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Newsletter of the AICPA
Information Technology Section

What's Inside

FOCUS FOR THIS ISSUE:

Wireless Technologies and Remote Connectivity

TODAY'S WORKPLACE

EFFECTIVE COLLABORATION TOOLS PROVIDE SUBSTANTIAL ROI

By Jeffrey R. Geisler, CPA

Jeffrey R. Geisler, CPA, is senior managing director of Business Technology for American Express Tax and Business Services in Columbus, Ohio. He is responsible for organization-wide technical strategies and business solutions. Throughout his career, Jeff has specialized in performance enhancement through strategic systems planning, system selection, system implementation and project management. He has developed systems and business plans for numerous clients in a variety of industries, and has designed and implemented accounting and business management systems.

In today's business environment, many firms are using collaboration tools to cut costs and increase revenue. If your organization is like most, you probably have only been successful in reducing costs up to this point. While collaboration tools can quickly help increase productivity, our culture and behaviors are key to successfully enhancing service offerings in the future. Until then, we will turn our attention to the many uses of collaboration tools, their effects, and the real impact on driving costs down within our practices and businesses.

Collaboration tools offer the means in which various parties can communicate with one another, often at the same time. Our firm has used many different tools within the collaboration continuum, including intranets, Web conferencing and video conferencing. Each endeavor has been a learning experience providing invaluable knowledge that has helped us use each new tool more effectively. A notable example is the evolution of our video conferencing solution; now on our third revision, the current solution includes multi-point bridging for complex video conferencing, as well as simple one-on-one meetings over IP lines.

While high-tech tools are in themselves cutting-edge and somewhat cool, realizing a return on investment is a chief consideration. Using internally developed measurements, one of the greatest ROIs we realized is using video conferencing for professional development. We have hosted CPE seminars for up to 50 professionals, while broadcasting simultaneously to three additional locations. Offering training using this kind of technology has resulted in tremendous travel and expense savings, as well as time savings by sparing our professionals the hours that would have been spent traveling between locations.

Intranets

The key to a successful intranet (an internal Web site) is to begin with the end in mind. If your firm is contemplating an intranet redesign, or perhaps never had one to begin with, you should start by asking yourself three questions: Who is my audience, what are they looking for and what will they want to accomplish?

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Nielsen Norman Group *(www.nngroup.com)* reported in the *Intranet Design Annual* that intranets were severely under-funded during the 1990s and were not viewed as a valuable business tool that can drive efficiency. As a result, intranets in many companies were poorly designed, confusing and a difficult place for users to locate information. To avoid this pattern, we redesigned our intranet over the past year and rebuilt it to properly accommodate the applications and content required to meet the needs of our employees. The result is an internal Web site that is as aesthetically pleasing as it is functional for our employees.

Before creating our new site, our intranet design team collected extensive feedback through employee interviews, field studies and usability evaluations. We were adamant that the key to our success would be to build a site from the users' perspective instead of one based on our organizational structure. By doing this, our desired result was a user-friendly site to manage and advance the company's core business practices.

During our quest to build a successful intranet, we focused on several key areas:

Navigation Consistency: Good intranets focus on simplification because users want to find what they are looking for quickly and easily. The homepage should be created to draw people into the site and offer a compelling user experience. Staff should be able to easily locate clearly marked links to the most-often-used content directly from the homepage. The design also should ensure multiple ways to get to content, enable users to determine where they are in the site at all times and how to get back to where they came from.

Content Readability: Content should be written for the Web rather than print. People scan, skip and retrieve when they read a Web or intranet site. When users enter a site, they want to quickly and easily be able to find what they are looking for rather than browse through unwanted information. If they spend too much time looking for information, they become frustrated and won't return. In addition, online pages should not be too overwhelming to read on the screen.

Up-to-Date Content: The site should encourage constant change, and make it easy for users to submit their own content, stories and images. However, it also should be clearly defined who is responsible for managing and updating each section of the site. Old content often can be found on an intranet/Internet site and no one knows who is responsible for keeping it up to date. One simple way to help avoid this issue is to include a footnote at the bottom of each page with the name of the page, section owner and the date the content was last updated.

Self-Service Tools: Incorporation of the applications and tools required for performing day-to-day business within the intranet will help drive staff to the site on a regular basis. For example, we incorporate "self-service" tools into our site by allowing staff to book travel arrangements, submit expense reports, manage personal human resources and benefits information, and search and apply for internal job postings. Other site tools include instant messaging, Web conferencing and a company directory. Currently, we are workin on integrating a learning management system that will offer Web-based training courses.

Content Management: A flexible content management utility will help organize content, ensure consistency and provide a set of editing tools. Preferably, the tool should include personalization features, and the ability to incorporate email and other tools that staff depend on to accomplish daily tasks.

Remote Access: The final step to creating a successful intranet is to establish remote access. We accomplished this by implementing a Virtual Private Network (VPN) with both broadband and dial-up access to give our users the options they need to connect any time and any place.

Web Conferencing

Web conferencing gives us the ability to have effective Web-based meetings that are highly productive and cost-effective. Since presentations and software applications can easily be shared over the Web, the possibilities for teamwork and customer interaction are endless. We take advantage of WebEx (see chart on page 4) for conducting training

sessions, client demonstrations and strategy sessions without ever leaving our desks. By using the whiteboard and online chat features, we can brainstorm and share real-time notes.

Remote conferencing studies conducted by AT&T revealed that the key to success was grounded more in the uninterrupted voice quality, than in the continuity of the video presentation (data or video conferencing). This means that as long as conversation between the two parties is natural, both parties will forgive any choppiness or delay in the image. AT&T also found that video and data conferencing work better with individuals who already know each other.

Although Web conferencing cannot totally replace face-to-face meetings, as we continue to rely more and more on the expertise of others and initiating teamwork activities to meet our objectives, Web conferencing is one tool that's here to stay.

Voice over IP (VOIP)

Another option gaining popularity in today's marketplace is using the business's high-speed data connections to transmit voice and data. Although Voice Over IP (VOIP) systems cost more than traditional PBX-based phone systems, the cost-per-minute is much less, and the system can be attractive when used between two locations that must pay long-distance connection charges. In addition to reducing telecom charges, VOIP systems also enable a central receptionist and messaging system that can route calls to other locations.

A Collaborative Environment

The market is inundated with collaboration tools and we can choose from a wide array of products that will meet our needs. The danger is assuming any of these tools will be the "silver bullet" that will automatically drive down costs or increase revenue. In reality, if we have not established the culture and behaviors that drive collaboration, the most robust tool will not be used.

In the following excerpt from *"Best Practices: How to Make Collaboration Work,"* Daniel W. Rasmus refers to trust as being the foundation for collaboration, and explains four steps to building trust between individuals and organizations.

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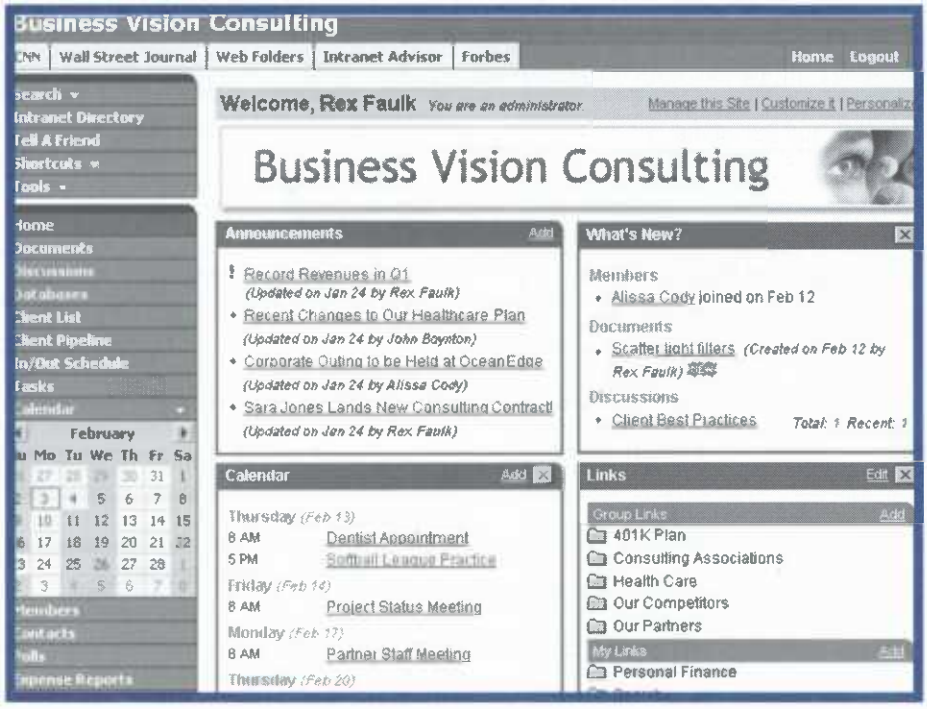
"Although Web conferencing cannot totally replace face-to-face meetings, as we continue to rely more and more on the expertise of others and initiate team-work activities to meet our objectives, Web conference is one tool that's here to stay."



A typical intranet example (source: www.intranets.com)

JEFF GEISLER presents "Strategic IT Planning for Firms" at TECH 2003: The AICPA's Information Technology Conference, June 22-25, in Las Vegas, Nev. For more information, visit *www.cpatechconf.com*.

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1. **Make sure you have your own collaboration house in order.** Collaboration takes time, and skills are involved that are best brought to a new relationship rather than learned during the establishment phase. Make sure that internal collaboration works and that the pipeline of communication is not filled with tension due to people on the inside not getting along.
2. **Hold a meeting.** It may sound archaic to get people together, but trusted relationships are hard to build online. People need to see each other, exchange stories and come to an agreement about behavior. If it is not possible to get together in person, the collaboration plan must include formal and informal relationship-building time. For the formal portion, a professional facilitator can help get people to explore/confront issues that might be trust-busters down the road. Better to get these issues out in the open early and deal with them right away, than have them break the deal later.
3. **Set clear policies during negotiations for what can and cannot be shared.** Make it clear to both sides so individuals know the other party is not just "holding something back." Formal definitions protect not only the trust relationship, but also protect the individual by not forcing him or her to decide in multiple circumstances if a piece of information should be shared.
4. **Start collaborating.** Set up a pilot, have people meet, start exchanging information and make decisions through the collaborative environment. These early efforts will iron out issues with technology, process and policy, and pave the way for more expansive collaboration efforts in the future. Make sure the business owners and information technology teams are in a mindset where they can listen and react to the pilot, or you will take too much of a risk that the learning will not take hold.

We must realize technology is only one component of successful collaboration. In order to foster trust and a collaborative culture, we must educate our staff in several areas, including facilitation, team-building, conflict resolution, brainstorming, technology, internal policies and ethics. True success always boils down to people. We will not succeed by merely investing in technology or collaboration tools; we must invest in our people and provide tools to allow them to do their jobs efficiently. ●

Contact Jeffrey R. Geisler at *jeffrey.r.geisler@aexp.com*.

Collaboration Products Reference Guide

Product	Web site
Lotus Quickplace and Sametime	www-3.ibm.com/software/collaboration
Intranets.com	www.intranets.com
Documentum eRoom	www.eroom.net
Microsoft Sharepoint and Portal Server	www.microsoft.com/sharepoint
Plumtree	www.plumtree.com
Vignette	www.vignette.com
Intraspect.com	www.intraspect.com
WebEx	www.Webex.com
Placeware	www.placeware.com
Microsoft Net Meeting	www.microsoft.com/netmeeting
Polycom	www.polycom.com
Creative Labs	www.americas.creative.com

REMOTE CONNECTIVITY

PERVASIVE COMPUTING FOR THE NOMADIC USER

By Bob Gaby, CPA, MCP

Bob Gaby, CPA, MCP, has more than 20 years' technology consulting and public accounting experience. A founder and principal of Information Technology Group, Inc., in Encino, Calif., he specializes in the design, implementation, integration and support of client/server accounting systems, business management solutions and custom applications for the distribution industry.

According to the *American Heritage Dictionary of the English Language*, a "nomad" is "A member of a group of people who have no fixed home and move according to the seasons from place to place in search of food, water and grazing land."

In the traditional sense, nomads are not very prevalent in our part of the world. In a business sense, many individuals exhibit nomadic behavior every single day. Moving from place to place in search of new sources of revenue and greener pastures, nomads are rarely in any one location for an extended period of time.

Who are these people? They are white-collar nomads — salespeople, field technicians and executives at small and large businesses alike. Always on the go, in front of prospects or customers, in meetings, in airports and in other places, these nomads require different technology tools than their more sedentary colleagues. They don't spend much time at a traditional desktop computer, but still need mobile, real-time access to information and applications.

Bottom line: for nomads to do their jobs as efficiently as possible, they need "pervasive computing," which includes three components:

1. **Pervasive Access** — Real-time access to critical information anywhere, anytime.
2. **Pervasive Devices** — Tools and system to enable the transmission of information.
3. **Pervasive Applications** — Information that's in the right format and easy to use.

Although various aspects of these components have been around for a few years, we have just entered the era where all three components can effectively work together for the average nomad. The number of pervasive devices continues to increase, along with the number of available pervasive applications. In addition, wireless technology has exploded over the last year, providing the end user with the ability to get connected just about anywhere — from conference rooms to coffee shops.

Industry sources estimate that 60 percent of enterprises are expected to deploy pervasive computing technology in the next two years. By 2006, wireless access to enterprise applications and portals will be common. Solutions will support smart and thin clients, synchronized for connected and disconnected users.

The potential for businesses to save large sums of money by increasing productivity, accuracy and customer service is significant. However, pervasive computing presents many challenges for the company seeking to provide solutions and support for the nomadic user. These challenges include:

- choosing from hundreds of available devices;
- selecting the right infrastructure/network to deliver the solution;
- delivering the solution properly through stability, bandwidth and roaming issues; and
- ensuring adequate security with user authentication, privacy and confidentiality of data.

While none of these challenges are insurmountable, successfully overcoming

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"Always on the go, in front of prospects or customers, in meetings, in airports and in other places, these nomads require different technology tools than their more sedentary colleagues."

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them is essential in order to realize the tremendous benefits pervasive computing has to offer. A roadmap for success is found in five straightforward steps.

Step #1: Define the User

The first step in marketing is to define the target market, and it's no different with a pervasive computing solution. Who is the customer? Who will be using this solution? Where will the user be when he or she needs to access the data — on the road, home office, hotel, client site, conference room or somewhere else? For businesses with multiple people in various roles, defining each individual's pervasive computing behavior and requirements is an essential first step.

Step #2: Define the Application

After defining the user's requirements, the second step is to determine what information or application the user needs in order to access or use the system. As mentioned before, many options exist, including:

- email or messaging,
- document creation or management,
- EIS (executive information system) or company portal,
- voice mail or Voice Over IP,
- warehouse management,
- sales force automation (or other customer databases),
- stock availability and
- field services.

It's important to note that user requirements/behavior and the needed applications will determine the most appropriate operating system. Choosing the platform prior to defining user requirements and selecting the appropriate applications is a common mistake. Depending on the user and application, any one of the following operating systems may be ideal: Pocket PC 2002/Windows CE, Palm OS, Linux, Symbian or Windows XP Tablet Edition.

Step #3: Define the Infrastructure

After defining the user and the application, the next logical step is to determine how the user will access the data. Is wireless access required? What type of bandwidth is required? What type of budget is available for infrastructure? Bandwidth requirements for any given application will generally dictate whether the user is capable of running in a wireless environment. While wireless speeds up to 56 megabits per second are currently available in a Local Area Network (LAN) environment, persistent connections in a Wide Area Network (WAN) environment are still slow [19 – 128 kilobits per second (Kbps)] and expensive ($40 – $99 per month). While wireless may be "cool," there have been far too many road warriors who have lost their cool because of slow or unavailable access. It all comes back to equipping for behavior and not for looks.

Step #4: Select the Device

Selecting the right device always should be preceded by identifying user behavior, applications and appropriate infrastructure. A wise consumer would never choose a car without knowing who will be driving, what the car will be used for or how much it costs. Many enterprises, however, allow their employees to freely purchase pervasive devices without defining or understanding their own requirements. It's much like putting the proverbial cart before the horse.

For example, many companies outfit their employees with expensive Pocket PC or Palm solutions to provide nothing more than email access (see "The Next-Generation PDA" story on page 9). Sure, they look cool! However, if that's the only requirement, a Blackberry device or cellular phone with email access is a much more cost-effective solution to purchase, implement, and most importantly, support.

As another example, if a user is required to access Web sites and corporate portals on a frequent basis, viewing the information on a handheld device such as the Palm or Pocket

JOIN BOB GABY
for an in-depth look at this topic during his session, "Pervasive Computing: Anytime, Anywhere" at TECH 2003: The AICPA's Information Technology Conference, June 22-25, in Las Vegas, Nev. For more information, visit *www.cpatechconf.com*.

PC may not be the best solution. A Tablet PC is just as portable, has a larger screen, and allows for easier, more efficient Web access. In this case, it's probably the better choice for this user.

Step #5: Implement Security

Unfortunately, security is often left out of the pervasive computing equation or is added as an afterthought. If a business cannot answer the question of how to properly ensure the security of the data, it should not even consider pervasive computing. As the number and damage potential of cyber attacks increase, information security ought to be a top priority.

A connection via a Virtual Private Network (VPN) or Secure Socket Layer (SSL) is imperative for a nomad's data to remain secure. Also, a strategy for properly authenticating users must be established.

Practical Examples

So what do these steps look like in real life?

Example #1 — Outside Sales

Consider a sales manager or executive that travels out of the office on a regular basis. He/she only requires access to email and corporate data via a portal solution.

Solution:

- *Application:* Email, PDF Reader and Internet browser
- *Operating system:* Pocket PC 2002 or Palm OS
- *Infrastructure:* Wireless using 2G (second generation) technology — CDMA, CDPD or GSM
- *Security:* SSL

Example #2 — The Telecommuter

This solution is ideal for an employee working almost exclusively from a home office. Information requirements include access to corporate data, document creation and exchange, data input, email, and Internet access.

Solution:

- *Applications:* Spreadsheet, word processing, email client, Internet browser, business management applications, database access and maintenance
- *Operating system:* Windows 2000 or Windows XP, with connectivity to the corporate office via Citrix Metaframe or Windows Terminal Server
- *Connectivity:* DSL, Cable or other high-speed access
- *Security:* VPN and Firewall

Example #3 — Field Service and Management

How about a remote salesperson or field technician who visits or services customers on a daily basis? This person requires access to email and corporate data, and the ability to create documents and submit data back to the corporate office.

Solution:

- *Applications:* Spreadsheet, word processing, email client, Internet browser, business and CRM solutions with synchronization capability back to the main office
- *Operating system:* Windows XP Tablet Edition
- *Infrastructure:* Wireless using 2G or 3G technology — CDMA, CDMA 1X, CDPD or GSM for the road, with broadband capability connecting from home office.
- *Security:* VPN, Firewall, SSL

Consider the Alternatives

Implementing a pervasive computing solution is not an easy task, and there are additional considerations.

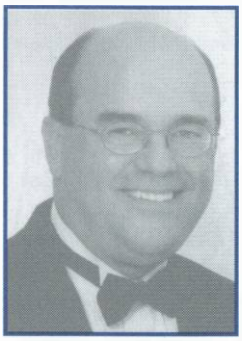
- **Wireless is not synonymous with nomadic** — The first is a tool, the latter is behavior.
- **Always think beyond the device** — This cannot be stressed enough. Focus on the larger context. Bells and whistles are impressive, but it's important not to let ego get in the way. Executives are more often frustrated by cool toys instead of being satisfied. The right device is important, but only in the context of the broader pervasive strategy.
- **100 percent anywhere, anytime persistent connections do not exist today** — Some day, pervasive computing will be performed without the inconvenience and hassle of being disconnected. That day is still way off. Until then, smart users will count on being disconnected from time to time and develop useful contingency plans.
- **Security should not be an afterthought** — Over wireless networks or a LAN, cyber attacks are an ever-growing threat. Securing the availability, confidentiality, and integrity of information and applications must be a critical component of the pervasive strategy.

Is pervasive computing in the future of your business? It should be. Examine your own needs and develop a sensible roadmap; you'll soon be ready to enjoy the freedom, efficiencies and fun of pervasive computing! ●

Contact Bob Gaby at *bgaby@itgusa.com.*

INFOTECH UPDATE PROFILE

CPA Technologist Jim Felter Provides Wireless Solutions



JIM FELTER

By Scott H. Cytron, ABC

The bottom line for many enterprises is to increase its ability to provide even more services to its current customers, while developing new business with prospects. As a CPA working in technology, Jim Felter believes he brings a unique set of competencies to help companies automate and streamline their administrative processes, with the ultimate goal of providing efficiencies well beyond the norm.

It's a real-life scenario that makes a tremendous amount of sense to his clients and customers, while creating an enviable position among other technologically astute CPAs who also want to work in this arena.

As director of Panlilio, Felter and Associates, LLC (PF), in Cleveland, Ohio, he helped form the company in 1994 after spending many years working in both public accounting and private industry. Having developed a deep understanding of technology, databases and related applications, he launched IRIS MDS, a software program that facilitates the requirements related to the electronic transmission of medical records. As PF's primary product at the time, IRIS was implemented first in Ohio and Indiana, and today, is used far beyond the borders of these two states.

Over the last decade, he has helped other clients with the automation process by combining best-in-breed technology with accessible tools. For example, he recently worked on a dealer accounting project for Volvo Heavy Trucks. On a daily basis, dealers must report sales activity, inventory and other matters back to the factory, but Volvo did not have a distributed accounting system to hand to dealers to make this occur. As a result, the time it took to provide this information was severely delayed.

PF developed a database module that turned out to be a fairly inexpensive solution, says Felter. After data is input by a dealer, the information is converted to a general ledger accounting system that the dealer incorporates with its own chart of accounts. The system creates conversion tables and the information is transmitted to Volvo Corporate.

One of Felter's projects over the last few years was to help Meritech, Inc. increase the number of field service calls its technicians made each and every day. Meritech is a Cleveland-based office products dealer that specializes in Minolta. Because many of the service calls were already on paid contracts, little cash was generated as a result of a typical call. In turn, service representatives were spending too much time filling out paperwork when the time could have been spent more productively in servicing current customers and working with new prospects.

To solve the problem — and once again develop a solution that was relatively inexpensive — four years ago, Felter and his team created a database application through a Web site called DAWN — Data Access Wireless Network. Providing real-time information on Meritech customers, the tool behind the solution was to provide service reps with various brands of laptops and Sierra wireless networking cards. Instead of manually completing paperwork, reps now provide data through the Web site via the wireless connection.

"The process is instantaneous, but more importantly, Meritech's service calls increased from an average of four calls a day for each rep to six calls — an increase that is huge for the service profession," says Felter. "The game in this industry is to increase service calls, and when there is no contract coverage and the clock is ticking, the company doesn't want any unnecessary downtime."

Felter says the solution is winning applause with Meritech's reps because they feel more connected, and also have tremendous buy-in. For example, they take care of the equipment because each rep actually owns his or her laptop after three years. In addition, Meritech has closed the billing cycle for its customers from waiting a week or longer to process paperwork.

"I think the most exciting part of this is to see how the infrastructure for wireless transmission has changed, even over the last few years," says Felter. "When we started, our clients transmitted data at 19.2 Kpbs, while today, we have average speeds of 144 Kpbs. There was no doubt that one of the obstacles in developing this solution was speed, and now that's a misnomer."

Three years ago, Felter estimated it cost Meritech $186 per month in hard costs and wireless rates. Today, he believes the cost is less than half of that figure, with cards decreasing in price from $800 to $300, and laptops falling from $3,500 to about $1,500. The more reps a company has, the less expensive it is to maintain a solution like this.

"We compete against companies using pager technologies, but at the close of a service call, the technician must dial a special number and use the pager's alphabetic pad to 'close' the call." There's a ton of errors with this system. For example, if the rep has to type a 'B' using the alphabet pad, he must type '2,2" rather than a B on a regular keyboard."

Felter doesn't believe his skills are unique — just focused. As a CPA, he brings organizational skills with the ability to analyze and report data to make analytic decisions, and uses his knowledge of financial systems to integrate the accounting function. He also is involved in verifying data and ensuring its integrity and security.

All of this makes for an interesting career with plenty of room to grow.

THE NEXT-GENERATION PDA: IS THIS TOOL (STILL) RIGHT FOR YOU?

By Scott H. Cytron, ABC

How often do you use your PDA, and is it still a viable contact management tool?

Just a few years ago, you could attend a number of meetings, specifically the AICPA TECH conference, and you would regularly see dueling Palm Pilots on the trade show floor. With a shirk on their faces, CPAs would regularly "beam" their business cards to one another with sheer delight and downright enthusiasm. Gosh — it was a sight to behold!

Today, the environment is very different. Rarely would you see similar activity at any CPA gathering at the risk of looking like techno-pods. What *hasn't* changed is the CPA's dependence on technology to improve efficiencies and remain in touch with his or her office, clients, customers and business partners.

The question remains: How often do you actually use your PDA and what do you use it for? Depending on whom you ask, the answer widely varies. More often than not, many only use their Personal Digital Assistants (PDAs) as glorified address books or electronic calendars, deliberately bypassing some of the enhanced functions that were prevalent even on the PDAs of yesteryear (remember the heavy, thick Palm III with batteries?). Either the practitioner didn't have the time it took to learn how to use any of the enhanced functions, or the person did not see the need to use these functions while other tools readily exist.

Take the calendar function, for example, Most everyone has a contact management program (LotusNotes, ACT!, Outlook, Goldmine) with a calendar. If the user wanted to totally avoid the PDA, he or she could keep a calendar on the hard drive of a PC or Mac, and then print out the next day's page at the end of the current day. While this seems outrageous and labor intensive, there are many people who operate very well this way because they have not seen a need to tackle the PDA. These aren't necessarily the same ones who haven't embraced email; they just don't have a need for an electronic calendar.

Regardless of where you fall, a scenario like this has severe limitations once you consider the "networked" CPA who regularly works in the field, meets with clients, customers and business partners, as well as CPAs who commute. This CPA may spend quite a bit of time on the cell phone, setting appointments on the run. It's much easier to write the appointment into the PDA and then synch the PDA with the PC or Mac back at the office.

Consider the new PC Tablets (see Jan/Feb 2003 *InfoTech Update*). These devices easily could displace the PDA due to their ability to record actual "writing" versus writing in "graffiti" — the language understood by the Palm operating system (OS) — on a very small screen. Regardless if this will or will not happen, how could anyone put a PC Tablet into a pocket when a PDA fits so nicely?

What you Should Look for in a new PDA

Once upon a time, choosing a PDA was as simple as opting for the latest Palm. As technology improved, many vendors began to offer variations. Whether you choose Palm, PocketPC or something else, there are some basic choices to make when choosing one of the new PDAs *(source: "Finding an Easy-to-Use PDA," ZDNet.com)*.

Platform

The two main PDA platforms or OS are Palm and Pocket PC. The Palm OS came first, followed by Microsoft's PocketPC OS. Many vendors offer various models, and each has its particular strengths and weaknesses. A good rule-of-thumb is to match required tasks with available options, including input (text recognition, i.e., Palm Graffiti or thumbpads), connectivity (Bluetooth and/or WiFi) and display type (monochrome or color).

In addition to these two platforms, Linux-based handheld PDAs are beginning to infiltrate the market, and for those who have used Linux at the office or in other venues may enjoy the flexibility associated with open-source programming.

Processor

Just like a PC or Mac, the speed of the processor enables the user to speed up tasks that take more time on devices with slower processors. To compare early Palm devices with today's speedier models, the first Palm came equipped with a 16MHz processor, while today's models ship with 200MHz+. The fast processor handles tasks like mobile connectivity and the ability to display a color screen. On the other hand, the first Pocket PC came with a 206MHz StrongArm processor, which capably handled the original Pocket PC OS. Newer PDAs running Microsoft's improved Pocket PC 2002 OS are built around new processors, such as Intel's XScale, which runs at 300MHz-400MHz. Although XScale is faster, its speed only applies to applications specifically designed for the XScale processor. For most users, a PDA at 200MHz ought to suffice.

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Input Options

Anyone that has used the Graffiti character recognition program for the Palm OS understands how unreliable it is for clarity. Strokes must be made succinctly to avoid mistakes — a process that sometimes is frustrating and usually inconsistent because the user's mind is working faster than the recognition system. In January 2003, Palm announced it is working on "Graffiti 2" with much functionality than the original version. For example, if you were to write a "t" in the current Graffiti, you would write an upside-down "L." In Graffiti 2, a "t" can be written using the more conventional crossbar. However, the software also can be trained to suit an owner's handwriting style, according to PalmSource.

The PocketPC, conversely, uses what it calls a "Transcriber," which uses an application to convert any handwriting to text. PocketPC's conversion has inherent problems, too, because the system usually misses some of the characters.

Some PDA models (like Sharp's Linux-based Zaurus) now come equipped with a keypad you'll recognize from devices like the Blackberry. Using your thumbs, you type the letters instead of writing them. Those wishing to use keyboards on older devices can purchase a separate keyboard that easily attaches to the PDA, and some models even use an infrared port to share information.

Displays

While PDAs are still available with monochrome displays, most newer models have color screens. If you just need basic functions like an address book and a calendar, a device with a monochrome display is probably all you need, and it does help keep costs down. However, many users now have more technology-astute requirements, and may need, for example, to view attachments, images, charts or graph documents. These kinds of tasks necessitate a color display.

Memory

How much memory you'll need depends on how many applications you want to run and how much data storage you need. All PDAs have built-in memory - flash ROM for system software, and flash RAM for applications and storage. Some Palm and Handspring devices ship with 8MB total memory, which is adequate for basic functionality, while certain Pocket PC units have 64MB — better suited for running mobile applications like Pocket Word and Excel, and providing storage space for data.

PDA/Cell Phone Combos

The desire to communicate anytime/anywhere is illustrated through PDA and cell phone combinations. Many owners of first-generation PDAs who need a replacement may be enamored with combos, especially CPAs and their staffs who are constantly in the field.

The primary consideration of the combo unit is whether the user feels comfortable using a larger cell phone than one of the newer, sleek models that are very small. The combination of the PDA and cell phone necessitate that the unit is larger — you can't view email, a document or anything else of any real substance on the screen that comes on today's cell phone. Consequently, many users argue, too, that you can't view a Web page on a PDA.

Still another consideration is appearance. Users may not want to put a PDA up to their ears at the risk of causing severe wrist strain or looking somewhat ridiculous. For example, the Handspring Treo 300 is slightly larger than a tin of Altoids or the Queen of Hearts, but it only weighs 5.7 ounces. Compared to a cell phone, it is about 2 ounces heavier than something like the Nokia 3590, which weighs in at 3.92 ounces. Although 2 ounces may not seem much heavier, it does become cumbersome to hold; a solution, instead, would be to use the earphone and hold the device.

Cost can be a consideration as well. The combo Treo 300 runs about $500 (without phone service credits and other applicable discounts), while the plain Palm m515 PDA-only is approximately $299. At press time, the new Palm Zire 71 was just released at a similar price of $299 with some multimedia components. However, it is not a combo unit.

Choose Based on Need

When you boil it down to the basics, you must choose a PDA based on need versus luxury or having the latest gadget. If the monochrome screen on your Palm V no longer accepts certain Graffiti symbols, use the alpha/numeric input option and save your money. If virtual communications is important, then a combination PDA/cell phone may be the way to go.

Last bit of advice: do your research and talk to your peers. The Internet provides ample amounts of information, and many vendor sites offer comparisons between their own model and other vendors' models. ●

Scott H. Cytron, ABC, is managing editor of *InfoTech Update*, and has dropped his 5-year-old Palm V so many times that it no longer accepts the "i" in Graffiti. Reach him at *scytron@sbcglobal.net*.

E-BITZ focuses on practical applications of various technologies to enhance a practice or business.

E-BITZ With Susan Bradley

Cutting the Cord: Wireless Connections and Security Concerns

You need a connection in a part of your office, but there is just no way to get a RJ45 connection to that location. All is lost, right? Wrong! A wireless connection may be the answer. While it will not provide you with the same rate as a 100-speed wired connection, and despite the fact that you may need to plan for access points, for most applications where any connection is better than no connection, it is worth investigating as a viable alternative.

When setting up a wireless connection, the number one consideration is security; the transmission is not as protected as a wired connection. For a person to "sniff" a network connection in order to attempt to capture packets, transmissions and crack passwords, you need to attach a device or a piece of software on that network connection. In the wired world, that means I have to find a RJ45 network jack that is "live" and connects back into the network. However, if you have a wireless connection, that network traffic is not on a physical wire; instead, it is broadcasting through the air. As a result, you have much more control over a wired connection than a wireless . . . but that doesn't mean that you cannot take the steps to make it more secure.

Setting it up

Have you set up an inexpensive wireless connection in your home or even tried it at the office? Did you include some of the most "basic" of security measures?

Wireless access points have something called a "SSID," short for *"Service Set Identifier."* According to Webopedia *(www.webopedia.com)*, an SSID is a32-character unique identifier attached to the header of packets sent over a Wireless Local Area Network (WLAN) that acts as a password when a mobile device tries to connect to the access point. The SSID differentiates one WLAN from another, so all access points and devices attempting to connect to a specific WLAN must use the same SSID.

Your first step in setting up a secure wireless connectivity in your office is to turn off or blank out the name the system is broadcasting. Do not leave your SSID as "D-Link" or "Wlan" — standard SSIDs for D-Link and Linksys access points. Leaving your SSID with a default name immediately makes me believe that the persons who set up the wireless access point also did not change the default access password for that access point. Do a simple Google search on default passwords and you will find numerous listings, including *www.phenoelit.de/dpl/dpl.html*. I have literally seen hundreds of SSIDs that were left at the default setting.

Set the Range

Ever since the wireless LAN became somewhat mainstream, I have literally been able to find wireless LAN connections for companies while sitting in hotel rooms because the company or organization didn't set the range correctly. When setting up your wireless access point, ensure that the range it is broadcasting is only as long as you need it to be. Grab a Pocket PC, equip it with an Orinoco card and use a program called "ministumber" *(www.netstumbler.com)* to "walk" the perimeter and determine how far your signal is going.

The Minimum of Security

In each wireless access point, there is a minimum of security that you need to turn on. WEP stands for wired equivalent privacy, and can be set at a 64, 128 or 256-bit encryption. The higher the number, the larger the amount of data that will need to be captured to "crack" that key! Given enough time and enough packet captures, someone can crack the WEP code and be able to connect to your wireless LAN.

For something as simple as a home network, turn on a minimum WEP. At the office, the situation is far more serious. Given the fact that we have confidential client data, using a wireless network without even the most basic level of security is not accepting your responsibility for protection of your client's data. As you may have heard on the news, Pringles potato chip cans are extremely effective as directional devices to find and capture wireless traffic *(www.oreillynet.com/cs/weblog/view/wlg/448)* — in fact, for $6.45, you can easily rig up your own system. Combine this with a program called "AirSnort" *(http://airsnort.shmoo.com)* to capture wireless packets that are then analyzed, and one can "crack" that WEP key. If you are only going to rely on a blank SSID and WEP as your methods for making your wireless secure, ensure that you change that WEP password often and do not make it a word in the dictionary. Consider a product that generates new keys periodically that increases the "keyspace" an attacker must analyze.

Paranoia Sets in

Wireless networking is a technology that has weaknesses, so plan accordingly. Once it is set up, use tools such as Netstumbler and some of the other ones in this article to ensure your network is set up as secure as you had intended. When you perform your periodic security evaluation, assign appropriate time to evaluate your wireless network.

Last bit of advice: be "paranoid" when setting up your wireless network. You never know who is ready to pounce on your insecurities. ●

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