take a development path that builds off intrinsic toolset capabilities. The scenarios above are predicated on that reality. Note that all enterprise-strength solutions are client-server type, with the ideal being either:

- 1) self-contained handheld applications with well-defined back-end interfaces, or
- 2) very efficient client software on the small-brained handheld device, and the heavy lifting done fast, reliably and transparently (to the user) by the beefy server software.

The options are as follows.

Tap the resources of the device or network vendor. This implies total commitment to one device type or network service, which may be fine. If the solution they are selling truly meets your needs, you get the convenience of one-stop shopping. If it doesn't, you will be struggling to work around the limitations while managing inevitable user frustration. Keep in mind the vendors' understandable reticence to showcase limitations of their devices, or support software. Case by case, this could loom large or be insignificant. The simpler the problem, such as text-based messaging, the better this approach will be.

Build a mobile application platform from scratch. Typically, this means setting up a parallel stream for the handheld users -- tapping into the same database as the desktop systems but retooling the applications for mobile devices. You will be heading into a fairly lengthy and costly development and implementation process, not the least of which will be defining your in-house requirements. This is not just a one-time cost. The real

economic impact is the on-going maintenance. Any time the main systems are altered, the parallel handheld system will also have to be revised, tested, and otherwise consume time and money. Fundamentally, the larger your business (i.e. Fortune 500 level), the more sensible this approach could be, since the economies of a long development process and significant in-house costs will need to be balanced by a huge user group.

Go to a consulting group and their proprietary toolsets. Talk to the people who build portals, enterprise systems integration and the like, and say “take a whack at this one”. There are a number of firms with credible offerings, and most importantly, all can tap the resources of the vendors and third party software developers to build a solution. The question comes down to expertise. The limitations of the handheld devices are unique. While consultants will be fully conversant with the back-end systems, they may be gaining their handheld experience on your nickel.

If they are building from a patchwork of toolsets and not a core power-set, then you can be assured of glitches, slow running, incompatibilities, and perhaps worst of all, future face lifts on a regular basis. If, on the other hand they use a core toolset or software kit that has scope, power, and the openness to address the range of problems, then this could be a very fruitful approach for any business.

Start small by mobilizing existing applications. Find one or two small applications worth getting right on handheld devices, and get a few handheld experts to build them for you. Then fill in the holes with off-the-shelf tools that can let you immediately mobilize existing desktop content and applications. The handheld interface to desktop content may not be ideal, but you always know that the users can get the data and applications they need without hovering at your doorstep. Then you can incrementally add customized applications as the ROI becomes apparent and the devices and networks mature.

To create the initial custom applications, try going directly to the software firms developing the toolsets. That's where the handheld experts are. The cleverest of these

software developers offer clean, comprehensive services, relatively easily tailored to meet an array of needs, wholesale pricing and faster implementation. The difficulty is whether they are big enough to serve your organization. You have to assess whether their toolset and software can really do the job, and look at examples in service. If the problem is bounded, you can save a lot of money and headaches by skipping the middleman.

For mobilizing existing applications, the trick is to get mobile access to as much of your current intranet as possible while minimizing your investment. You can get software that deals with security issues effectively, works with common denominator file types, and fluidly handles changes to the base system while automatically translating it for the handheld users. The biggest risk is that these are all new players, so it may not be good to tie down to something that is maintenance heavy in the future, in case they evaporate.

### **Three decisions and you're ready to go mobile**

The network decision is the easiest. The device decision is more complex, but basically there is a low, medium and high road. Your organization or particular business unit probably knows which category they match up to properly. What kind of desktop or laptop do the same users work with? That shows who is the “power user” and who need the middle or minimum.

The software and toolset decision is the tough one. There is the safe and limited path of working directly with the device or network vendors, the consultant-based and project-oriented approach, the big project / big payoff option, and the pincer approach of attacking small problems first while simultaneously offering wide but generic access to anyone who needs it. The key is to actually try the stuff, and sift through the success stories for real substance behind the claims. See who will do limited trials and what is the time frame to test it properly. If you can't get this done in a reasonable period, you may as well move on.



After lots of promises and false starts, finally all three components (network, device, software) are in place to make going mobile a good decision for the right kinds of applications. This is a first. There is work involved in putting the pieces together, but there are also ground rules to assist. And this doesn't have to be pie-in-the-sky for a year before you can even tell if it's going to work. You can make up total system trials, test and evaluate in weeks or a month or two. That means you can act.