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## InfoTech Update, Volume 13, Number 1, January/February 2004

American Institute of Certified Public Accountants. Information Technology Section

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Newsletter of the AICPA  
Information Technology Section

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## TOP 10 TECHNOLOGIES

### 2004 Top Technologies Reflect Continuing CPA Concern for Security and Privacy

*You want your information systems secure and with no intrusions.*

As it relates to technology priorities, that's the upshot of the accounting profession's take based on the new list of Top 10 Technologies from the American Institute of CPAs. Information security tops the annual list for the second straight year, and is joined by another chief concern — Spam Technology — a new issue on the list at number two.

In its 14th year, the annual project of AICPA's IT-Member Section enables CPAs in the Section, members holding the CITP (Certified Information Technology Professional) designation and members of the Information Technology Alliance to identify various technologies that will affect their practices or businesses during the new year. More members than in any previous year voted in October 2003 to rank and discuss more than 30 technologies compiled by the Top Techs Task Force.

The 2004 list (see page 3) includes an unprecedented seven first-time entries. Rounding out the remainder of new items are technologies that lead to paperless or virtual office environments, foster synchronization and exchangeability, and ensure swift access to data.

The other two returning technologies, Wireless Technologies (number five) and Disaster Recovery (number six), are still seen as relevant, but their importance has shifted as they have swapped their 2003 positions.

The survey also explored Emerging Technologies — those expected to impact businesses and individuals further down the road in the next two to three years.

"Once again, I think this has proven to be a valuable exercise and an enlightening reflection on the speed, precision and protections our industry demands today," says Susan E. Bradley, CPA, CITP, MCP, chairman of the Top Technologies Committee. "It is also an interesting forecast of tomorrow's technology tools."

### Emerging Technologies

The following five Emerging Technologies were those receiving the most votes from a "watch list" of 23 technologies that may not have viable commercial implications at present, but show promise to impact businesses and individuals in the next two to three years. As with the Top 10, there were repeat technologies; ID/Authentication was identified last year, as was 3G Wireless. The three new emerging technologies are indicated below:

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## InfoTech UPDATE

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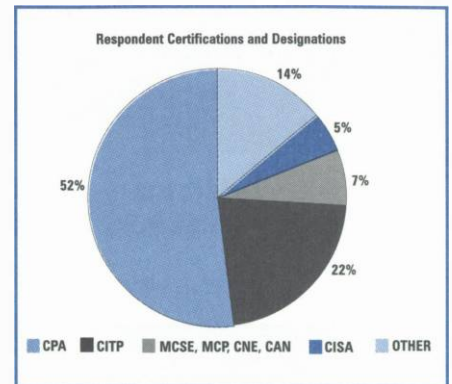
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1. **ID/Authentication.** Verifying either the identity of a user who is logging into a computer system or the integrity of a transmitted message (see related story, page 8).
2. **Radio Frequency Identification (RFID) (new).** RFID tags, which consist of silicon chips and an antenna that can transmit data to a wireless receiver, could one day be used to track everything from soda cans to cereal boxes. Unlike bar codes, radio tags do not require line-of-sight for reading.
3. **3G Wireless.** Designed for high-speed multimedia data and voice.
4. **Simple Object Access Protocol (SOAP) (new).** A message-based protocol based on XML for accessing services on the Internet.
5. **Autonomic Computers (new).** Tools and strategies to manage and maintain all systems across the enterprise, including system maintenance, upgrades, automatic patching and self-healing. (e.g. ZenWorks, Unicenter TNG, management alerts). This is an approach toward self-managed computing systems with a minimum of human interference. The term derives from the body's autonomic nervous system, which controls key functions without conscious awareness or involvement.

## Additional Responses Offer Industry Insight

In addition to the rankings, survey participants also provided thoughtful commentary in response to 11 open-ended questions regarding technology and the profession. Questions ranged from the more broad (What have you changed in your business processes relative to the top technologies?) to the specific (How do you see XBRL "Enhanced Business Reporting" affecting your business?).

Two of the questions refer to changes in how respondents have managed business in the past year as it relates to advances in technology in general, and, specifically,



to security and privacy. Not surprisingly, the responses interrelate with the clear majority indicating security issues — including firewalls, anti-virus measures and spam filters — as having been implemented or enhanced the past year. There were only a handful of responses, about a dozen or so, indicating no changes. In addition to security, other popular answers included migration to wireless and paperless environments, remote access, integrated databases, and collaborative document development and sharing.

When asked if XBRL is affecting their business, a clear majority of the respondents indicated "no," although many negatives were also qualified with the terms, "not

## Top 10 Techs Demographics Show Most Common Credentials

A quick look at the certifications and areas of focus held by those who participated in the 2004 Top 10 Technologies survey indicates many commonalities and several specialties as well. Most notably, IT Consulting was clearly the primary focus area indicated by most respondents, with IT Management and Accounting/Controllership tied for the second-most frequent area.

More than one-third of the respondents (36 percent) indicated that they held the CITP credential.

Continued on page 3

currently," and "not yet," hinting that it may be on the horizon for respondents.

The question eliciting the most equal mix of yes and no responses referred to **plans for improvements in communications infrastructure**. Of those indicating plans, many referred to integrating phone with IT capabilities, and moving to wireless PDAs and Blackberry-type technology. There were also multiple references to considering VOIP (Voice Over Internet Protocol) and IP telephony options.

Considering **offshore options and identifying relative challenges**, the majority of respondents clearly favor keeping work in America. Citing challenges of geography, culture and time zone differences, along with security issues, the responses tended to be pointed and direct. "Losing American jobs resulting in a prolonged recession rather than a recovery," was a challenge identified in one response. "It will change the economic picture of the U.S." was another.

Several more specific questions dealt with **what impact Sarbanes-Oxley (SOX) has had on IT consulting, whether respondents have moved any critical applications to Linux (and why), or to ASP/NET environments**. A majority of respondents indicated little or no impact to the SOX question; however, similar to the XBRL question, many of the responses were a "qualified no or not yet," suggesting that future responses might be different. An overwhelming majority responded "no," also, to the Linux question. Of those who have moved to Linux, reliability, speed and cost were cited as factors. Availability of business applications also was mentioned. As to ASP/NET, the "no" responses outnumbered "yes" answers almost two-to-one.

When asked **what technologies, issues or applications had the most impact** in the past year, the responses reflect the usual suspects — security, remote connectivity, integration of systems, migration to wireless and paperless environments — all with a few occasional mentions of CRM,

## Top 10 Technologies List

The following is the complete 2004 Top 10 Technologies list. Those new to the list are indicated.

1. **Information Security**. The hardware, software, processes and procedures in place to protect an organization's systems. It includes firewalls, anti-virus, password management, patches and locked facilities, among others.
2. **Spam Technology (new)**. The use of technology to reduce or eliminate unwanted e-mail. Technologies range from confirmation of the sender via ISP lookup to methods where the recipient accepts e-mail only from specific senders.
3. **Digital Optimization (new)**. Also known as "The Paperless Office." The process of capturing and managing documents electronically (i.e., PDF and other formats).
4. **Database and Application Integration (new)**. The ability to update one field and have it automatically synchronize between multiple databases. An example would be the transfer of data between disparate systems.
5. **Wireless Technologies**. The transfer of voice or data from one machine to another via the airwaves without physical connectivity.
6. **Disaster Recovery**. The development, monitoring and updating of the process by which organizations plan for continuity of their business in the event of a loss of business information resources due to theft, weather damage, accidents or malicious destruction.
7. **Data Mining (new)**. The methods by which a user can sift through volumes of data to find specific answers.
8. **Virtual Office (new)**. The technologies, processes and procedures that allow personnel to work effectively, either individually or with others, regardless of physical location.
9. **Business Exchange Technology (new)**. The natural evolution from EDI to greater business transaction and data exchange via the Internet using datasets that are transported easily between programs and databases (e.g., XBRL).
10. **Messaging Applications (new)**. Applications that permit users to communicate electronically, including e-mail, voicemail and instant messaging.

document imaging and IP telephony, among others.

As to **what should be included on next year's survey**, many of these same issues emerged, along with several references to the need to ensure awareness, knowledge and efficient use of existing technologies among the profession. Several references were made to the need for change management and educating CPAs about technology. One respondent asked, "How do we make technology work *for us* rather than us work for technology? ... it seems I spend more time making all this work than doing productive work ... there is so much to learn and so many things go wrong."

These responses seem to mirror a similar sentiment reflected in the responses to the final question, **How the Top 10 list could be made more useful to the community**. Although a clear majority indicated satisfaction with the process, several asked questions and offered suggestions relative to professional development. For example, one asked where to obtain resources to become more familiar with the technologies before responding. A problem-solution format with more real-life examples in the questions was suggested by another. One respondent suggested technology classes or seminars for online CPE courses. Real-life application was another theme among responses with more than one respondent asking if the

*Continued on page 4*

technologies could be divided as issues among different-sized companies.

The AICPA Top Technologies Task Force wishes to sincerely acknowledge and thank those members of the ITA who contributed their time, knowledge and input into the development and processing of the list. Members serving on the Task Force included Bradley, who is with Tamiyasu, Smith, Horn and Braun in Fresno, Calif.; David Cieslak, CPA, CITP, GSEC, of the Information Technology Group in Encino, Calif.; Roman H. Kepczyk, CPA, CITP, of InfoTech Partners North America in Phoenix, Ariz.; Anne Stanton, of The Norwich Group in Norwich, Vt.; and Tim Stull, CPA, CITP, of Continental Airlines in Houston, Texas.

## AICPA Tech Conference — May 3-5, 2004

In related activity to its annual technology list, the AICPA has scheduled its annual AICPA Technology Conference, May 3-5 in Las Vegas, Nev. The program is created exclusively for CPAs, IT professionals and vendors. More information is available at [www.cpa2biz.com](http://www.cpa2biz.com) under the CPE and Conferences tab.

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**For more information on the Top 10 Technologies, visit the Information Technology Center on the same CPA2Biz Web site. ●**

“Once again, I think this has proven to be a valuable exercise and an enlightening reflection on the speed, precision and protections our industry demands today.”

## INFOTECH UPDATE PROFILE

### Joanne O'Rourke Hindman: Fulfilling a Passion Fills a Corporate Void

By Tim Elsner



Joanne O'Rourke Hindman  
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It can be said that Joanne O'Rourke Hindman, CPA, is a woman ahead of her time.

After all, she's proven it time and time again in a career that has spanned almost three decades of senior leadership positions in finance, information technology, general management and business strategy.

By her own admission, it has been an exciting journey marked by a blend of the tried-and-true

typical financial career choices, interspersed with unconventional forays into cutting-edge ventures where “few had gone before.”

Today, the former director of Financial Reporting for The Washington Post Company and top financial officer for *Newsweek*, heads the consulting firm she founded in 2001, which specializes in financial reporting governance and guidance to audit committees of publicly traded companies.

Notably, Hindman started the company to fill a distinct accountability void she sensed was all too pervasive in the corporate world before the problem was illuminated by the likes of Enron and WorldCom.

What's the source of this prescience? A look back at Hindman's career provides some clues.

“If you look at the first 20 years or so, you'll see a pretty stable, predictable and typical approach,” she says, referring to early posts that some might concede are stable, but not necessarily typical. Hindman started as an audit manager with PriceWaterhouse before landing The Washington Post Company and *Newsweek* positions. While at *Newsweek*, she was appointed general manager of *Newsweek* Interactive, where she pioneered the magazine's entrance into online and multimedia publishing — one of the first national consumer magazines to do so.

“This was an absolutely wonderful experience for me,” she says. “My creative side was discovered! I mean, I thought I was going to be a bean counter for life, and here I was in the middle of this exciting project with no rules, where we had to figure out our product as we went along. Keep in mind I was trained to follow rules and this was in the early '90s — before the Web was even firmly established.”

Hindman soon found herself handling interviews with major national media outlets and presenting at industry conferences on subjects ranging from how to get publications online to interactive advertising. “It was great fun — not typical CFO stuff,” she says, while also acknowledging that she believes her CPA orientation has been an invaluable asset to her eventual career as well as to any top-level, senior management position. “As a novice dealing with a company's



financials, you get to see the company from the top-down from the get-go. A great big-picture perspective is offered early on."

The online magazine led to several other stints at prominent dot.coms in an era when Hindman felt that her experience — combined with a newfound zeal and appreciation for the potential of electronic technology and communications — could really offer a great deal to help build a fledgling, if not promising, industry.

Instead, she had a rude awakening.

"I was caught off-guard and saw multiple examples of greed in financial reporting," she says. "While I was intent on building an exciting new industry, I found others who were intent on building personal wealth."

Not to be deterred by this disillusionment, Hindman soon found herself in a position by which she could, once again, tap her considerable experience from many fronts. As executive vice president of Operations for the national office of the American Red Cross, she was responsible for the non-profit's biomedical services, chapter services, disaster recovery, finance, accounting, internal audit, information technology and human resources. In addition, she handled the development and implementation of an e-commerce strategy for the organization. The combined functions represented 35,000 staff and more than 2 million volunteers.

Despite some notable accomplishments, the tenure was fraught with political problems unrelated to Hindman ... her position was eliminated after a year as a result of the struggle — just months before controversies over the handling of 9/11 donations resulted in the termination of the CEO.

Although this was followed by a stint as interim chief executive officer for a software developer, she soon made the decision to parlay her considerable skills and experiences into a business venture of her own — one that would help foster and make real what had become a personal passion: integrity in the workplace.

In founding Roundtable Advisors, Inc. ([www.roundtableadvisors.com](http://www.roundtableadvisors.com)), Hindman has had ample opportunity to do just that. The Virginia-based company targets small- to mid-size public companies, those Hindman says may not be as likely to attract experienced directors or financial experts. While providing guidance in best practices and assistance in complying with the requirements of Sarbanes-Oxley (SOX) is certainly a key deliverable, Hindman is adamant that there's more to it.

"Since Sarbanes-Oxley was passed, there has been a lot of industry focus on compliance, and rightly so," she says. "But I believe corporate governance is more than just a compliance or checklist issue. Today's audit committee has an opportunity to make its role an enhancement issue."

Therein lies the crux of Hindman's and Roundtable's focus. "I have long believed, and have actually seen, how audit committees can truly help the financial reporting process through good governance

## Hindman Helm's TECH 2004 Seminar on IT Tools for SOX, Internal Controls

IT Section members and other attendees at TECH 2004 in Las Vegas, May 3-5, will want to catch "Useful Sarbanes-Oxley IT Tools versus 'SOX IT to me Tools'" with Joanne Hindman.

Hindman tackles a timely review of IT tools related to internal controls, especially Section 404 of Sarbanes-Oxley (SOX). To prepare, Hindman is interviewing staff responsible for selecting the IT tools at various companies, including W.R. Grace, Verizon, Sallie Mae and DuPont. She'll also be talking with the tool makers themselves and sharing the findings in Las Vegas.

### Specific topics include:

- ◆ what to look for as well as what to look out for,
- ◆ how much you can expect to pay,
- ◆ which Sarbanes-Oxley compliance tools work best,
- ◆ how other companies are using SOX IT tools, and
- ◆ how SOX IT tools incorporate the COSO framework.

More information can be obtained by calling 888-777-7077 or online at [www.cpa2biz.com/conferences](http://www.cpa2biz.com/conferences).

practices. The key is the communications between the audit committee, external auditor and CFO. It must be clear, honest and open." She adds that there are lots of nuances in financial reporting and that the process goes beyond GAAP, which underscores why it is imperative that an audit committee must know all it can about the business. She believes open communications makes a difference.

When asked about the timing of starting a company with this kind of focus before the unprecedented national attention to accounting issues and the passage of SOX, Hindman is modest. "It certainly validated for me that what I embarked on was a legitimate need — to the extent that the U.S. Congress passed a bill."

Hindman, who is also president of the Capital Area Chapter of the National Association of Corporate Directors ([www.nacdonline.org](http://www.nacdonline.org)), adds a personal philosophy about integrity. "It's the single most valuable asset a professional owns," she says. "For me, integrity is not about the fear of getting caught. It's about doing the right thing when no one's looking."

Maybe Joanne O'Rourke Hindman is a woman whose time has come.

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## COMDEX 2003

# Annual Technology Show Puts its Best Foot Forward

By Janis R. Monroe, CPA, McA, and Richard Oppenheim, CPA, CITP

Janis R. Monroe, CPA, McA, is CEO of IdentIRISK, and founded MicroMash, an accounting education company, where she remains today as a development consultant for the company, now a subsidiary of Thomson Publishing. She is a former member of the AICPA IT Executive Committee and serves on *InfoTech Update's* Editorial Board. Richard Oppenheim, CPA, CITP, has used and written about technology for more than four decades. He currently provides innovative advice through the Oppenheim Business Group.

Held in October, Comdex 2003 featured some exciting new software and hardware gadgets to facilitate ease of use and installation for the non-technical professional. Wireless dominated the show, with many added security options being exhibited.

Even though many new products were spotlighted, the "trade show of all tech shows" may be preparing for a sorrowful epitaph. At this year's show in Las Vegas, major vendors stayed away and were replaced by Chamber of Commerce booths from countries around the world (China, Belgium, Korea and others), exhibit space was only 120,000 sq. ft. with Microsoft (MS) holding 20 percent of the total, and attendance was down.

However, regardless of all the downturns and industry problems, several products popped onto our radar screen and should be included on your list of those to watch or purchase.

### Wireless Works!

It's no surprise that the next few years will focus on wireless innovations. This applies to not only cellular phone technology, but laptops, PDAs, and other telecommunication and computer technologies designed to reduce wires and improve connectivity.

### Product Sites for More Information

The wonderful news from Comdex 2003 is that improvements are still being made that can make our work lives and our personal lives easier and more productive. Check out these Web sites to learn more about the products we only briefly described.

**Wireless Components:** [www.belkin.com](http://www.belkin.com), [www.linksys.com](http://www.linksys.com), [www.d-link.com](http://www.d-link.com), [www.buffalo.com](http://www.buffalo.com), [www.microsoft.com](http://www.microsoft.com), [www.netgear.com](http://www.netgear.com)

**Add-on Products:** [www.colligo.com](http://www.colligo.com), [www.leviton.com](http://www.leviton.com)

**Presentations:** [www.photodex.com](http://www.photodex.com), [www.voxproxy.com](http://www.voxproxy.com), [www.infommersion.com](http://www.infommersion.com)

**Recovery:** [www.321studios.com](http://www.321studios.com), [www.iomega.com](http://www.iomega.com), [www.cdrom-prod.com](http://www.cdrom-prod.com)

**Utility Tools:** [www.frogpad.com](http://www.frogpad.com), [www.x1.com](http://www.x1.com)

If you are a novice to the wireless environment, a good place to start is with Intel. Intel's Centrino chip can be found in many laptops and other mobile devices. To set up a small wireless network will also require routers or hubs, and it just so happens there are several vendors that provide quality equipment.

When you are ready to buy, check current specifications and pricing from vendors such as Linksys, D-link, Belkin, Netgear, Buffalo and Microsoft.

If you do not have a wireless system, start the process of review and testing. The equipment is inexpensive and relatively easily to install right out of the box. Of course, you have to understand that wireless transmissions can be intercepted by anyone within the radius of your equipment — typically 150 feet. Therefore, security codes and firewalls are essential to protect your resources.

You also may want to do some research in the wireless transmission formats known as 802.11. There are various protocols, but 'G' is the latest and best. It provides the largest bandwidth — helpful as you add more equipment to your wireless world.

For those who have slightly older laptops, all of the vendors have PCMCIA cards that

have a wireless antenna and can easily facilitate wire-free capability.

### Add-on Products

**Leviton:** If you are setting up a smart home with programmable switches, security cameras and the like, check out the products from Leviton. They have numerous replacement options for electrical outlets, including programmable mood settings that can set multiple lighting schemes with one click.

**Colligo:** Once you have wireless capability in your laptop or PDA, what can it be used for besides sharing Internet access? Enter Colligo networking software. This software has been in use for a few years and recent enhancements caused us to take a closer look.

Colligo software makes instant networks. With multiple laptops all WiFi enabled, installing this software provides for instant peer-to-peer networking. This enables your small meeting, audit team and litigation support group to instantly share and collaborate, and is accomplished without any of the routers, hubs and cables described above. Of course, each computer must support its own security as to what data and files can be shared. Big accounting firms

are using Colligo for audit team collaboration. This software also provides linking among PDAs and laptops, with an estimated cost of \$70/computer. You can acquire a multi-user license and then activate different workgroups

## Presentations Sizzle

MS PowerPoint has been around since the early '80s, but continues to enhance its graphic options. If you create and/or see enough presentations, one of the problems with PowerPoint is that the transitions and backgrounds get redundant. Today, there are some add-in products that make things more animated and a lot more fun.

**VoxProxy:** The animated characters from VoxProxy are wonderful, enabling you to select specific characters from their gallery, add built-in phrases or insert specific text. The text is "spoken" by the animated character. Custom animation also supports gestures and moving the character around the slide. Set up is easy and the choice of character takes just one click. You also can distribute self-running presentations on CDs or other media to have clients, staff and others watch and learn. With talking animation, you have the capability to attract and keep the attention of your audience. List price is \$199.

**Photodex ProShow and ProShow Gold:** If you think talking characters are a little over the top, then check out Photodex ProShow and ProShow Gold. This slide show presentation software enables more than 280 transition effects, and can create motion with still images using zoom and pan capabilities. Another capability is creating DVDs or adding shows to your Web site for user access (often, slide shows are a better method of presentation than having endless HTML pages). Photodex 2.0 retails at \$30, and \$70 for the Gold version.

**Xcelsius:** Another presentation product provides support for MS Excel spreadsheets, Xcelsius from Infommersion. This software takes data from Excel and moves it to a PowerPoint slide with various graphical representations, including gauges, slider bars and more. When you view the report or

presentation, you can interactively change the data and automatically change the graphical representation. With Xcelsius, you convert the spreadsheet data into a Flash presentation that has an appropriate level of sizzle. You can incorporate these slides into your own slides and provide for interactive views —while you and your audience interact.

## Recovery When Things go Wrong

CDs and DVDs are capable of storing a lot of data and provide endless uses, but what if they break or get damaged? Yes, nothing is indestructible — scratches, cracks and data loss can occur at any time. There are numerous rescue products available to facilitate data retrieval.

**321 Studios:** The makers of DVD X Copy now have CD X Rescue and DVD X Rescue. These products enable you to recover lost data and save the information you need. While you check this out, check out some of the other products from 321 Studios that are ideal for making movies and presentations, and inserting them on DVDs.

**Arrowkey:** This company has recovery software for the CD and DVD world. Diagnostic and Inspector are two programs for all sorts of investigations of data that is potentially lost in the disk world. Even CDs that have been snapped in two have gone through the Arrowkey process for recovery of data. While you *should not* put half a CD or DVD in a drive, you can attach the two pieces to a blank, thin CD platter. Of course after recovery, you should quickly make another copy for archival storage.

**lomega:** How about replacing your old tape backup system with a better, faster, less expensive device? The REV system from lomega will be available in March with expanded functionality and capacity to help you with backup and store any form of digital data. For under \$400, you can attach the REV drive to work on media computers and provide storage of valuable resources. The 35 Gb and 90 Gb REV drive is portable and can move across the country or around the world.

“ Today, there are some add-in products that make things more animated and a lot more fun. ”

## Utility Tools

**FrogPad:** Gennum introduced a one-handed keyboard for the hunt-and-peck computer user. Using the Bluetooth protocol (or USB), FrogPad provides a one-handed complete 10-key keypad that can be used for numbers or text data entry. The designers researched the most-used letters as the main keys, and then used function type keys for the less-used letters of the alphabet. A switch turns the FrogPad into a 10-key device. The FrogPad can attach to any Bluetooth-enabled device, including laptops, Tablet PCs and PDAs.

**X1.com:** Finding lost information is not all about Google, especially when it is on your computer. Using MS Word, Outlook and other products can provide numerous options for documents, spreadsheets, emails, calendar entries and notes. Looking for the needle in your computer haystack is a challenge and is often not successful. We suggest that you take a long look at X1.com. This application provides a valuable tool supporting research on everything within your computer.

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**Contact Jan Monroe at [jansoft@earthlink.net](mailto:jansoft@earthlink.net) and Richard Oppenheim at [richopp@oppenheimgroup.com](mailto:richopp@oppenheimgroup.com). ●**



## EMERGING TECHNOLOGIES: ID AND AUTHENTICATION

### Providing Secure Remote Access to Rich Data

By John Joyner, MCSE

John Joyner, MCSE, is chief technology officer at ClearPointe Technology, Inc. in Little Rock, Ark., a Microsoft Gold Certified Partner for Enterprise Systems and Security Solutions. A former U.S. Navy computer scientist, he was a prime network architect for NATO and the U.S. Navy aircraft carrier fleet. Today, Joyner specializes in designing comprehensive, secure and highly available fixed-cost IT infrastructures.

A problem facing the network owner is how to securely provide access for mobile and remote workers to rich data over the Internet. In this sense, "Rich Data" means a high level of network connectivity or functionally similar to that experienced by a PC on the corporate network. The remote worker may need to use a number of internal resources and a variety of protocols, such as the ability to map a network drive, establish a terminal emulation session with a mainframe, print documents on networked printers, and upload a file to an ftp (file transfer protocol) server. These are functions easily accomplished, even simultaneously, by a PC on the office network, but can be challenging to provide to remote Internet users in a secure manner.

Traditional identification and authentication methods have focused on "clearing" the user account that is attempting to log in by means of a user ID and a password. In high-security environments, a simple doctrine known as "*something you have + something you know*" is implemented through Digital Certificates, Smartcards or biometric devices, including fingerprint and eye-scanners, in conjunction with a password or PIN. These measures attempt to compare the presumed identity of the user against a list of users authorized access, and the successful outcome of the comparison process is authentication of the user. Broad selections of advanced, proven technologies are available in the IT industry when building user authentication solutions, even for the most challenging of deployment and operational scenarios.

#### New Computer-Based Threats

Dramatic and recent changes in the nature of the threat to business computing posed by Internet hacking and criminal activity — and by electronic pathogens, such as virus, worms, Trojans and "mal-ware" — created an immediate requirement to also "clear" or authenticate a computer that is connecting to the network for access to rich data.

At one time, a remote access infrastructure that provided the highest possible security at the user authentication level, as well as the strongest possible encryption of the data stream, might have been considered satisfactory. Today, this solution does nothing to shield

the office network from the threats posed by remote PCs that may not comply with corporate policies regarding updating of PC operating systems, as well as the presence and up-to-date status of anti-virus and/or anti-mal-ware scanners.

These mobile or remote PCs may well host an electronic pathogen or hostile application, of which the PC user is completely unaware. The remote user logon attempt is validated, and the remote PC, along with all the authorized and unauthorized software installed on it, are admitted onto the private corporate network alongside the authenticated user. As a result, uninvited stowaways, including electronic pathogens and hostile applications, can seriously impact the conduct of business on the network for all corporate users. The same threat is present when workers with mobile computers return to the office and connect to the corporate network, following a connection to a home network or other business network that allowed the hostile application to be installed without the PC user's knowledge.

#### VPN: Dangerous Access

A Virtual Private Network (VPN) provides the simplest, most common method of enabling remote access to rich data. The VPN easily connects the remote user directly to the office network, providing all the features of working in the office, and is only limited by the bandwidth of the remote connection. For some information workers, any functionality less than that of the office PC means they can't do their complete job in the most efficient way for the organization.

Despite the efforts made within organizations to ensure that computers used internally comply with network policies regarding updating and anti-virus, those used from employees' homes or on the road for remote access can still present significant risk to the network. This risk was most recently expressed by the *Nachi* (or *Welchia*) worm, which used a known vulnerability in some Windows operating systems to propagate. Due to the nature of how this worm flooded the network with ICMP (ping) traffic, even perfectly updated and protected networks could *still* be rendered partially or completely useless due to the presence of even one infected computer in the enterprise.

Another recent example was a case of "mal-ware" that involved the popular downloadable utility, "Pop Up Killer." Normally a fairly benign and even useful utility, one download site for the utility was hijacked. A malicious version of "Pop Up Killer" was uploaded by a hacker containing code that exploited the user's PC by sending a large amount of traffic out to the Internet. If this malicious traffic were tracked back to the corporate user's network, it could make the user's employer liable for damages or even criminal penalties,

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and could cause that organization's Internet TCP/IP address(es) to be "blacklisted," delaying e-mail delivery and causing business interruption.

### **Solutions: Quarantine or Isolate**

It is obvious that allowing uncontrolled and/or unrestricted access to the office network via a VPN carries significant risks. For some information workers, however, a VPN represents the *only* way to get business done efficiently. For the small business, risk reduction depends on user education, and awareness of the threats and risks. The small network owner must manually administer some method of scanning and updating computers before they are attached to the network either in the office or remotely via a VPN.

For the larger network that requires an automated, scalable solution, two avenues to mitigate the risks involve:

1. temporary **quarantine** of computers while they are checked for conformance with company policy; and/or
2. permanent **isolation** of computers from the office network, permitting access only on limited protocols and/or to limited destinations.

The quarantine solution examines remote users' computers to make sure they are patched, running current anti-virus, and, in other key ways, conform to the same standards of updating applied to business computers on the office network. For example, the Network Access Quarantine Control feature of Microsoft Windows Server 2003 delays normal remote access to a private network until the configuration of the remote access computer has been examined and validated by an administrator-provided script. This can include validating that the Personal Firewall Service of Microsoft Windows XP is enabled on the network adapter connected to the Internet.

Another method to protect the office network from mobile and remote computers that are presumed to be non-compliant with company policies is to use isolation via Virtual LANs (VLANs). VLANs are a feature of managed network switches. By assigning specific network ports to specific Ethernet wall jacks and/or wireless access points, "islands" of network ports in one VLAN are isolated from other ports that are not members of the same VLAN. Advanced "Layer 3" switches can route only specific traffic between VLANs, such as allowing only Web browsing (HTTP traffic) to isolated Web gateways and block all other traffic. This technique permits network communication at only the minimum necessary level, and reduces or contains what the damage hostile applications can do to the corporate network. Isolation is a vendor-neutral solution that leverages the hardware features of high-end managed switches. Careful planning is required as improper implementation of VLANs can be very disruptive to the business.

A combination of the isolation and quarantine techniques can be used efficiently in the following scenario. Mobile, remote and even wireless users attach to an "isolation" VLAN, where they can perform only the minimum necessary functions. Those users that also require access to rich data can optionally activate their Microsoft VPN client, which works with the Internet Authentication Service on a Windows 2003 server to deliver the Network Access Quarantine Control feature. As part of the quarantine control process, the computer can be examined for compliance with company policies, and even be brought into compliance by actually installing missing updates, and checking and enforcing security-related settings. Once the PC is compliant with company policy, it clears quarantine, is reassigned a new TCP/IP address and is permitted a rich data connection to the corporate network.

### **Rich Data Access Alternatives**

Organizations can reduce the vulnerabilities inherent in conventional VPN connectivity by providing users with rich data access via other technologies. If an organization can centralize all its human-machine interface into a small number of Web-based applications, those applications can be securely published via SSL (Secure HTTP). In this case, only TCP/IP port 443 needs to be opened to the Internet, and hardening and managing the security of the Web services may be sufficient to protect the corporate network. Another distinct and valid alternative to providing VPN access is to enable a Remote Desktop solution using the Terminal Services features of the Microsoft Windows Server family.

Examples of technologies that can reduce or eliminate the need for VPN connections, while providing the rich data experience of the office network, include the Microsoft Outlook Web Access in Exchange Server 2003. This provides a nearly identical experience to the full Outlook 2003 desktop application, even over the Internet in a Web browser. Also available is Windows SharePoint Services, a collection of services for Windows Server 2003 to create team-oriented Web sites to share information and foster collaboration with other users on documents. You also can use Windows SharePoint Services as a development platform for creating collaboration and information-sharing applications that use only HTTP ports 80 for unsecured and/or port 443 for secure (SSL) operation.

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**Contact John Joyner at [JJoyner@ClearPointe.com](mailto:JJoyner@ClearPointe.com). Note: This is the first in a series of articles on Emerging Technologies from the 2004 Top 10 Technologies. ●**

## E - B I T Z

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

### E-BITZ WITH SUSAN BRADLEY

#### Wake up and Smell the new Cell Phones

I recently bought a new cell phone ... and it's all Kendall Wheeler's fault.

Kendall, a former chairman of the California Society of CPAs and a speaker at AICPA Tech 2003 Conference, recently showed me his new toy — a cell phone. A cell phone, you say? How can that be "new?" How about this: can you use your cell phone to connect your laptop to the Internet? Kendall can; and now I can too!

Today's cell phone options for size, features and coverage are endless; a cell phone isn't just a phone, but also can be your organizer, contact list and mobile office. With an overwhelming number of choices, what are the key areas to keep in mind while shopping for cell phones?

**Coverage** — Geek tools are nice, but 3G or GSM (the phone communication type needed for the newer Internet and photo features) currently does not provide coverage in all major areas. A legacy service called TDMA currently provides the most cellular coverage in my area of Central California, while 3G or GSM coverage will only cover traveling on or near major freeways. If you travel in mountainous areas or other less-traveled regions, you may not receive cell phone coverage at all. First and foremost, then, before choosing a phone, features or "geek stuff," analyze *where* you travel, what *type* of phone is best for you, and what wireless phone *company* best meets your needs.

There are a few companies that offer a phone and service that covers BOTH the TDMA, or tri-band and the GSM/3G/GPRS wavelengths. It might be easier if you think of these types as analog/digital and really, really digital, because this represents the type of connections they make. If my traveling and my clients took me farther over to the Coastal areas of California or farther

into the foothills nearby, a GSM phone would not be a good choice for me as I would be unable to make phone calls outside of my range. The best way to determine coverage is to go to each of the major wireless companies and bring up their coverage charts. Overlay these charts with your business and personal travel needs.

**Rate Plans** — I strongly urge everyone who has had a cell phone for longer than a few months to call their provider and discuss rate plans. Similar to how it's a wise move to call once a year and reconfigure your cable/digital television package to a better plan, so should you do the same with your cell phones. Options include "go" plans, "friends and family plans" and other offers that you should compare to best match your needs.

**Organizer Phones** — A TDMA phone has older technology that typically has less features. It can obviously make calls, but also can connect with your Outlook organizer program on your personal computer to synchronize calendar appointments, phone contacts and other information. The one drawback to using a cell phone as an organizer is that to add information to the organizer in your cell phone means that you use the phone keys for adding information. I tend to use the cell phone as a reminder tool and add information to the organizer sparingly. These phones usually offer the ability to do text messaging and receive basic text e-mail. In addition, some of the older phones are useful in other ways, such as accessing travel sites that offer SMS notification of delays in flights and gate information. Once the plane door is open, I turn on my phone and get notification of the next gate location without having to find a "Departure" screen in the airport. Since I usually am walking from one side of the airport terminal to the other, a few additional moments helps to make the connector flights.

The newer GSM/GPRS phones offer additional features, including sending and

receiving basic photos and multimedia messages. When I chose my Nokia 6200 phone, I decided not to purchase a phone that had photo capability because I knew that the photo quality would not nearly match that of my digital camera based on far fewer pixels. Other concerns also are present. In large corporations, for example — especially businesses that must comply with privacy laws like HIPAA — photo phones may present a privacy and security risk in your organization.

*Consumer Reports* recently rated the Sanyo SCP 8100 with Sprint service as its favorite cell phone that combined photos and cellular. Of the phones that provided this service, the Sanyo was the easiest to use. While there are many places on the Web with reviews of cell phones, one of the best places to get advice is by talking to co-workers who have purchased newer models.

So why did I end up picking the Nokia 6200, besides the fact that it provides Internet access? Familiarity breeds productivity. I like and am familiar with the menu structure of the Nokia phones, and like the position of the keypad. I've also come to very much appreciate the "loudspeaker" feature of this phone. It allows me to have impromptu conference calls with a group of people in addition to being safer when I drive. The Nokia locks the keypad after a number of minutes and automatically "vibrates" in silent mode without having to buy a new battery — something I would have had to do on my old cell phone.

Bottom line, if your cell phone is two years old or older, it's time to start shopping for a one! ●

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**Susan E. Bradley, CPA/CITP, MCP, GSEC, is a principal with Tamiyasu, Smith, Horn and Braun in Fresno, Calif. Contact her at [sbradcpa@pacbell.com](mailto:sbradcpa@pacbell.com).**

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## APPLY FOR THE CITP CREDENTIAL, ATTEND TECH 2004 AND GET THE CITP APPLICATION FEE WAIVED!

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