

The background of the entire page is a close-up, slightly blurred image of a dense array of computer ports, likely USB or FireWire, arranged in rows. A hand is visible in the lower center, holding a black cable and inserting it into one of the ports. The lighting is bright, creating a sense of depth and focus on the central action.

**MANAGING LAPTOPS ■ CHOOSING A SERVICE PLAN ■ HIGH-TECH WHEELS**

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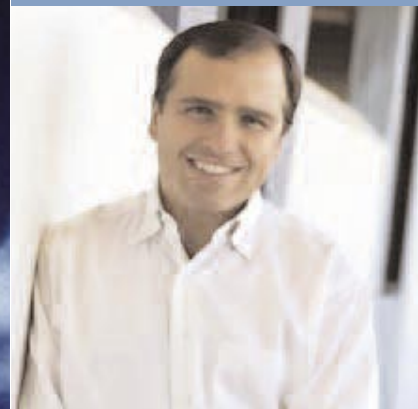
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FROM THE TOP

BOB WILKINS



## Charting a Technology Core

Be it storage or software, planning is key to scalability—and success.

**G**IVEN THE complexity of today's global economy and the rigors of dealing with regulatory compliance, it's no wonder business has what appears to be an insatiable appetite for storage. But it's not just big business that's hungry for capacity and higher-performing storage devices—smaller-size companies are increasingly looking for the scalability and data integrity of enterprise-class storage that will carry them into the future.

Until recently, however, SMBs have been mainly shut out from the products and services required to plan and build a scalable storage architecture. Some were too complex. Others too expensive. All required a significant investment in outside consulting help. Instead, smaller companies were more comfortable taking a reactive approach to storage, making ad hoc purchases of extra capacity only when necessary. The downside is that adding more and more drives to servers to cope with burgeoning capacity puts scalable storage architectures even further out of reach for SMBs.

“Smaller-size companies are increasingly looking for the scalability and data integrity of enterprise-class storage that will carry them into the future.”

The landscape is beginning to change, however, thanks to the introduction of plug-and-play storage devices that deliver high-performance, high-capacity SAN (Storage Area Network) capabilities in a package that's palatable to smaller firms. In our cover story this issue, we'll walk readers through this new class of products and provide guidelines for how to determine when and where an investment might make sense. We'll also explain the various levels of storage and give SMBs guidance in how to properly and proactively plan a scalable architecture.

SMBs are also getting more strategic about planning for software and system coverage. In our piece, [Breaking Ranks with Win 2000](#), we'll detail how many SMBs are in better shape than larger firms to phase out the Microsoft operating system in favor of Windows XP. And when it comes to being covered from a service standpoint, many smaller companies are investing in extended service plans to get that extra ounce of protection. Our feature story, [Taking Cover](#), will take you through the differences in plans and make suggestions on what equipment to cover.

With all the twists and turns that business can take, planning is no longer a luxury, but a necessity—especially on the technology front. It can be all the difference between making an investment that works for now, or one that has the steam to carry your company well into the foreseeable future.



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## FEATURES

### Plug-and-Play Storage 24

Enterprise-class storage is now within reach. The trick is planning an architecture that makes sense for your organization.

### Breaking Ranks with Win 2000 36

As Microsoft phases out the operating system, smaller businesses are in better shape than large corporations to manage the handoff.

### Taking Cover 41

Service plans can give SMBs that extra ounce of protection. But they don't make sense for every piece of equipment. Here's how to choose wisely.

### Going Mobile 47

Laptops are everywhere, freeing users from the confines of their desktops. But in order to avoid trouble spots, companies must establish acceptable usage policies.



“Most SMBs haven't looked into the newer storage technologies or mapped out a storage architecture for themselves. That is a mistake.”

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## DEPARTMENTS

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Debunking the value of outsourcing. ... Users getting hip to spyware risks. ... IBM officially retires OS/2. **PLUS: Fun Threads** Gaming gets an ethno twist. ... Top 10 wired cities. ... Turning to dial-a-geeks for support.



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### Customer Profile 20

**High-Tech Medicine** Poudre Valley Hospital prescribes technology to transform patient care.

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#### The Reality of Plug-and-Play Storage

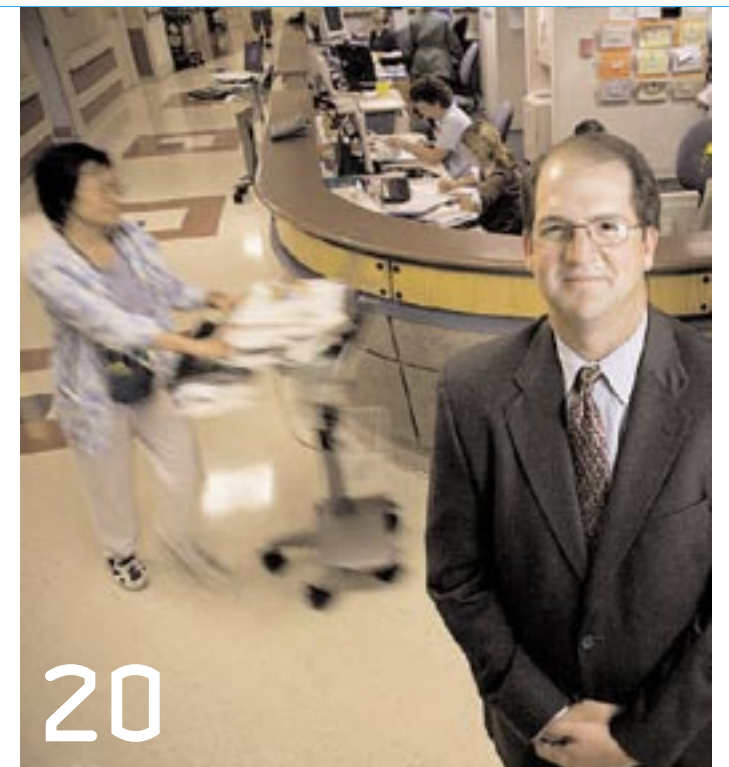
Strategic planning and thoughtful product selection are still musts for mapping out a storage architecture able to evolve with a business's changing needs.

### Wireless Trends 52

**Get Connected** WLAN and WWAN expand the range of WiFi and networking.

### Got Gear 64

**Photo Op** Digital printers are your replacement for the local photo print shop. Today's generation is fast, compact, and increasingly right-priced.



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# Threads

NEWS. TRENDS. TECHNOLOGY. BUSINESS.

9

## OUTSOURCING

# A Turn in the Outsourcing Tide?

Report debunks some conventional wisdom on the value of outsourcing.

**A** MID THE ONGOING sea of news on companies rushing to outsource all manner of IT functions offshore comes a ripple of reality. A new report from a small consultancy says outsourcing might not always be the smooth sail companies expect.

Ventoro.com, a research firm specializing in outsourcing, recently polled some 5,000 technology executives and 300 offshore service vendors in an effort to uncover the best strategies and techniques for managing an international outsourcing relationship.

Some findings in the firm's 2005 *Offshore Outsourcing Research Report* run counterintuitive to today's conventional wisdom on the value of outsourcing. For example, researchers found:

- **Cost savings of offshore relationships is not as high as many claim;**
- **Savings that are achieved come from unexpected areas—process improvement,**

**for example, rather than vendor-resource costs;**

- **In many areas, domestic providers now offer services that are cost- and quality-competitive with their offshore counterparts;**

On the good-news side of the equation, the report also concluded:

- **The executive charged with planning and implementing the offshore business model has the most influence in whether the relationship will succeed or fail.**

To view the full report, head to [www.ventoro.com/Offshore2005ResearchFindings.pdf](http://www.ventoro.com/Offshore2005ResearchFindings.pdf).

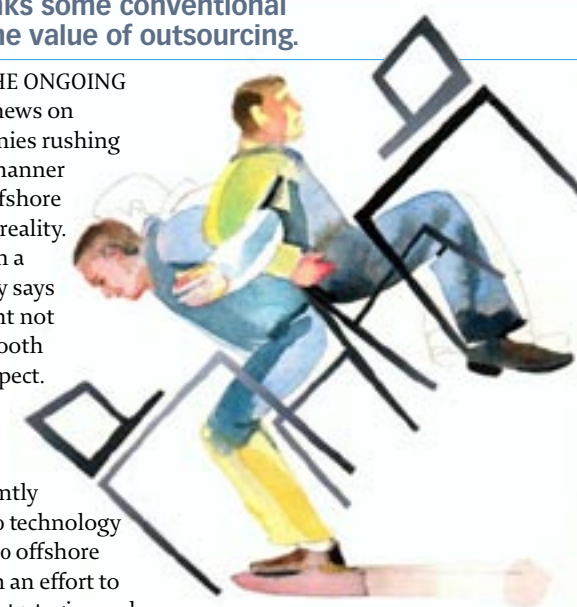


ILLUSTRATION: CHRIS SHARP; ABOVE: 20TH CENTURY FOX/COURTESY NEAL PETERS COLLECTION; RIGHT: COURTESY VERIZON



## DEATH OF THE GEEK

The programmer—that cola-swilling, Cheeto-munching, cubicle-hunching, monosyllabic coding genius of the 1980s—is on the endangered species list. Gartner Inc. predicts that worldwide demand for technology developers—which Gartner defines as people who program for and maintain everything from mainframes to employee laptops—is forecast to shrink by 30 percent.

PDA's

## Freed by .mobi

Using your PDA or super cell phone is a great way to access the Internet, that is, until you actually try to do it. The pain of super-slow connections and drop-offs may soon be over thanks to the creation of a new top-level domain, .mobi, being promoted by a joint venture of industry heavyweights.

mTLD Top Level Domain Ltd. will create a registry service to the .mobi domain, which will be aimed at generating content and services specifically tailored to run with the small screen, limited memory, and bandwidth constraints of these devices.





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## THREADS

### Help for Help Desk

Want to know how users really feel about their IT departments? Forrester Research Inc. of Cambridge, MA, recently asked 2,000 users to share their likes and dislikes about corporate IT.

Here's what they found:

- Internal help desks ranked the least popular among respondents, who cited the inability to resolve problems in one call and the timing of upgrades as their two biggest frustrations.
- Less than half the respondents were satisfied with IT's ability to convey information on changes and additions to the technology mix.
- Half weren't satisfied with the complexity of managing user IDs and passwords.

CHRIS SHARP

**RIP OS/2** IBM finally pulled the plug on OS/2. Limited support for new IBM hardware will continue through December 31; IBM will stop providing defect support and remove fix packs for OS/2 from its Web site in December 2006.

## SPYWARE

# Spyware Savvy Rising

Users changing behavior to avoid risks.

**A**FTER A ROCKY couple of years spent tearing out their hair over spyware, technology managers may be heartened to hear their warnings on the dangers of indiscriminate Web surfing are finally being heeded.

An encouraging 91 percent of Internet users who responded to a recent survey by the Pew Internet & American Life Project say they have changed their behavior to avoid spyware.

Eighty-one percent say they have stopped opening e-mail attachments without first ensuring they're safe; 48 percent have stopped visiting Web sites they suspect may be depositing unwanted programs on their computers; 25 percent have stopped downloading music or video files from peer-to-peer networks, often used by spyware as a back door into personal computers; and 18 percent switched to a different Web browser to avoid software intrusions.

Meanwhile, a new industry trade group, the Anti-Spyware Coalition, recently agreed upon a definition of just what constitutes spyware.

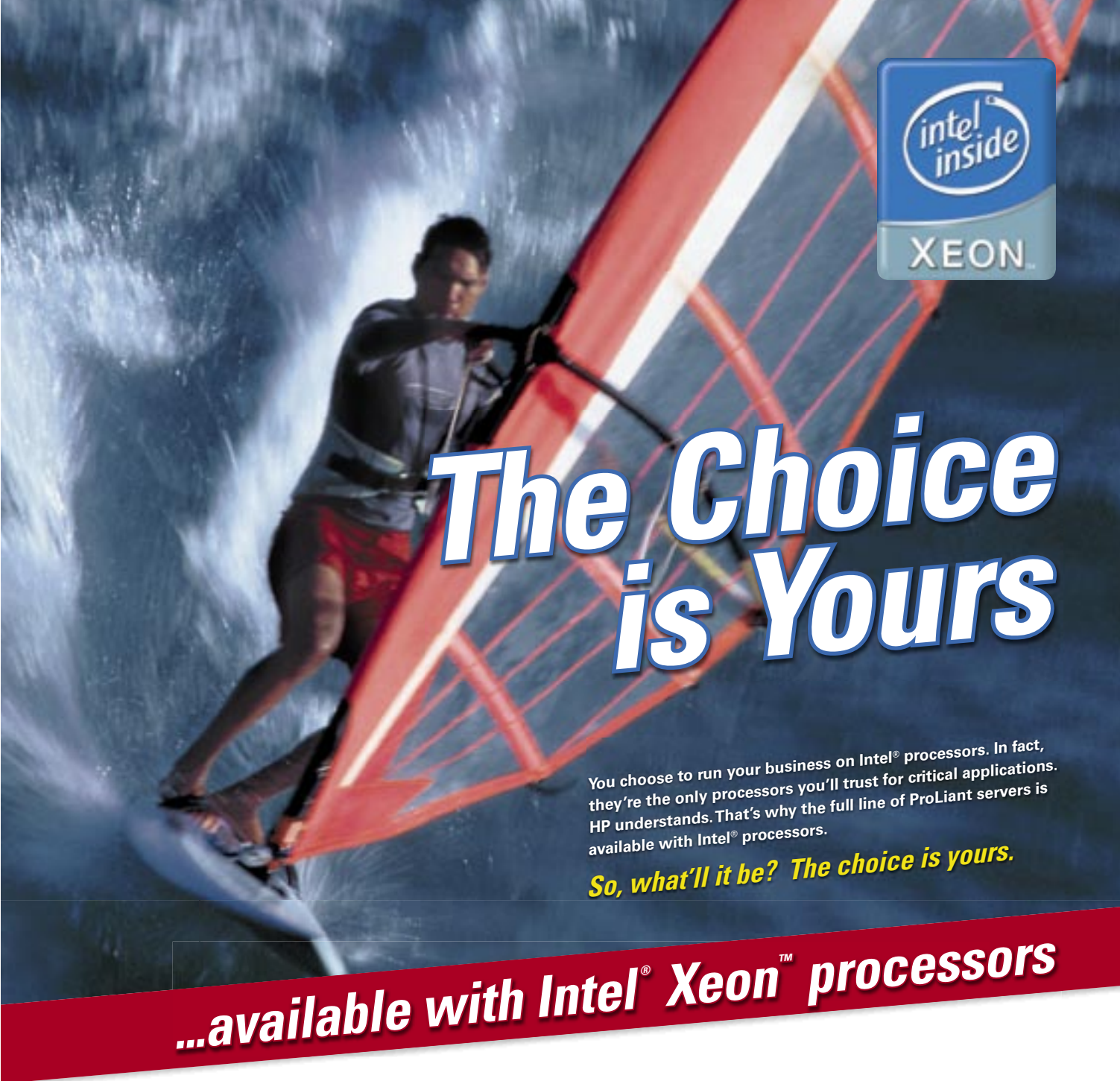
The group defines spyware as any software that is installed without adequate user notice, consent, or control that gathers information without his or her knowledge. More broadly, the coalition also considers malicious any program that impairs users' control over their user experience, privacy, or system


security; use of their system resources; or collection, use, and distribution of their personal or otherwise sensitive information.

The coalition's hope is that a universally agreed-upon definition will help user and IT managers better flag and remove unwanted software, but some observers fear the move may only spur spyware and adware vendors to develop new intrusive programs outside the formal definition.









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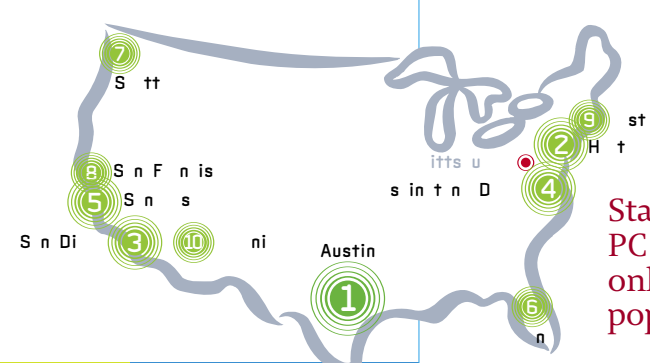
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**TOP 10 WIRED CITIES** Austin, TX, is considered by Forrester Research Inc. to be the United State's most wired city, thanks to its high levels of PC ownership, broadband-enabled households, and online-active citizens. The least wired of the 50 most populous cities? Pittsburgh.

## FUNTHREADS

### I Want My Pod TV

You have your iPod, fully loaded with every song you've ever wanted to hear, an audio book or two, and several of your favorite weekly podcasts. What more could you want? Why, video, of course!



*The Wall Street Journal* reported recently that iPod-maker Apple Computer Corp. is in discussions with major recording companies to sell music videos through the iTunes music store where many MP3 enthusiasts head to download music. A deal could be in the works as early as this fall.

TOP: BOB HAMBLEY; IPOD: PHOTO ILLUSTRATION BY JOSH KLENER; GAMES: ROCKSTAR GAMES (4); U2: LUCIANO VITI/RETNA LTD.

## GAMING

# Technology with an Ethno Twist

**A**FTER TWO decades of playing the pimp, minorities might be catching a break, in the digital world at least. Video-game developers are starting to think about games that cater specifically to minorities, who are nearly always portrayed in violent and clichéd ways in current video offerings (think *Grand Theft Auto* and its ilk).

AAGamer.com's Urban Video Game Academy aims to counter some of those stereotypes by encouraging African-Americans and Latinos to program their own video games, with minorities playing all the roles, not just the bad guys. A similar effort, Women in Games seeks to stem sexism by developing more diversified roles for women on-screen.

While such rainbowism is motivated by pure hearts, there is a commercial aspect at play: African-American and Latino youths, for example, game an average of up to 23 minutes longer every day than their white counterparts, according to a Kaiser Family Foundation survey.

Telecom providers, meanwhile, are trying to catch a few Latin rhythms of their own. A new report from In-Stat, a market-research firm, finds that telcos are actively developing ethnic-specific campaigns to capture the Hispanic and African-American markets in the United States with calling plans for Mexico and other Central and South American countries as well as offers for Internet services.



**ETHNIC RHYTHM:** Video games catering to minorities.



## No More Download Blues

It appears music lovers are either scared off by illegitimate music-sharing sites or swept away by the growing number of legitimate venues to purchase their favorite music online.

According to a recent study by the music industry, the number of legal tracks downloaded internationally tripled in the first half of 2005. While illegal file-sharing figures remained flat, legal music downloads jumped to 180 million in the United States, United Kingdom, Germany, and France, up from a mere 57 million in the year-ago period, according to the International Federation of Phonographic Industries.





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May 5, 2005

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**Dialing Up Tunes**  
First there was the Motorola/Apple deal designed to dial digital music directly to your cell phone. Now there's a similar pact between Ericsson, a leading telecommunications provider, and Napster, the original digital music service before Apple's iTunes became the dominant player.

Elements of Napster, which was resurrected as a legitimate digital music-sharing service, will be blended with Ericsson's personalized music service to create the new offering, which will be served up to consumers by mobile operators. The service is slated to go live in Europe during the next year.

## TECH SUPPORT

### Dial a Geek

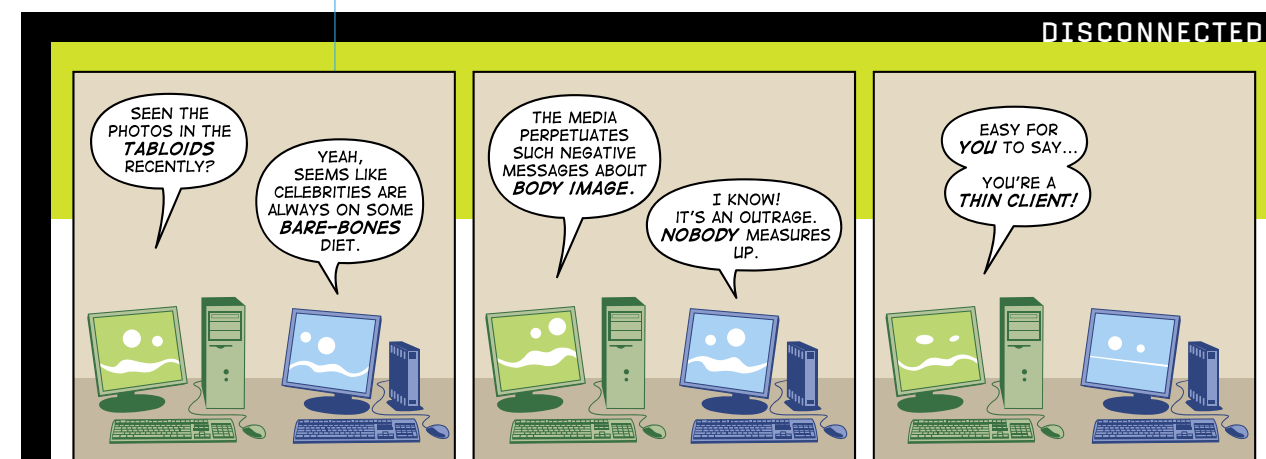
**A**S HOME technology gets more complicated, consumers are more willing to dial a geek, and retailers are answering. Geeks on Call, an independent tech-support chain, has in the past year more than doubled the number of its franchises and its revenue by providing on-site computer repair and servicing to consumers who don't have their own IT departments, but wish they did. Gear-centric retail giants like CompUSA and Best Buy are getting in on the service act as well. Best Buy recently added 1,500 employees

to the ranks of its "Geek Squad," which now numbers around 8,000. For a fee, squad members take phone calls and fix gear in the store or in customers' homes. CompUSA's 12,000-member tech-support team offers similar services, including next-day appointments. Next day! That's almost as fast as TiVO.



## FUNTHREADS

**ALL TOGETHER AGAIN** Households that purchased more than one communications or home-entertainment service from a single provider jumped 15 percent in a single year to 47 percent, according to In-Stat Research's 2005 Consumer Internet Survey.



By Erin Harris and Erik Evensen



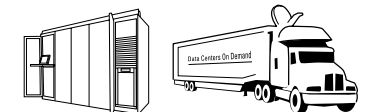
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# Pimp My Ride

DIGITAL LIVING

BY ELIZABETH MILLARD



High-tech features are standard fare in the latest car models.

**D**RIVING ISN'T just driving anymore. As more people chat on cell phones, make use of Global Positioning Systems, and pop a DVD in for the kids, the car has ceased to be just a way to get from one destination to another—suddenly, it's a multitasking environment where you can surf the Internet or participate in a conference call, all while cruising down the highway.

Companies are whipping up converged devices that bring together navigation functionality with digital music or Bluetooth capabilities. Car manufacturers are also getting into the spirit, starting to outfit their new models with various computing capabilities, some even as standard features. Last year, for example, Honda unveiled a system called AcuraLink, developed in conjunction with IBM, that sends messages to vehicles through satellite radio, alerting car owners to diagnostic problems.

Today's most popular new systems are entertainment and assistance tools like OnStar, according to market researcher Forrester Research Inc., of Cambridge, MA. DVD players are now offered in nearly 30 percent of new cars, Forrester notes, and XM Satellite Radio is growing so rapidly that it could be in almost 80 percent of new cars within three years.

Here's a sampling of some of the latest technology going mobile:

## Microsoft Automotive 5.0

If Microsoft chairman Bill Gates has his way, every journey will be Windows-powered. In July, the company announced a new version of its automotive software, aimed at making it easier than ever for device makers and car manufacturers to include Windows in their products. Microsoft software is already found in several vehicles, including the 2005 Acura RL and TL, the

Mercedes S-Class, BMW's 7 Series, and Fiat's Lancia Thesis.

Although Microsoft has tried to capture more of the auto market in the past with limited success, Forrester Analyst Mark Dixon Bunker believes the situation is poised to change. With the introduction of Automotive 5.0, not only will Microsoft seek to have its software power more in-car systems, but also have it grab a starring role in aftermarket devices like GPS systems and car-enabled PDAs.

## GPS Mania

For those who don't want to wait for Windows to change the driving experience, there are plenty of options for spiffy new-car gear now. Consider GPS systems, which have gone from simply giving directions to being feature-packed devices. Many manufacturers have discovered that drivers want multifunctionality in their systems, and therefore are stuffing them with extras. "It's becoming hard to find a

GPS that doesn't do a number of fun tasks," says Tanya Pfeffer, an IT consultant who has used a number of GPS systems in her car over the past five years.

One shining example is Garmin's portable GPS unit, the GPSMAP376C, priced at just under \$1,000. The 376C has features and functionality galore. Sure, it's a GPS, but the manufacturer also touts its other capabilities, including delivering real-time weather data through XM Satellite Radio.

Because of the XM Satellite connection, users can get a lot more than weather—they can also subscribe to programming channels that range from talk shows to music. A jack included with the system allows the unit to be hooked up to the car's stereo, enabling users to download data from MapSource DVDs or CDs, further expanding their driving empire.

## Long in the Bluetooth

It's hard enough to juggle to-do items, much less gadgets. Maybe

that explains why Bluetooth car kits have increased in popularity, from manufacturers like Sony Ericsson, Siemens, Nokia, Parrot, and Motorola. The kits let the driver answer and make phone calls through a hands-free system, and some have features that hook into the car's audio system, allowing drivers to call out voice command prompts like "call home" or "access voice mail" to get such tasks done while on the road.

Analysts predict a bright future for such car kits as manufacturers develop more functions. Proposed features include the ability to access extensive phone address books, do three-way calling, and connect with a car's on-board computer to collect diagnostics information. For now, though, consumers can content themselves with products like the Parrot CK3100 Car Kit, priced at about \$200. Once installed, the kit lets you place and receive calls without ever touching your phone.

## Watch Your Back

Parents might be intrigued by the BabyCam from Rostra Precision Controls, a system set to debut in Toyota's 2006 trucks and SUVs. The system allows parents to monitor the back seats via video, through a mirror with a small screen built in. Similar attempts have been made in the past to do this kind of monitoring, but they usually involved gadgets that clipped onto the rearview mirror and were clumsy to use. The BabyCam should cost around \$900, but being able to check the kids without turning around? Priceless.

Elizabeth Millard is a freelance writer who specializes in business and technology topics. Her work has appeared in *Business 2.0*, *BusinessWeek*, and *CNN Online*.

DIETER BRAUN





# High-Tech Medicine

CUSTOMER PROFILE BY BETH STACKPOLE

## Hospital prescribes a heavy dose of technology to transform patient care.

**W**HAT'S WORSE—being laid up in the hospital in the first place, or having to deal with the endless parade of nurses and doctors asking the same questions and checking and rechecking information on your vital stats hour after hour?

Poudre Valley Hospital, a regional medical center in the Denver area with 295 licensed beds, has embarked on a grand technology overhaul to put that kind of repetitive and intrusive patient care in the past. The medical center, which is also in the midst of building a new state-of-the-art hospital facility to open in 2007, has embraced open network technology, wireless communications, electronic patient records, and a variety of new mobile platforms to give its staff the ability to collect and access required patient information while on the go,

instead of being hamstrung by repetitive and, oftentimes, error-prone data entry at the desktop.

“The biggest benefit of the mobility factor is to help folks get their work done right at the point of care,” explains Russ Branzell, CIO and vice president of Poudre Valley Hospital, in Ft. Collins, CO. “The primary reason why we’re investing in technology and a facility of this nature is to provide the best and safest environment for our patients to experience health care.”

For those 420 doctors and 1,000-plus nurses providing care, Poudre Valley Hospital now operates a fully integrated electronic health record system, accessible by emergency services, inpatient staffers, and all outpatient facilities. The system gives personnel the ability to access the same medical record information. In this way, if a patient showed up at emergency

services and later had a follow-up outpatient visit, the same information would be available to all clinicians.

A secured wireless environment helps deliver access to that electronic patient record from anywhere in the medical center, including affiliated physicians’ offices, even if they’re not on-site. The guest portion of the network lets doctors, through a secure virtual private network (VPN), access the patient record from their own laptops and mobile devices, whether in the hospital or at home. “Now doctors can move throughout the hospital without having to grab multiple clipboards,” notes Branzell.

The wireless network delivers another set of perks from the patient’s perspective. Family members, guests, and patients can bring their own wireless devices into the hospital and access the Internet. “It’s no different than Starbucks,” Branzell says. “It’s highly satisfying in terms of delivering customer care because they can stay connected and not lose contact with work or home during their stay.”

Another focal point of Poudre Valley’s IT makeover is wireless carts used in all the primary care areas. These ergonomic carts, equipped with a laptop, monitor, power supply, and bar code scanner, allow medical personnel to enter all information into the electronic record at bedside, rather than having to write it

down and then eventually re-enter the data into the computer at the nurse’s station.

Poudre Valley Hospital’s IT provider, PC Connection Inc., was instrumental in pulling together the technologies that comprise the carts and preassembling them so they’re ready to deploy upon delivery. With PC Connection’s help and Branzell’s mission to stay ahead of the technology curve, Poudre Valley’s existing hospital and the new facility are well ahead of most in the industry. Says Branzell: “Being an early adopter is the right thing to do for patient care and safety. Our mission has been to do whatever is necessary to deliver health care in the most efficient manner.”

ABOVE: ERIK STENBAKKEN



MOBILE MEDICINE: Poudre Valley’s Branzell is all for getting work done at the point of care.

## IN THE WEEDS WITH PC CONNECTION

### Deena Forcier Senior account manager



**What’s the most compelling technology piece of Poudre Valley Hospital’s IT infrastructure?**

What really stands out is being able to see the medical carts in action. In the hospital, it’s always a pain to have the nurse come in and ask the same questions that another nurse just did an hour ago. At this hospital, the wristband has all the patient information. Medical personnel can simply scan it and the information goes directly into the system and can be displayed on the medical cart. There are also mobile tablets and wireless technology to take it from room to room.

**How is the technology helping clinicians deliver better health care?**

They’re able to use the technology for more accountability and more accuracy. By using technology in such an advanced stage in patient care, there’s less room for error. What role does PC Connection play? We provide them with all the motion tablets, all peripherals, medical carts, everything down to memory sticks. We introduce them to the simpler new technologies, but it’s hard to introduce new technology to people who are so far advanced.

“The biggest benefit of the mobility factor is to help folks get their work done right at the point of care.”

—Russ Branzell  
CIO and Vice President  
Poudre Valley Hospital





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Enterprise-class storage  
is now within reach. Here's how to plan an architecture that  
makes sense for your organization.

# AND PLUG AND PLAY STORAGE

WRITTEN BY LAUREN GIBBONS PAUL  
ILLUSTRATED BY MIRKO EJC





# FOR

## A 14-PERSON COMPANY,

Childs Capital LLC has some pretty sophisticated taste in data-storage technology. Unlike most SMBs, which bulk up their servers by adding disk drives when storage space gets tight, the New York financial services firm years ago ponied up for a storage area network (SAN) that at the time was only accessible to those with big-company IT budgets.

Then, as now, Childs Capital was on a growth curve, and the plan was to invest in a scalable environment able to accommodate the business's ever-expanding appetite for storage. Childs had well under a terabyte (TB) of data then (it has reached about half a TB in size now), but with documents multiplying every day, and regulations like Sarbanes-Oxley (SOx) beginning to filter down and impact smaller companies, the firm wanted to be ready.

Readiness came with a high price tag, however. Childs forked over just shy of \$100,000 to cover hardware, software, and implementation services for a Hewlett-Packard SAN. The investment was more than companies double or triple the size of Childs Capital would spend on storage, but to President and Founder Donna Childs, there were strategic implications that made the decision a no-brainer. "You need to think about storage and backup as a platform for growth," says Childs. "You shouldn't do this as a one-off."

Childs was willing to put her money where her mouth was when it came to implementing a robust, scalable storage architecture, but most SMBs are not—nor do they have the luxury. There is good news on the horizon, however. High-performance, enterprise-class storage solutions like the HP StorageWorks SAN have come down in price significantly—very significantly—since Childs first made the leap in 2001, making that kind of high-end technology accessible to those with far more restricted computing budgets.

Not only that, but enterprise vendors like HP, EMC Corp., Snap Appliance, and Quantum Corp. have downsized their powerful storage solutions for ease-of-use and administration by SMBs. These solutions tout "out of the box" functionality, which is especially attractive to those companies which lack the in-house IT expertise to handle much more than unpacking a piece of hardware and plugging it in.

For example, HP markets its HP StorageWorks MSA1000 Small Business SAN Kit as "the simplest SAN on the planet." Everything you need—from hardware to software installation wizards to power cables—comes neatly packaged in one box. Pricing for this "entry-level" SAN ranges from \$12,000 to \$15,000, according to HP. Not bad for a platform that scales up to a whopping 12TB of storage.

The concept of "storage in a box" is particularly welcome to SMBs, which are struggling with growing storage needs driven by regulations like SOx and Gramm-Leach-Bliley. Though SMBs are generally not governed by these regulations (since most are not publicly held), adhering to the same rigorous data collection and retention policies as large companies stands them in good stead as the scope of these regulations begins to widen.

Indeed, SMBs are already affected indirectly by regulations. "If SMBs are in the value chain of the larger companies, they will have to indirectly keep up with those regulations too," says Anil Miglani, senior vice president at AMI-Partners Inc., a New York market research firm that concentrates on SMBs.

A case in point is Brian Clayton's 65-person law firm, Sebaly Shillito & Dyer LPA. The Dayton, OH, firm wants to be prepared in the event that it begins to serve larger companies affected by regulations. "SOx doesn't apply directly to us yet. But we have taken steps toward compliance since we want to work for healthcare facilities or public companies that have to comply," says Clayton, information systems group manager for the law firm.

Sebaly Shillito recently spent \$22,000 to implement an HP StorageWorks Enterprise Virtual Array (EVA) Fibre Channel-based SAN to handle its nearly 4TB of data. Fibre Channel provides 1 gigabit per second data transfer from the server to the SAN—performance that previously only the largest companies in the world would have enjoyed.



"You need to think about storage and backup as a platform for growth. You shouldn't do this as a one-off."

THINKING BIG: Childs Capital's Donna Childs is bullish on investing in sophisticated storage.

SARAH WILSON

While the HP StorageWorks EVA is a step up from the HP StorageWorks MSA1000 Small Business SAN Kit, it is still quite easy to use. "[The StorageWorks EVA] has its own cabinet, its own power supply, its own rack-mount server to manage the disks, its own switch, and a boatload of drives," says Clayton. "This really was plug and play—very simple to install."

SMBs in the medical field or other highly regulated



**"I do worry about running out of storage ... There will be a time when we will have to make a decision for the future."**

industries are subject to an even greater information load and increased need for storage. Canadian cigar manufacturer House of Horvath has to comply with a raft of regulations from provincial rules to Health Canada requirements. The heavy regulatory burden, combined with the fact that business has suddenly taken off, adds up to more and more data that needs to be stored on a daily basis.

"We have to submit reams of data every month to many different agencies because we're in tobacco," says Ivan Tingley, IS manager for the 50-employee Toronto manufacturer. Tingley is evaluating upgrading to networked storage, but currently clings to the typical low-budget, low-scalable SMB approach—direct-attached storage, in this case, five direct-attached drives on two servers. "I do worry about running out of storage. We're OK right now, but there will be a time when we will have to make a decision for the future," he says.

### Taking the Leap

Many SMBs are facing that same decision. It's tough to know where to start when planning for a scalable storage architecture. High-performance storage may now be within reach, but whether or not an SMB should go for it depends on a host of variables,

including industry type, the regulations they're subject to, the rate at which data is growing, the business's growth prospects, and more.

Gartner Inc. research indicates that two-thirds of U.S. SMBs still buy direct-attached, non-networked storage (DAS), according to Jim Browning, vice president of SMB research for the market-research firm, in Stamford, CT. "Most SMBs haven't looked into the newer storage technologies or mapped out a storage architecture for themselves," he says. That is a mistake, he explains, since as your storage needs take off, DAS becomes more expensive in terms of total cost of ownership (TCO) than networked storage. As companies add more and more drives to their servers to cope with burgeoning data, non-networked DAS drives can become a nightmare to manage and back up (see infographic, page 32).

For many, the next step after DAS is network-attached storage (NAS), in which you add a dedicated file server to your network, giving all

## ONLINE STORAGE SERVICES

If your data storage needs don't run to the high-performance, high-availability end of the spectrum, using an online service can be a cost-effective option.

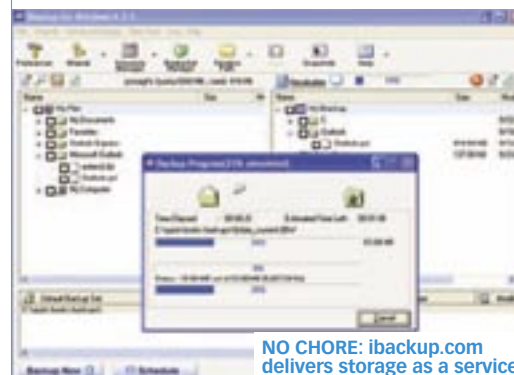
Application service providers (ASPs) such as iBackup.com and Connected.com (recently acquired by data archiving giant Iron Mountain) offer online backup and storage of desktop data starting at about \$10 per month, going up based on data volume.

As with other types of applications that you rent for a monthly fee (such as sales force automation or Web hosting), you're essentially renting the provider's

hardware so you don't have to buy it (and manage it) yourself. It's a good deal.

"You can have off-site backup and storage with no hardware. All you need is a high-speed Internet connection," says a spokesman for Pro Softnet Corp., in Woodland Hills, CA. Pro Softnet operates iBackup.com.

Though online backup can't compete with local data backup in terms of performance, providers use different techniques to help speed things along. Data compression and the ability to transmit only the data that has changed



**NO CHORE:** iBackup.com delivers storage as a service.

since the last backup (this is called patching) make the daily backup chore go more quickly, he adds.

LiveVault and VaultLogix are ASPs providing backup and archiving of servers, as opposed to desktop data, for a somewhat higher price than the desktop ASPs. Exact prices vary according to the amount of data. —L.G.P.

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“If a company had five or 10 servers, they hit the data requirements ... where it makes sense for them to have a SAN.”

network users access to the files. This option is cost-effective for SMBs, says Browning. “NAS has a pretty good adoption rate among SMBs.” NAS solutions can run as low as \$4,000 or \$5,000, making them a popular choice.

SAN is at the top of the storage hierarchy. Until very recently, SANs were the province of only the largest companies. “Three or four years ago, the price would have been at least \$50,000. That price point has come way down,” says Vince Gayman, director of worldwide SMB product programs for HP, in Houston. The most basic HP StorageWorks SAN runs about \$12,000.

But Gayman stops short of calling SANs an inexpensive option for all SMBs. “If a company has five or 10 servers, then they probably hit the data requirements where it makes sense for them to have a SAN. Otherwise, NAS is probably the best option for them” since NAS tends to be about half the cost of SAN and requires less IT expertise to manage.

Gartner analysts who advise large companies note SANs are overkill for any company with less than 1TB of data. And they require more sophisticated technical expertise to administer than DAS and NAS. “One terabyte of data is more than a typical SMB would have,” says Browning.

In particular, SANs that use Fibre Channel as the physical connection medium are higher performance (and thus more expensive) than even larger SMBs would ever need. The majority of SMBs—notwithstanding law firm Seabaly Shillito, which has enormous case files—should choose a SAN that uses I-SCSI or a regular Ethernet cable as the connection medium. This is much more cost-effective and easier to deal with and maintain than Fibre Channel, which requires different cabling and adds other layers of complexity.

Whichever way you ultimately choose to go, what matters is to think about storage as a strategic technical architecture that will give your company

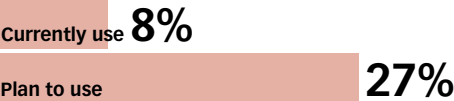
a foundation for future growth. Childs, true to form, likes to think big. “I plan to be a Fortune 500 company within the next 10 years,” she says. With her SAN storage platform, she’s got a solid base on which to grow.

Lauren Gibbons Paul has more than 15 years of experience as a writer for such publications as *eWEEK*, *CIO*, *Managing Automation*, and *Network World*.

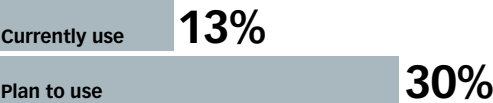
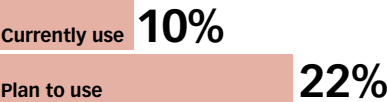
PUTTING STORAGE TO WORK

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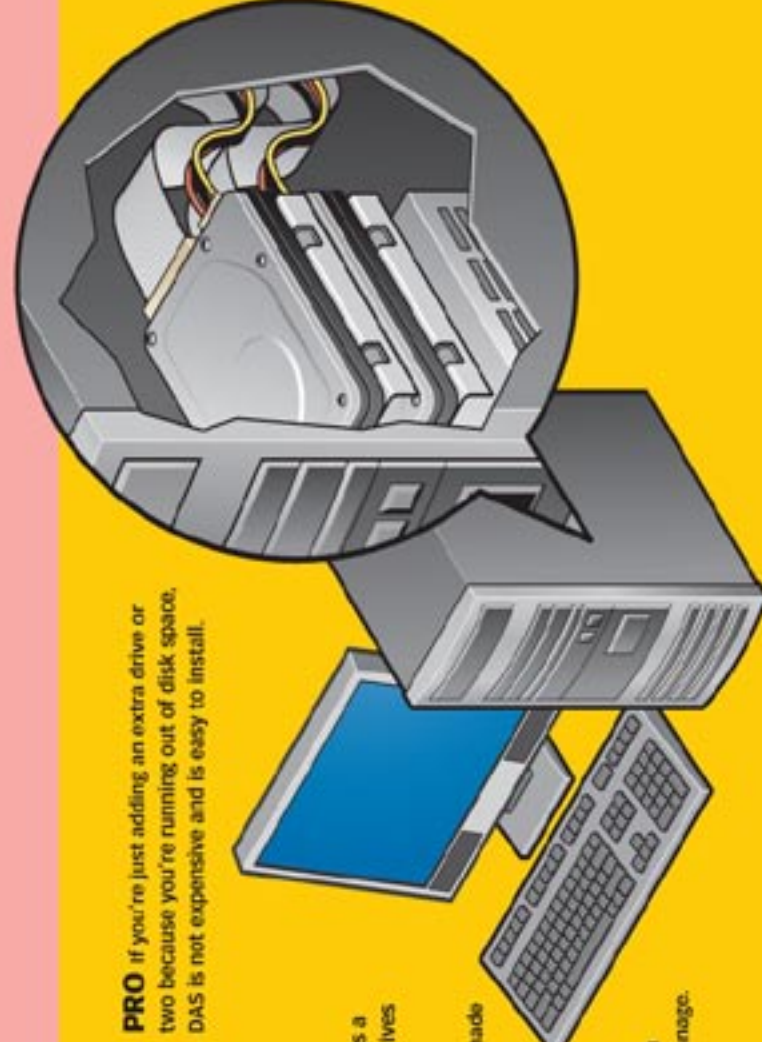
# STEP UP STORAGE

Storage options come in all shapes and sizes and varying levels of complexity. What Can work for some companies may evolve into a management nightmare for others. The key is to plan a scalable architecture to meet long-term storage needs.

## LEVEL 1 DAS

**DIRECT-ATTACHED STORAGE** is non-networked storage in which hardware is connected to or installed inside one server and may not be shared with other servers on the network.

**PRO** If you're just adding an extra drive or two because you're running out of disk space, DAS is not expensive and is easy to install.



**BUSINESS APPLICATION**  
Five-person branch insurance office with one server. DAS works for small firms because storage needs are not spiraling out of control and employees can access the files they need directly from the server. But if the firm adds another server, administration will become more complicated since storage is not centralized.

**CON** If you surpass a certain number of drives and servers, the incremental cost is greater than if you made the investment in networked storage. And having lots of non-networked drives hanging off different servers can be a nightmare to manage.

## LEVEL 2 NAS

**A NETWORK-ATTACHED STORAGE** device is a server that is dedicated to file sharing attached to a local-area network. NAS allows more hard-disk storage space to be added to a network that already utilizes servers without shutting them down for maintenance and upgrades as with DAS.



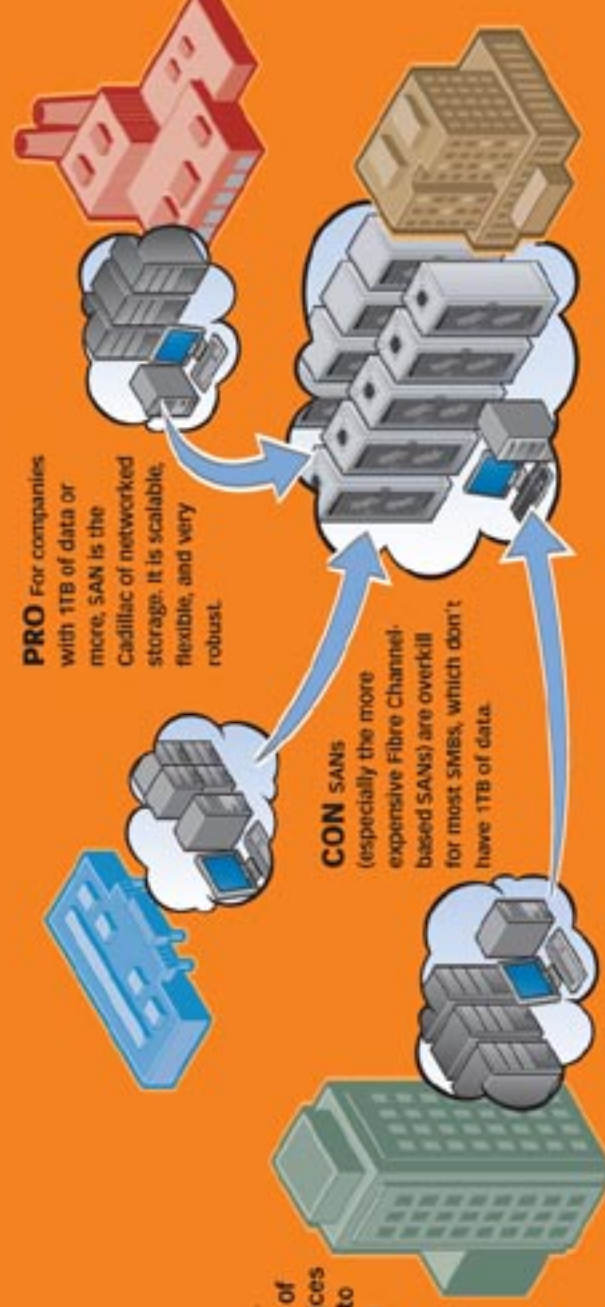
**PRO** NAS is a step up from DAS in that it is a networked storage option. Costs are roughly half that of SANs.

**CON** If you already have 10 servers and your storage needs are growing fast, NAS may not be the best choice because it is not as scalable as a SAN.

**BUSINESS APPLICATION**  
A 40-person architectural firm with four servers. This company stepped up to NAS because it stores large blueprints and image files. Employees needed access to files from the road and from home. The IT manager benefits from easier administration afforded by centralized storage.

## LEVEL 3 SAN

**A STORAGE AREA NETWORK** is a high-speed sub-network of shared storage devices that are accessible to all servers on a LAN or WAN. As more storage devices are added to a SAN, they too will be accessible from any server in the larger network.



**PRO** For companies with 1TB of data or more, SAN is the Cadillac of networked storage. It is scalable, flexible, and very robust.

**CON** SANs (especially the more expensive Fibre Channel-based SANs) are overkill for most SMBs, which don't have 1TB of data.

**BUSINESS APPLICATION**  
Consider a 60-person law firm. Given the ever-increasing volume of data, this firm wants an industrial-strength SAN. The Fibre Channel-based SAN delivers enterprise-class speed, reliability, and manageability combined with easy data access.



We're close, but strategic planning is still a must.

IT'S NOT JUST THE giants whose data-storage needs are under the gun as a result of trying to meet industry standards for compliance. With Sarbanes-Oxley and environmental regulations bearing down on companies of all statures, storage demands are escalating among SMBs, which unfortunately don't have the same resources to implement and manage increasingly sophisticated storage architectures. Luckily, a new breed of plug-and-play storage appliances are leveling the playing field, giving SMBs the same type of high-end storage capabilities without requiring a whole lot of expensive handholding support. PC Connection's Kevin Lozeau recently provided some guidance on storage planning and implementation.

**Where do most SMBs fall short when it comes to storage?**

Most don't look at storage from a strategic perspective. They're looking at an immediate need to add 200GB of disk space—not looking at their growth needs two years from now and how that



**STRATEGIC PERSPECTIVE:** PC Connection's Kevin Lozeau suggests taking the long view.

will play out. The goal is to try to consolidate data storage for ease of management, but by just adding capabilities on a short-term basis, it becomes a management and logistical nightmare. You end up back in the same situation, having data stored all over the place.

**What are the top considerations SMBs should keep in mind when pulling together a storage strategy?**

One of the bigger things to consider is the growth factor. You have to draw some correlation between what the organization plans for growth and how that relates to what the storage growth has been or what it's predicted to be. There's also the resource factor—working through how and who is going to manage all this additional data. Finally, there's the performance issue, taking into consideration the applications that are going to be supported.

**“The goal is to try to consolidate data storage for ease of management, but by just adding capabilities on a short-term basis, it becomes a ... logistical nightmare.”**

**What are the key capabilities a service provider like PC Connection can offer?** PC Connection offers presales consulting and design help as well as installation and management support through our Service Connection division.



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BREAKING

RANKS

WITH

WIN  
2000

As Microsoft phases out the operating system, smaller businesses are in better shape than large corporations to manage the handoff.

WRITTEN BY TRACY MAYOR  
ILLUSTRATED BY AARON GOODMAN

THE JIG IS UP, THE NEWS IS OUT. On June 30, Microsoft Corp. transitioned its venerable Windows 2000 operating system from mainstream support to extended support.

Officially, the move means the company will continue to provide security hot fixes and paid support for Win2000, but will no longer provide "complimentary support options, design change requests, and non-security hot fixes."

Unofficially, that means Win2000 is "spending time with the family," "exploring other options," "resting comfortably." In other words, a dead end.

As if to hammer that point home, less than a month after the Win2000 transition, Microsoft Webcast held a multimedia sales rally at which it unveiled the official name and brand-new Web page of its forthcoming operating system. The OS formerly nicknamed Longhorn is now formally called Windows Vista. The first beta version of the program was scheduled to go out to testers August 3, with the first release slated for the fourth quarter of 2006.







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## YOU'VE LOST THAT 2000 FEELING

- AssetMetrix Research Labs offers a migration strategy:
  - Do you have any business applications that are written specifically to Win2000 and/or incompatible with Windows XP? If so, patch, rewrite, or replace them.
  - Do any of your internal management or security programs require Win2000? If so, these should be rewritten to accept multiple operating systems.
  - Any machines running the original OEM version of Win2000? If you have certain license agreements
- with Microsoft, those computers may be eligible for a free XP upgrade.
  - Should you move Win2000 machines to XP or wait for Windows Vista? To determine what makes sense for your company, calculate your total Windows XP replacement rate between now and the end of 2006, when Vista is due.
- The full detox program is available from the researcher's Web site, [http://www.assetmetrix.com/forms/index.asp?template\\_id=109](http://www.assetmetrix.com/forms/index.asp?template_id=109).

Old operating system on life support? Marketing machine for new operating system going strong? Hmm, can you take a hint?

A sizeable chunk of the Microsoft market still needs to do just that. A recent report from Ottawa, Canada-based AssetMetrix Research Labs found that a significant base of corporate machines are still running Win2000. Between the fourth quarter of 2003 and the first quarter of 2005, Win2000 lost just four points in popularity in corporate IT environments, from 52 percent to 48 percent, and the operating system enjoys greater than 50 percent market share in large organizations, the study found.

Companies are more likely to have hung on to Win2000 if they are large and if they have built business, security, or management applications around the operating system, says Steve O'Halloran, managing director of AssetMetrix.

Smaller companies—those in the 20–250 PC range—tend to still have Win2000 only if they are mandated to do so for standards reasons or because their technology budgets are extremely tight.

Otherwise, AssetMetrix found that these smaller businesses are actually more likely to have traded Win2000 for Windows XP than their larger colleagues. In fact, the study found Windows XP is now the most popular operating system for companies with fewer than 250 PCs. The reason? Smaller businesses are more likely to use OEM-installed OSs rather than buy a Microsoft licensing agreement and image their own standardized desktop configuration onto new hardware, as larger firms often do.

Euro RSCG 4D is one company that fits that profile. The marketing and advertising firm, which had standardized on Win2000, took a hard look at XP when it first came out, but decided to pass at that point, says CIO David Antos. "From a price and functionality standpoint, there wasn't a compelling case to upgrade to XP at that point," Antos recalls.

Over time, however, that changed. A certain percentage of desktop and laptop hardware needed replacing each year, and new machines from Euro's computer provider came with XP installed. From there, it was a slow downhill slide for Win2000 at the company. This spring, the company bit the bullet and converted its remaining Win2000 machines to XP.

With some 2,300 PCs on its network, Kirkpatrick &

Lockhart Nicholson Graham LLP is big enough to image and load its own PCs, OEMs be damned. Back in the day, the law firm, which maintains offices in several U.S. cities as well as London, chose Win2000 to load on those machines. The company, in fact, was such an early and enthusiastic supporter of Win2000's built-in scripting and security features that it became something of a poster child for the new OS, featured in Microsoft case studies and so on.

Yet, in the past months, K&LNG too has moved off Win2000 in all but its London office, which is scheduled to make the swap to XP by early fall.

The reasons to switch were myriad, says CIO Steve Agnoli, some of which had to do with features and capabilities, others with good old convenience. "The security features, the speed at which XP works, the stability—those are things we wanted in XP," says Agnoli. "Win2000 was a stable operating system, but XP is more stable. Plus we were replacing hardware and it seemed like a good time to do [an upgrade]."

Microsoft's clearly stated decision to end mainstream support in early summer of this year played a part in the firm's decision. "The support question was definitely part of the decision, Agnoli acknowledges. "We need to build an infrastructure we can use into the future, and Win2000 is at the end of its product life."

Tracy Mayor writes frequently about technology, management, and business.

## VISTA ON THE HORIZON

Less than 24 hours after Microsoft released its first beta version of Windows Vista to developers, details on the new system's look and feel have surfaced, including news of:

- A new interface, dubbed Aero, with translucent windows and greater facility for animation
- Better organizational features, including virtual folders, which function like saved searches
- Faster, easier, and wider search functions





WRITTEN BY ELIZABETH MILLARD

PHOTOGRAPH BY PETE MCARTHUR

# TAKING COVER

SERVICE PLANS CAN GIVE SMBS THAT EXTRA OUNCE OF PROTECTION.

TERRY GRIPTON IMAGINES it was a long, gut-wrenching walk down the hallway to the IT department for one of her company's employees. A laptop had been left on top of a car and only after driving halfway home did the employee realize that the computer had become a commuting casualty.

At the time, Gripton, IT technical purchasing analyst at Granite Construction Inc., wasn't amused. Now, such incidents would tickle her funny bone because she knows she can offer the employee a great measure of comfort. "We have accidental damage coverage on every laptop," says Gripton, in Watsonville, CA. "So, when people come in looking depressed and offering to pay for a new



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"Productivity is an important component of the decision about service plans ... If a **MISSION-CRITICAL** server goes down, that could be disastrous in terms of lost productivity."

laptop—and they do, many times—I can tell them not to worry about it, because it's covered."

As Granite Construction and many other small businesses have found, service plans and extended warranties can be a blessing when it comes to repair, maintenance, and simple peace of mind. For small companies that have limited IT resources and plan to have their hardware around longer than what's covered under a standard one-year basic warranty, service plans can be a good way to save money.

Service plan is the umbrella term for two types of warranties: Enhanced and extended. Enhanced warranties increase the service level of existing warranties by adding options like four-hour response time, 24x7 support, or additional years of coverage. Companies can choose the number of years for the extension, stretching a year-long warranty into a three-year, for instance. Extended warranties do just what the name implies—extend the time that a warranty covers a product.

Another option is post-warranty coverage, which can be purchased for equipment that has gone beyond its standard and extended warranties. And, as Gripton discovered, adding accidental damage coverage to a plan can be quite a boon for accident-prone employees.

"The average labor rate is between \$80 and \$150 per hour for laptop and desktop repair," says Lisa Baron, services program manager, at PC Connection, Inc., in Merrimack, NH. "If parts need to be replaced, it can run up to \$500. That's why, in many cases, spending \$100 to cover a PC for years is a good investment."

Although the plans aren't appropriate in every situation, often they can mean the difference between a low-cost replacement and a blown equipment budget. Service plans vary depending on hardware, level of service needed, and aspects of coverage. Popular choices include buying a guaranteed response time on mission-critical

BILL SUMNER



**INSURANCE PLAN:** Millennium's Forte is all for service plans.

equipment or extending a manufacturer's warranty for an additional two to three years.

Prices for warranties depend on the cost of the hardware involved, the urgency associated with service time, and the length of the warranty.

## Making the Choice

In choosing an appropriate plan, experts recommend that companies consider how the equipment will be used and how long the hardware will be in place. For example, mission-critical items like network servers are good candidates for service plans while printers typically don't need extended coverage.

"Productivity is an important component of the

## THE BASICS

**Additions to Standard Warranties:** 24x7 support, four-hour guaranteed response time, free replacement if non-repairable, monitor-specific protection.

**Cost:** Service plans generally cost 15 to 20 percent of the price of the hardware. Service plans for software are around 20 percent of the price of the application.





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"Outsourcing service plans is actually a great idea. It frees up IT staff from having to deal with warranty issues, and that **INCREASES EFFICIENCY.**"

decision about service plans," notes Joe Rogers, an advisor at IT consultancy Convergent Solutions, in St. Paul, MN. "If a printer goes down, employees can probably just use another one in the office. But if a mission-critical server goes down, that could be disastrous in terms of lost productivity."

Also when looking at plans, be realistic about how long a machine will be in the company. If a business tends to recycle its PCs after three years, signing up for a five-year warranty doesn't make much sense.

Another factor is the price of the hardware. "For small- and mid-sized businesses, sometimes the service plans are more expensive than if they need to replace the hardware," says Rogers. "This can be true with lower-priced items like printers, PDAs, routers, and appliances."

Sometimes, just a smattering of insurance is all that's needed. Plantation, FL-based Millennium Group, which does technology implementations in educational institutions, has enough technical resources in-house to handle most repair and maintenance issues, says the company's CEO, Darrell Forte. Because of this, the company sticks to regular warranties, but Forte is considering service plans for the near future.

"Within the next six months, we'll be setting up a data center, and we have to examine our internal capacity," he says. "Probably for much of the mission-critical stuff, we'll get a service plan because we can't afford to be down."

Forte will likely also get a plan if anything is installed that isn't familiar to his staff. For example, equipment operating on a Linux system would probably be a candidate for an extended warranty, he says.

### Single Point of Contact

If a company has decided to make the leap and get coverage on several of its servers, laptops, and desktops, it can often be taxing in a multi-vendor environment. PC Connection feels that it has a unique benefit in offering service plans that cover different vendors and giving customers a single point of contact. By routing all warranties through

PC Connection, a company will have one phone number, not 10, and that can cut down on lost productivity.

"Many times, small- and mid-sized businesses just don't have time to worry about all those relationships," says Jill Fariss, director of systems and support at IT consultancy CM IT Solutions in Austin, TX. "With major manufacturers, you could be on the phone for hours just to arrange for a repair. If you're talking about mission-critical equipment, that could be a disaster."

In environments where only a few extended warranties are needed, Convergent Solutions' Rogers believes that small businesses can handle the warranty calls on their own. Bringing all the warranties together under one plan makes the most sense when there are a number of manufacturers involved, and multiple pieces of equipment.

"Outsourcing service plans is actually a great idea," says Rogers. "It frees up IT staff from having to deal with warranty issues, and that increases efficiency."

Elizabeth Millard is a freelance writer who specializes in business and technology topics. Her work has appeared in *Business 2.0*, *BusinessWeek*, and *CNN Online*.

## SHOPPING SMART

When looking for an extended warranty plan, consider the following:

- How long will you own the equipment?
- How fast will it need to be repaired if it goes down?
- Will the cost of fixing it exceed the cost of simply replacing it?
- Do you have expertise in-house for maintenance and repair?
- Are there specific pieces of equipment, like monitors or PDAs, that require their own coverage?





# Going Mobile

As laptops proliferate, users are freed from the confines of their desktops. But in order to avoid trouble spots, companies must establish written policies for acceptable use.

Written by  
Stephanie  
Wilkinson  
Illustrated by  
Jean-François  
Martin

EARLIER THIS YEAR, Gartner Inc., a market-research firm in Stamford, CT, announced that sales of laptop computers are growing six times faster than desktop PCs—another computing milestone passed. Funny thing about milestones, though—if you're not careful, they can turn into stumbling blocks. With more and more mobile computers being deployed in businesses today, companies need to be ever more watchful about who gets them and how carefully they are used. Like nervous parents of a teenager, IT managers worry every time a laptop goes out the door—and often with good reason. Theft, damage, loss of data, breach of corporate security—all these risks increase with greater laptop usage. And yet, with more computing power being packed into ever smaller, lighter, and more connected packages, laptops have become an indispensable business tool. Managing how they're used, then, means coming to grips with the classic tradeoff between access and security.





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“If we didn’t make it clear who the responsible party was, we’d end up with a whole lot of “lost” laptops that would cost the city a bundle.”

In the old days, when laptops were high-ticket items, companies thought long and hard about who would be allowed to take them out of the office. But as prices drop and employees spend more working hours out of the office, reining in laptop use is neither practical nor wise. “We’re increasing our use of laptops all the time,” says Cathy Rex, IS manager for the City of St. John’s in Newfoundland, Canada. “We want to make it easier for city employees to be out of the office. It serves our citizens better.”

With the line between work hours and off hours blurred, more people are spending more of their waking life on the job. “The wireless revolution has certainly helped to fuel small business demand for notebook computers,” says Todd Gold, a writer for Laptopical.com, a laptop aficionado Web site. “Also, the prices for laptops are getting lower.”

Gold cites the new Compaq NX6125 from Hewlett-Packard as an example of the kind of affordable mobile technology rivaling desktop performance that small companies are hot for. Priced less than \$1,000, this computer comes equipped with a 64-bit AMD Turion processor, a 60GB hard drive, wireless connectivity, and a biometric fingerprint reader for added security. It weighs about six pounds, Gold says, and also features a spill-resistant keyboard and scratch-resistant lamination—welcome protection against

the inevitable knocks mobile computers face on the road.

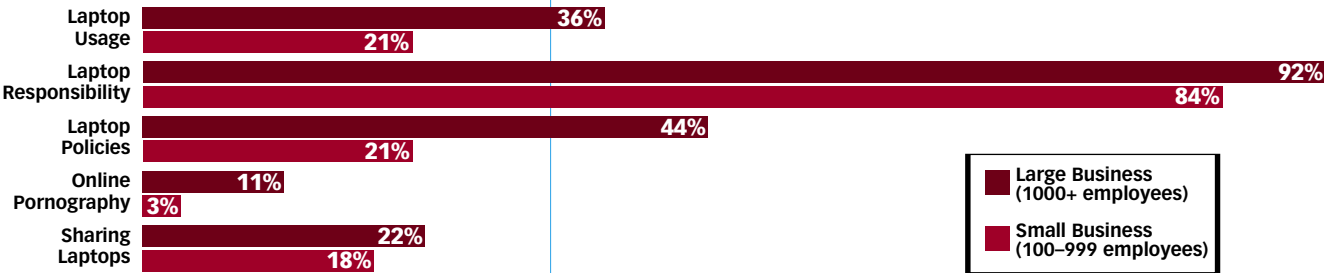
Acceptable Use Policies

Such protective coatings are nice, but it’s how the machines are used both in and out of work that makes all the difference. Interestingly, laptop users in small- to mid-sized businesses have a different attitude toward their laptop or notebook equipment, a new study shows. According to the most recent Web@Work study, a survey of 354 IT managers conducted by Harris Interactive in February 2005, employees at smaller firms are less likely to feel responsible for how the laptop is used outside the office than those at larger firms. In addition, more SMB employees admitted to sharing their laptop with family and friends than employees at large companies. And three times as many SMB users admitted to looking at pornography on their work-owned laptops than those at larger companies.

These disparities might be explained by another of the study’s findings: Larger companies are twice as likely as smaller ones to have a written policy outlining acceptable use of company laptops.

The city government of St. John’s has one. According to IS Manager Rex, the policy was created two years ago, just as laptop deployment among city officials began to rise. It’s modeled in part on policies suggested in a book called *The E-Policy Handbook* by Nancy Flynn. St. John’s policy spells out who is responsible for the laptop (the

**Laptops in the Workplace** Companies of all sizes are flocking to laptops, but employees at smaller firms tend to feel less responsible for how their company-issued gear gets used outside of work. SMB users are more likely to share their laptops with others and partake in non-sanctioned activities like surfing porn while off the job. Maybe that’s because SMBs are less likely to put policies in place to restrict laptop use.





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## “No gambling, no pornography, no inappropriate business activities. Nothing that compromises the business.”

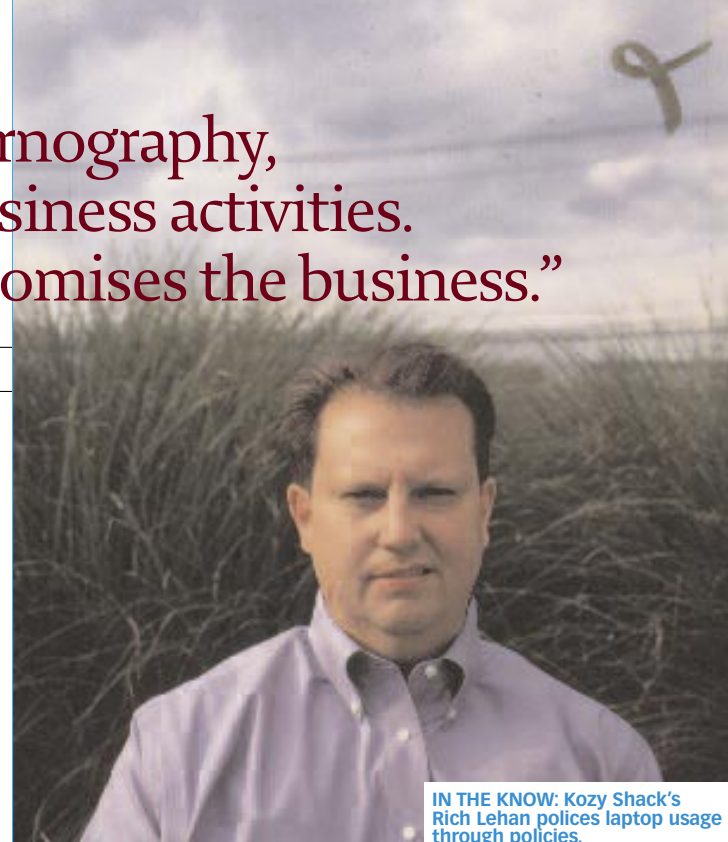
employee), who can use it (the employee only—no friends, no relatives, no random tablemates at Starbucks), what kinds of software or peripherals can be installed on it (only what’s put there by the IS division), and what happens in case of theft or breakage (the employee and/or the employee’s department must replace or repair it). Laptop users at St. John’s all undergo a day-long orientation session covering proper care and handling of the machines. If requested to do so, the employee must return the laptop to the IS division within 24 hours.

Besides the acceptable use policy, city employees who are issued laptops are heavily restricted in their Internet access—they can only access the Web through the company’s firewall—and they are required to come into the office each morning to physically plug into the network to download the day’s software patches and virus updates. If they neglect to do it, the patches are pushed out to them the next time the user connects to the network remotely.

Requiring laptop users to take personal responsibility for their computers is prudent for several reasons, Rex says. “Our city’s insurance policy has a \$10,000 deductible. We were concerned that if we didn’t make it clear who the responsible party was, we’d end up with a whole lot of ‘lost’ laptops that would cost the city a bundle.”

Rich Lehan, director of IT at Kozy Shack, a pudding manufacturer based in Hicksville, NY, points out the importance of tying laptop policies into a company’s overall employment policies. With a third of his 250 computer users equipped with laptops, Lehan’s biggest concern is that nothing those laptops pick up on the road infects the corporate network. So he’s careful to remind users that rules that apply in the office go on the outside as well. “No gambling, no pornography, no inappropriate business activities,” Lehan says. “Nothing that compromises the business.”

Some rules are more tempting for employees working outside the office walls to skirt than others, he says. “For a certain contingent, their laptop is the only computer in the house,” Lehan says. “It’s really tempting for them to let their spouse or kids use it.



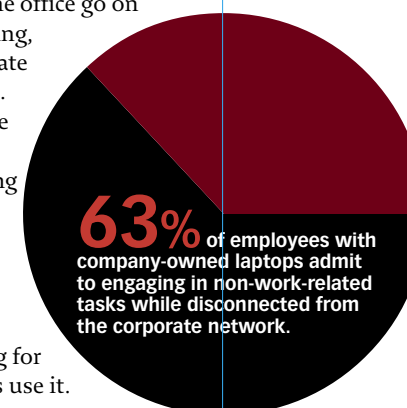
**IN THE KNOW:** Kozy Shack’s Rich Lehan polices laptop usage through policies.

But they know we’re always doing software audits and we will find out what they’ve been up to.”

Since Internet access presents the greatest misuse temptation and the biggest risk to corporate network security, Kozy Shack uses Web filtering software to block some Web sites entirely, allow restricted access to others, and provide a daily per-person quota on another class of site, such as sports or shopping sites.

Lehan thinks having such policies and tools out in the open has fostered good behavior among users. “We’re a small company, and they know if they break or lose that laptop, it will affect the bottom line,” he says.

Stephanie Wilkinson has been writing on high-tech and business issues since 1986.



## On The Clock

Curious to know how your company laptop is used off hours? Here are the most common tasks:

- Personal surfing (56%)
- Managing digital photos (28%)
- Sharing laptop with family & friends (19%)

SOURCE: Web@Work Study, February 2005. Conducted by Harris Interactive for Websense, Inc. NOTE: Results are not broken down by company size.



# In Business, Being

Perhaps the biggest shift seen in business technology of the past few years is the move toward mobility, wireless connections in the office, at the airport, and with the advent of wireless wide area networks (WWAN), anywhere business takes you.

According to IntelliClear, an IT market intelligence and research company, there are more benefits than just the freedom to roam. Wireless LAN and wireless WAN offer total cost of ownership (TCO) savings over wired alternatives. Combine these two technologies and integrate them into a notebook PC and the savings become even more dramatic. In the following excerpt from *The TCO Advantages of a WLAN & WWAN Combination*, IntelliClear makes a strong case for choosing both integrated WLAN and WWAN Internet access in your next notebook PC.

## TCO Analysis for WLAN versus WWAN

IntelliClear has conducted a high-level TCO analysis for three wireless Internet access solutions: WLAN alone, WWAN alone, and WLAN and WWAN together. The analysis also includes considerations for the solutions being either integrated (embedded Wi-Fi and/or WWAN), or PC card related. The analysis is for one mobile worker, with the assumption being that greater numbers will bring lower prices for airtime charges and hardware—the largest cost components. The key assumptions for the analysis are the following:

- One year period
- Strictly mobile solution, with no building costs considered as part of the solution
- A notebook PC as a mobile device at a starting price of \$2,000
- The mobile worker travels for business five days per month, or 60 days per year
- Average mobile worker hourly labor rate = \$50 (\$75,000 per year with 40% benefits)

- Average internal IT hourly labor Rate = \$50 (\$75,000 per year with 40% benefits)

See the next page for the results of the TCO analysis, which shows that the integrated WLAN and WWAN combo solution generates a minimum annual TCO savings of \$247.50 as compared to the integrated WWAN-only solution. The TCO savings are substantially higher when comparing the integrated WLAN/WWAN combo against the PC card (non-integrated) solutions. Keep in mind that these savings are for a quantity of one, as IntelliClear believes that many of these solutions will be purchased and used by small businesses or individuals, as opposed to large enterprises. One must keep in mind that the savings could be substantially higher as additional downtime caused by end users fumbling with PC cards, activation, drivers, and other technical issues were not taken into consideration in the TCO analysis.

## WLAN and WWAN Expand the Range and TCO Benefits of Wireless Internet and Networking

# Connected Matters

### Integrated WLAN and WWAN— The Right Answer for Mobile Users

The TCO analysis, although at a high level, reveals a compelling case for a combined integrated WLAN and WWAN solution to the notebook PC. The TCO does not comprehend a number of other expected benefits of the integrated WLAN/WWAN combo solution that are likely to be realized by the mobile worker including:

- Additional productivity gains via greater access to the Internet in more places.
- A stronger end to end quality of service agreement that is likely to be realized with cellular carriers that offer an integrated hotspot and WWAN plan.
- The impact of a more favorable response rate to customers, suppliers, and other business stakeholders.
- An increase in employee retention as mobile workers are given a more robust set of tools to do their job.
- Greater availability of the mobile device on the Internet to perform updates such as security patches, software revisions, etc.

IntelliClear believes that as more commercial enterprises, large and small, realize the direct and indirect benefits associated with mobile devices for mobile workers equipped with integrated WLAN and WWAN capabilities, that more consideration and purchases will take place. There is an inherent lack of awareness that must be overcome first, mainly breaking through the noise barrier with IT managers and executives who often do not take the time to consider such mobile solutions from a broad business perspective. In the competitive global marketplace of today, such lack of attention can no longer be afforded.

### Think Wireless, Think Sony

In the same study, IntelliClear investigates WWAN offerings from major notebook PC manufacturers. They applaud SONY for “taking an extremely aggressive approach to the WWAN product side.”

If you’re ready to experience the full freedom and cost savings WWAN promises, consider VAIO T-Series notebooks. Featuring SmartWi technology, these notebooks seamlessly integrate WWAN, 802.11b/g, and Bluetooth for quick and easy toggling between wireless connectivity options.

Learn more at [www.pcconnection.com/brands/sony](http://www.pcconnection.com/brands/sony)

### The TCO Advantages of a WLAN & WWAN Combination

	WLAN Only	WWAN Only	WLAN & WWAN
<b>Direct Costs:</b>			
<b>Hardware and Accessories</b>			
Notebook PC	\$2,000.00	\$2,000.00	\$2,000.00
Integrated solution	\$2,025.00	\$2,125.00	\$2,150.00 *1
PC card solution	\$2,070.00	\$2,100.00	\$2,170.00 *2
Extra battery	NA	NA	NA
<b>Software</b>			
NA	NA	NA	NA
<b>Services</b>			
Design	NA	NA	NA
Configuration savings with an integrated solution	\$12.50	\$25.00	\$37.50 *3
Integration	NA	NA	NA
Deployment	NA	NA	NA
Project Management	NA	NA	NA
Training	NA	NA	NA
<b>Operations</b>			
Airtime fees	\$359.40	\$959.40	\$1,199.40 *4
Technical support	Included	Included	Included
User help desk	NA	NA	NA
<b>Maintenance</b>			
Hardware	NA	NA	NA
Software	NA	NA	NA
Repair	NA	NA	NA *5
<b>Indirect Costs:</b>			
<b>Downtime</b>			
Lost work due to no coverage (looking for hotspots, etc.)	\$1,500.00	\$250.00	\$0.00 *6
Back-up	NA	NA	NA
Restore	NA	NA	NA
Failures	NA	NA	NA
<b>IT Support</b>			
Troubleshooting on PC Card Solution	\$12.50	\$25.00	\$37.50 *7
Troubleshooting on Integrated Solution	\$0.00	\$0.00	\$0.00
Technical help desk	NA	NA	NA
Testing	NA	NA	NA
Logistics	NA	NA	NA
Change management	NA	NA	NA
<b>Productivity Gains</b>			
Likely to be higher with both WLAN and WWAN, but not quantified			
<b>End to end quality of service rate</b>			
QoS may be more easily obtained via cellular carriers			
<b>Impact of a faster response rate</b>			
Likely to be higher with both WLAN and WWAN, but not quantified			
<b>Employee retention</b>			
Likely to be higher with greater connectivity, but not quantified			
<b>Ease of updates</b>			
Updates are more easily deployed with greater connectivity, but not quantified			
<b>Ease of migration</b>			
NA	NA	NA	
<b>Time savings with an integrated WLAN/WWAN easy to use solution</b>			
\$0.00	\$0.00	\$250.00	*8
<b>Based On One Year</b>			
Total TCO (non-integrated)	\$3,941.90	\$3,334.40	\$3,406.90
Total TCO (integrated)	\$3,871.90	\$3,309.40	\$3,061.90
TCO Savings with the Integrated Solution	\$70.00	\$25.00	\$345.00
Minimum TCO Savings with the WLAN/WWAN Combo	\$0.00	\$0.00	\$247.50

NA - indicates that the amount will likely be the same for each solution, or not applicable to the solution but considered

\*1 -Estimate \$25 for WLAN and \$125 for WWAN, however, for some SIM cards the price to the user can be upwards of \$400

\*2 -The WWAN PC card for \$100 assumes a carrier subsidy in return for a commitment of typically one year or more of WWAN service

\*3 -Estimate 15 minutes of extra configuration for an IT professional for WLAN, and 30 minutes for WWAN. If an end user attempts

to configure the time (and costs) could be substantially higher (activation, drivers

\*4 -Estimate for one year subscription; WLAN & WWAN together estimated; savings likely with integrated voice on the plan

\*5 -There may be some repair due to PC card insertion and re-insertion and possible lost PC cards

\*6 -Per travel day estimate of 30 minutes for WLAN, 5 minutes for WWAN, and 0 for WLAN & WWAN

\*7 -PC cards often have issues with standby, hibernation, and other issues that cause lock-ups. These lock ups will

create a service call to the IT department of 15 minutes for WLAN and 30 minutes for WWAN.

\*8 -Estimate 5 minutes per travel day of savings in seamless switching between WLAN and WWAN due to software

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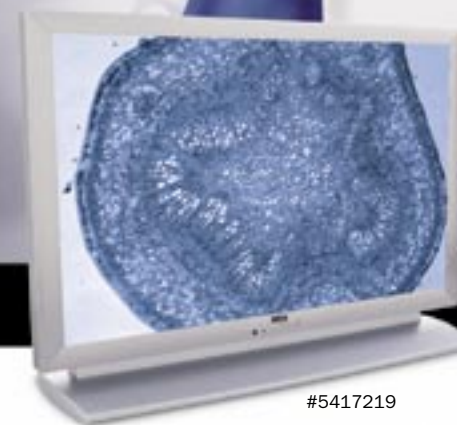
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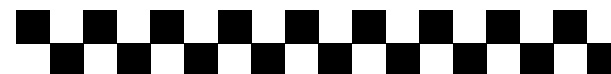


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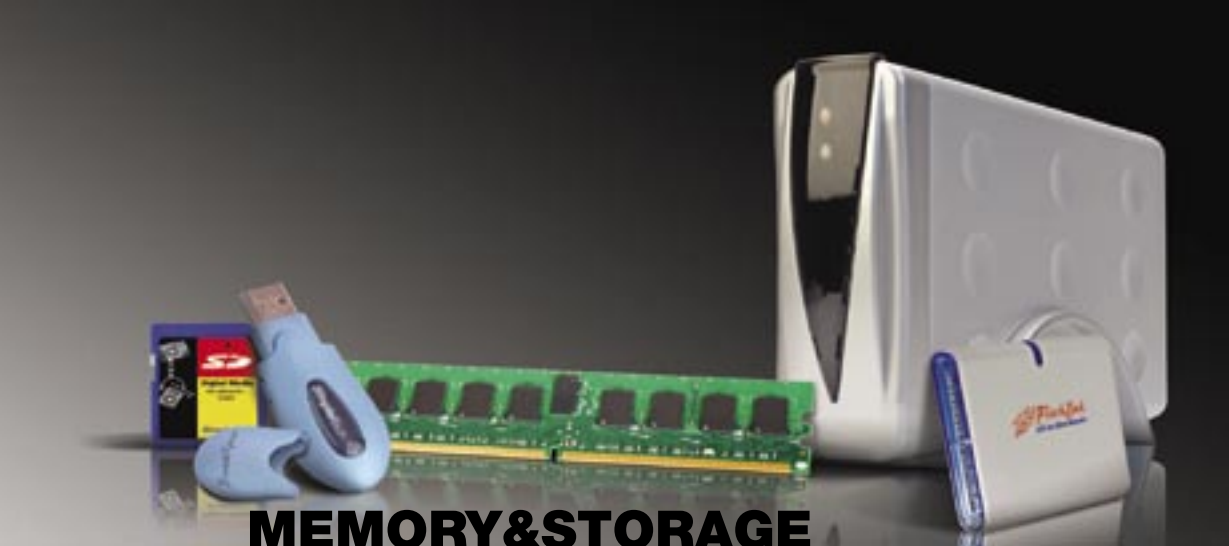
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# Photo Op

64

GOT GEAR?

ESTHER SHEIN

**Photo Printer Basics** Digital photo printers are usually limited to using just glossy paper, but smaller paper sizes, such as 4x6, can be used. These devices use a technology called thermal-dye, which allows the output to be printed in 256 different shades of the primary colors. These printers usually produce images at around 300x300 dpi.



## SPEEDS AND FEEDS

Digital photography is hot and so are digital printers. Mindful of the ever-present speed issue, Hewlett-Packard has introduced the Photosmart 8250, which it touts as the world's fastest photo printer, capable of printing 32 pages of text a minute and spitting out a shiny 4x6-inch or 10x15-centimeter photo print in 14 seconds, as opposed to 50 seconds to a minute.

Quality of the image is also critical. To address that, several vendors, including HP, have added a variety of inks to the newer printers. "It used to be just black and CMY [cyan, magenta, and yellow] but now there are variations in blues, reds, and multiple blacks," according to Ron Glaz, director of digital imaging at International Data Corp., in Framingham, MA. To wit: HP has introduced a nine-ink format printer with more blues to create deeper blues in photos, he says.

A number of printer makers have started to add networking functions to their smaller photo printers, designed specifically with smaller businesses in mind.

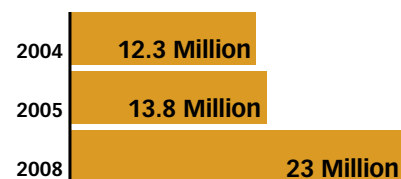
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HERE'S WHAT YOU CAN EXPECT TO PAY FOR A PHOTO PRINTER.

**\$120**  
For a low-end unit

**\$500**  
For a high-end unit that prints 13x19" images

**By the Numbers** Number of photo printers shipped in the United States:



SOURCE: International Data Corp.

## SOME DAY (VERY SOON) MY PRINTS WILL COME

Picture this: You're on safari and you've just captured a killer shot of an elephant herd. Rather than wait until you get home to see the results, print your images on the spot. Unlike traditional desktop counterparts, compact photo printers weigh very little and many let you plug your digital camera directly into the printer. Put any of these on your shopping list:



- Canon i70/i80/i90 Portable Photo Printer; priced from \$200 to \$260
- HP Photosmart 375B Photo Printer; from \$164 to \$270
- Epson PictureMate Personal Photo Lab Inkjet Printer; from \$170 to \$220
- Kodak Easy Share Dock Plus Dye Sublimation Printer; from \$164 to \$208
- Sony DPP-FP50 Digital Photo Inkjet Printer, from \$179 to \$250

TOP: COURTESY HP. BOTTOM: COURTESY KODAK.



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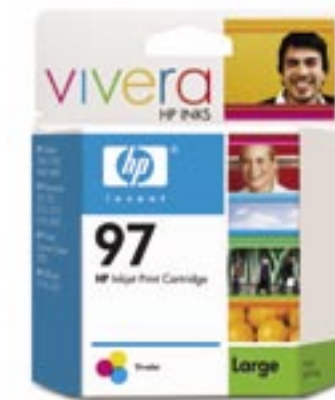
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