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OUT OF PATCH
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IBM ThinkPad T42

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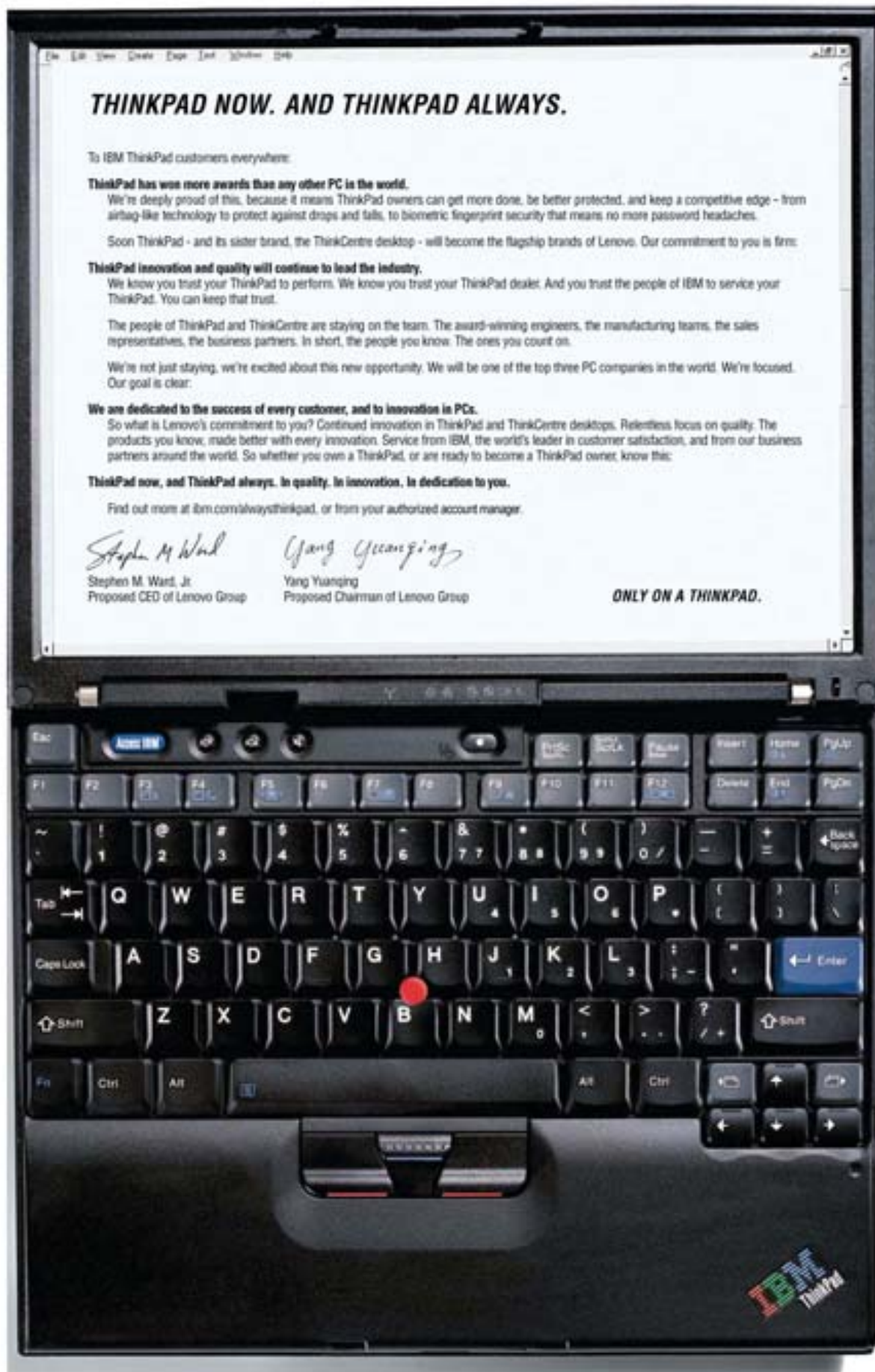
System Features	Intel® Centrino™ Mobile Technology Intel® Pentium® M Processor 745 (1.80GHz) ² Intel® PRO/Wireless Network Connection 802.11b ³
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Yang Yuanqing
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The Daily Grind

Outsourcing IT maintenance can be less taxing on your business.

IN TODAY'S ever-changing, ever-complex world of IT, it's tough to stay on top of the constant stream of day-to-day housekeeping tasks associated with keeping systems running flawlessly around the clock. But if technology is your responsibility on top of whatever else is on your plate, the daily grind of maintenance and upkeep chores can be overwhelming.

One of the biggest burdens for small- and mid-sized businesses is running and managing their help desks. Who's available to help Mary in accounting whose spreadsheet has locked up or Fred in service who's trying to handle a customer complaint and is locked out of the system? In most small companies, these ongoing emergencies are handled by someone who's considered the resident computer guru. The problem is, every time the so-called guru is called in to help, they're pulled away from something else. This kind of "hey Joe" support is costing businesses a boatload in lost productivity.

"By outsourcing operations activities, small businesses can better manage their daily technology needs."

The help desk isn't the only support area that's eating up valuable company time and resources. Keeping up with the constant, near daily, string of patches for operating system software and other applications to keep networks safe and systems current is another drain.

Luckily, there is help on the horizon. Software vendors and technology partners are coming to the rescue with new products and services that can take some of this day-to-day maintenance burden off of an already tapped-out workforce. We at PC Connection, for example, are making services a priority with our ServiceConnection subsidiary. ServiceConnection provides a full range of IT services designed specifically for the needs of small business, including 24x7 help-desk support, patch management, anti-virus management, spam filtering, and configuration services. By outsourcing operations activities, small businesses can better manage their daily technology needs, while achieving more predictability in their total cost of ownership.

So dig into this issue of *Connect*. We'll walk you through what's involved in some of the daily maintenance tasks, from manning the help desk to coordinating optimal patch management. For those who feel outsourcing is a better route, we'll guide you through the issues and tell you how to match up with a technology partner.

Happy reading.

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FEATURES

28

Who Ya Gonna Call? 28

The right tech support is hard to find—not to mention expensive. Here's a guide for sorting through the choices. **PLUS:** **Voices** PC Connection's Keith Lanzilotti translates SMBs help-desk call.

Just the Right Size 36

Looking for an IT partner? Follow a regimen of references, research, and reality checks to guide your choice.

Rough Patch 40

Keeping software updated and free of holes is a colossal pain—but not half as painful as blowing it off.

Is the Paperless Office a Pipe Dream? 46

With the proper vision and planning, it's possible to move to a mostly digital office.



“You can turn the oven on for dinner and check the front door camera to see if the dry cleaning got dropped off, all from your computer at work.” PAGE 18

DEPARTMENTS

From the Top 3

Threads 9

Spam continues to hound e-mail users, despite legislation. ... Hackers have their eye on your cell phone. ... New salvo in the browser wars. **PLUS: Fun Threads** The latest gadgets for gearheads. ... Tuning in to Podcasts. ... Made-for-mobile programming.

Digital Living 18

Home Smart Home Extreme home networks are now within reach of do-it-yourselfers.

Customer Profile 22

Peer to Peer World Media leans on community to give its new music-sharing service impact.

Customer Profile 24

Rocky Road Cubist hit a rough patch with tablet PCs. Asset disposal services let them stake out new turf.

Snapshot 64

On-Demand Computing Fill up with technology horsepower and pay as you go.



Cover: Illustration by Mirko Ilic.

TOP LEFT: MIRKO ILIC; LEFT: SEAN KELLY; ABOVE: JOHN DOLAN



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Threads

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9



E-MAIL

Hard to Can Spam

On the first anniversary of the CAN-SPAM Act, e-mail users had little reason to celebrate.

E-MAIL SECURITY companies say Americans continue to get hounded by illegal spam.

According to one such vendor, MX Logic, more than three quarters of all e-mails sent in 2004 were spam, and of those, 97% violated CAN-SPAM rules. Researchers at Sophos, another player in this market, found the U.S. produced 42% of the world's spam last year—more than three times as much as South Korea, the next country in line.

Vendors of anti-spam services aren't the only ones sounding the alarm. "In the United States, business e-mail users receive an average of 200 spam messages per week—that's more than one TRILLION spam messages per year," notes Richi Jennings, lead

analyst of spam and boundary services at San Francisco-based Ferris Research Inc. "That will cost U.S. businesses more than \$20 billion in 2005."

There is room for hope that we'll eventually get out from under this mountain of cyber junk mail: Research shows that 7% of unsolicited commercial e-mails sent in December complied with CAN-SPAM—the highest percentage for 2004, up from a low of 0.54% in July.

So hold on to your champagne flutes—maybe there'll be cause for toasting on the next CAN-SPAM anniversary.

LINUX—THE NEXT BIG THING?

Move over Windows.

According to a recent study by market researcher International Data Corp., 28% of all servers will run on the Linux operating system by 2008. The share of PCs operating on Linux is expected to increase to 7%, almost double the 2004 number.

SOURCE: Study funded by the Open Source Development Labs.

PREDICTIONS

Infrastructure Armageddon?

Between now and 2015, the United States will suffer one or even more devastating attacks on its networked infrastructure—either the power grid or the information network we commonly know and love as the Web.

At least that's the prediction from the majority of the nearly 1,200 technology leaders, scholars, industry officials, and analysts who responded to a recent survey from the Pew Internet & American Life Project.

The reason given for why any such attack would be "devastating" rather than merely inconvenient? The Internet will continue to become more deeply integrated in our physical environments, the experts predict, making any widespread Net outage ever more critical.

Sony recommends Microsoft® Windows® XP.

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THREADS

Browser Wars: Back for More

Could it be? Some eight years after Internet Explorer bullied and buried Netscape to become the de facto default Web browser, a fiery upstart is fanning the flames once again.

Firefox 1.0, a free Web browser from Mozilla

(a not-for-profit organization that champions open-source software development) is winning raves—and considerable buzz—from online cognoscenti. They like Mozilla's tabbed interface, which lets you view more than one site in a single window; its built-in pop-up blocker; its multiple new search options; its souped-up security features; and its support for "live" bookmarks via the RSS links that have been popularized by bloggers and handhelds.

While those bennies might be great for individual users, IT departments should move more slowly, pundits caution, until it becomes clear how Firefox's security-conscious decision not to support ActiveX will affect browsing in the corporate world.

For more info on the browser upstart, go to www.getfirefox.com.



SECURITY

Hack Attack

Cell phone loophole opens door to vulnerabilities.

FAMOUS HOTEL heiresses aren't the only ones who should be worried about cell phone security. You might want to choose a landline—or at least double-check that your mobile phone is truly secure.

The newest generation of mobile phones could include a loophole in their operating systems that allows hackers to potentially scroll through address books remotely or even listen in on conversations.

The Java 2 Micro Edition (J2ME) software, which is supplied with some smart phones and PDAs sold by Sun Microsystems, Nokia, Sony Ericsson, and Motorola, includes security flaws that could make those devices vulnerable to hackers, according to organizers of a recent

international computer-security conference.

While experts said the risk of intrusion is minimal—malicious programs must be tailored to a specific model of cell phone—you should contact the manufacturer if you own a J2ME device to check for patches and updates. That way you'll ensure that the next time you tap "ILU TTYL" into your smart phone, your SO will be the only one who gets the message.



CRM

More Chat for Less Chit

Online chat is shaping up to be one of those good ideas that hasn't—quite yet, anyway—paid off for corporate America. Average online consumers don't use chat much, and after factoring in its high implementation and operational costs, businesses have to be asking themselves if online chat is worth the bother.

Well, yes, says Forrester Research Inc. Analyst Brad Strothkamp, provided it's done right. People who do use online chat are often a firm's most valuable customers, Strothkamp has found. With that in mind, companies can ensure chat is put to its best use—for high-value interactions—by deploying invite-to-chat solutions that target the wants and needs of these highest-end customers.

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FUNTHREADS

Wanna Know How Stuff Works? Want to have your body frozen and revived at some happier time in the future but not sure how to go about it? Find out how cryonics and lots of other things work at www.howstuffworks.com, a site that offers easy-to-understand explanations on subjects relating to science, technology, cars, health, home improvement, finances, travel, and more.

Whether you want to learn about the World Health Organization, fingerprint scanners, or wireless pet fences, howstuffworks.com can get you started.

Another time saver is www.answers.com, which provides snapshot answers on about 1 million-plus topics. This site will search over 100 licensed and free resources, such as encyclopedias, dictionaries, and atlases, for the best information available on your subject.

So the next time you're feeling clueless, get clued-in with just a few clicks of your mouse.

JAVA JUNKIES Java downloads are projected to generate over \$4.8 billion in mobile revenue by 2009, according to data from Juniper Research, a market-research firm, and mobile games will account for the vast majority of those downloads.

ELECTRONICS

Gearhead's Delight

AS A RATIONAL business person, you follow news from CES—the massive Consumer Electronics Show that takes over Las Vegas every January—because it's a good way to track trends in the electronics marketplace. As a secret gadget-freak, you love CES because it's hands-down the coolest place to get a peek at the hottest new digital playthings for home and work.

This year was no exception as vendors showcased the incredibly large, the impossibly small, and the staggeringly expensive, all coming soon to an electronics emporium near you. Among the buzzworthy items:

■ **High-definition televisions by the boatload.** TV screen technology is still very much up for grabs—plasma? LCD? DLP? Rear-projection?—but prices for high-definition big-screen displays will finally start to fall below the \$1,000 mark this year. If that's simply too modest for you, how about LG's 71-inch plasma set, which sells for \$75,000?

■ **High-definition camcorders**, like one shown by Sony, and high-definition DVDs that, once dueling standards (Blu-Ray vs. HD DVD) have been reconciled, will bring super-sharp images and top-quality sound to movie releases and home video alike.

■ **The Sony PSP**—for Portable PlayStation—(above right) designed to give Nintendo's GameBoy a run for its money by letting

gamers play audio and video files or use it as an organizer in addition to blasting the heck out of asteroid force fields.

■ **Smarter digital cameras** at ever more affordable prices, including Kodak's 4.0 MP EasyShare (above), with a rotating 3-inch LCD touch-screen display and the ability to instantly send pictures via WiFi to your nearest and dearest.

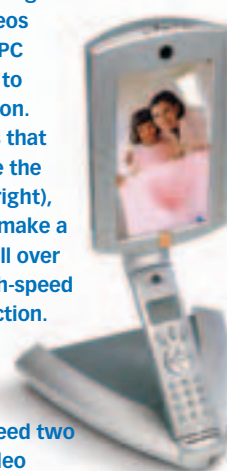
■ **Memory cards** that are big on space and convenience, but small in size. SanDisk's SD/USB, for example, can store hundreds of images or MP3s and plugs right into any USB—no memory-card reader needed.

■ **Wireless media receivers**, like those demonstrated by RCA

and Hewlett-Packard, that will plug into a television or stereo and let you play digital music and view digital photos and videos stored on your PC without having to wire a connection.

■ **Videophones** that really work, like the Motorola OJO (right), which lets you make a visual phone call over an ordinary high-speed Internet connection. The unit will cost about \$700—but, of course, you'll need two to make the video part work.

■ **Finally, a new trend:** "exergaming"—that's exercise/video gaming, as evidenced by products like Powergrid Fitness Inc.'s Kilowatt SPORT, which resembles a TV-enabled Nordic Track, or Electric-Spin Corp.'s Golf LaunchPad, for a digital tee off at home.





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FUNTHREADS

Podcast News As the FCC continues to crack down on this, that, and the other thing, traditional radio broadcasting is starting to look and sound as dated as a Wham! cassette tape.

How to reach a devoted audience on a budget? Podcast! All you need is a microphone, a computer, and editing software to send your news, views, and tunes out to a waiting audience of people with digital music players.

Podcasting relies upon XML and RSS, two by-now-tried-and-trusted Internet technologies.

For samples of the next big thing, check out podcastalley.com.

BLAH, BLAH, BLOGS If all the talk about blogs sounds like blather to you, you're not alone. 62% of Internet users surveyed at the end of 2004 weren't sure what a blog was. But their ignorance is changing fast. The same survey, conducted by the Pew Internet & American Life Project, showed the number of Internet users who read blogs jumped from 17% to 27% last year.

ENTERTAINMENT

From Boob Tube to Cell Phone

APPARENTLY THERE aren't enough fast-action dramas on TV so now we need to stream them onto our cell phones.

That's what Verizon Wireless is hoping. Its customers can now check out several made-for-mobile programs, including 24: Conspiracy, a spin-off of Fox's 24 starring Keifer Sutherland. Customers in 30 major metropolitan areas can tune in to a new one-minute "mobisode" each week as part of the latest offerings on Verizon's 3G network. Also available to subscribers who purchase new 3G phones are 3-D games, music videos, news, weather, sports programming, and clips from *The Daily Show* with Jon Stewart.

U.K.-based communications company Vodafone was the first to make 24: Conspiracy available to its

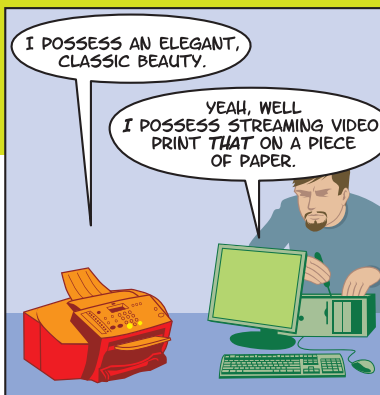
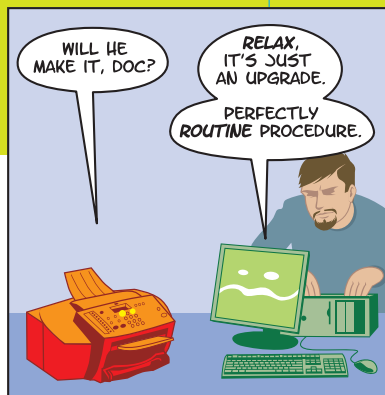
cellular customers earlier this year. Other teleco players are also upping the ante. Sprint currently offers clips of the Discovery Channel's *Trading Spaces*, comedy routines, cartoons, news, weather, and sports, and it recently announced the debut of made-for-mobile short films.

All these great shows and you won't even have to hunt down the remote control. ...Now, where did I put my cell phone?



MOBISODE MADNESS: Good news for 24 fans.

DISCONNECTED



By jaQ Andrews and Erik Evensen

be everywhere at once

WITHOUT LEAVING YOUR DESK



CAPE, COWL, AND TIGHTS ARE OPTIONAL

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OmniView ENTERPRISE Quad-Bus
Series Remote IP Console



Provide Simultaneous Server Access for up to 4 Administrators

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KVM Switch with Micro-Cabling Technology



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walk across uncertainty.

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PC Connection

Home Smart Home

BY STEPHANIE WILKINSON

Extreme home networks are becoming a sport for the do-it-yourself crowd.

ONE OF THE funniest gags in last year's remake of the cult classic movie *The Stepford Wives* happens when the unsuspecting Eberhart family tours its new, ultramodern home in the gated Stepford Village. The house is spacious, elegant, super-deluxe. It's also fully automated: Not only will the refrigerator notify them when it's running low on milk, but with a touch-screen panel in the kitchen, they can control the lights, the door locks—and flush all the toilets.

While played for laughs on film, such hyper-networked homes are hardly the stuff of fantasy these days. From a market once dominated by techno-hobbyists at the low end and the super-wealthy at the high end, extreme home networking is beginning to flood the middle ground, says Mike Wolf, principal analyst at Cahners In-Stat Group, a market research firm in Scottsdale, AZ. For instance, more than half of all new homes being built this year will have structured wiring installed, paving the way for full access to computer networks, cable, and phone anywhere in the house. Home entertainment delivery systems are increasingly making use of networking technology to

link audio and video to cable, satellite, and Internet feeds. And home automation—the ability to remotely control heating, lights, security, the toaster, the pool pump, the chimney flue, whatever—is growing by leaps and bounds, thanks to advances in radio-frequency technology and a proliferation of low-cost products.

Sure, Bill Gates has been enjoying such things for years. (In his 40,000-square-foot house, for instance, lights turn on and off as people enter and leave rooms; plasma wall screens display an ever-changing array of favorite scenes; and only the phone nearest you ever rings.) But now, so too are everyday folk, like Stuart Kramer, a retiree living in Dexter, MI.

Kramer and his wife, Diane, are big-time movie buffs. So they decided to build the home theater they'd always wanted. But they didn't just settle for cushy leather seats and state-of-the-art audio and projection systems. Instead, they decided to install Ethernet wiring throughout the house, opening up a world of add-on benefits. If the couple is watching a video in the downstairs media room, for instance, and Diane decides she'd rather watch it in their bedroom,

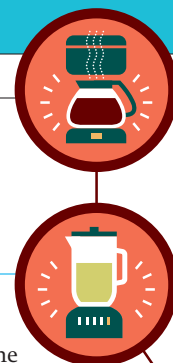
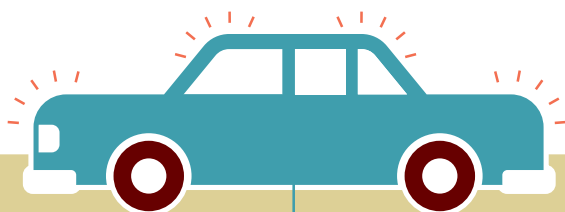
no problem. It's there, too, thanks to the network. When the doorbell rings, the video intercom system kicks in to show them who's at the door. And forget having to walk away from a favorite show when the phone rings; caller ID scrolls the caller's number across the TV screen.

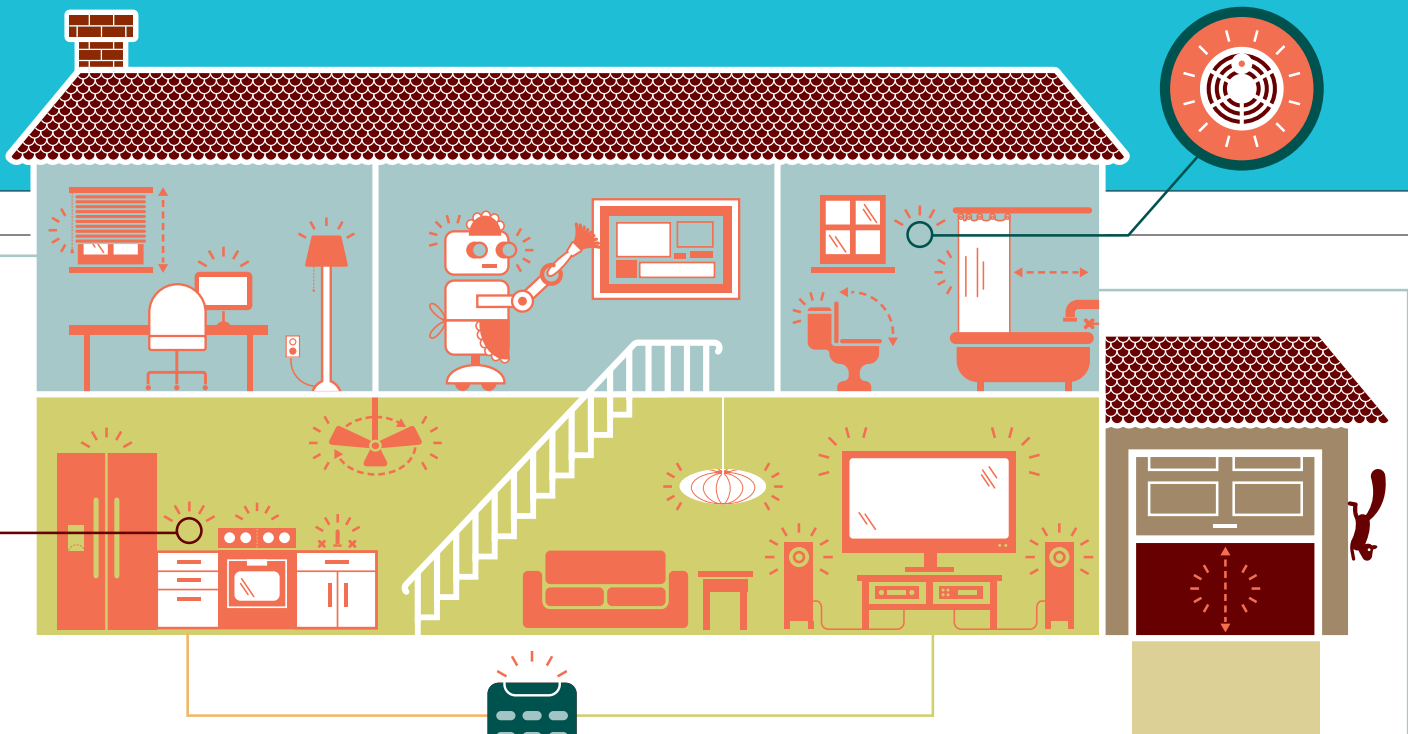
Wayne Caswell was a pioneer in the average-man-home-networking field. A former IBM engineer, Caswell got hooked 10 years ago, giving himself a \$10,000 budget to create a computer network, theater, and



automation system in his 3,000-square-foot Austin, TX, home. Besides standard HVAC, lighting, and security, he built in a few little fun features into his home network, like a fish-feeding system that knows to turn off the tank pump to prevent food from being sucked into the filter. His wife, Yvonne, a self-professed technophobe, appreciates the way the system ensures that the Christmas lights come on each night precisely at dusk.

"The beauty of these systems is that even though technology is always changing, you can usually just keep adding new





modules when you want to add a new feature to your network," says Caswell.

As for the issue of cost: That depends on how extreme you want to get. According to Paul Ebaugh, president of CyberNet Solutions, a home automation and networking installer in Commerce Township, MI, structured wiring goes for \$1 to \$2 per foot in a new home. Music and video distribution systems and home theaters start at \$10 to \$30 per square foot. Large projects, like home theaters, still usually require a systems integrator. (Check out cedia.org for a listing of certified installers.) Home automation kits, which use PC software and RF (radio frequency) signals to control just about anything in the home, are now within reach of the do-it-yourself crowd, some selling

for less than \$300.

New, smart, networkable appliances are constantly under development. Take the microwave oven that's also a mini-refrigerator: It reads the bar code on your package of steak, programs the proper defrost cycle based on weight, and turns itself on in time for you to slap it on the grill when you walk in the door. Or Web-enabled security cameras that make it possible to keep an eye on your vacation property—or your elderly parents—while you're away. Or a network music player, like the \$250 Roku M1000 SoundBridge that lets you interface your MP3 player, computer, and stereo system to program your in-house playlist.

These products are growing in popularity partly because they're good fun. But cultural changes are driving their adoption, too,

says In-Stat's Mike Wolf. "If you're a working mother, now you can turn the oven on for dinner and check the front door camera to see if the dry cleaning got dropped off, all from your computer at work," he says.

And you don't even have to be a Stepford Wife to enjoy it.

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

HOME NETWORKING ON THE WEB

Tune in to these resources for more info:

www.hometoys.com Publishes an e-magazine with articles, product reviews, and how-to's.

www.cedia.org The site for the Custom Electronic Design and Installation Association provides information and a searchable database of certified dealers and installers.

www.smarthome.com Full of retail information on all areas of home networking and automation.

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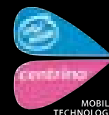
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Peer to Peer

CUSTOMER PROFILE

BY BETH STACKPOLE

World Media is banking that community will give its music-sharing service impact.

IN THE FIVE years since it was founded, World Media has always been all about community. From its initial product, a cash-back shopping portal, to its music service launched late last year, and its digital content offerings sketched out for the future, World Media is pursuing a mission of creating e-commerce experiences that actively solicit involvement from customers.

"We recognize that the growth of the Internet is dependent on consumer involvement," says Joe Hatch, executive vice president of business development for the Saratoga Springs, NY, company. "We knew we had to take the

Wild West and make it feel more like home."

World Media set out to do that initially with Buyers' Port, a cash-back shopping club that let consumers rack up rewards for shopping online at 500 name-brand retailers, including Overstock.com, 800-Flowers, L.L. Bean, and others. From there, World Media took steps to transfer that model into the nonprofit space. Using the same cash-back approach, consumers could shop and have their cash rewards donated to a charity of their choice.

World Media's latest effort is to extend those same principles to the booming online music

business and, eventually, other forms of digital entertainment including movies. Peer Impact is a new and legitimate angle on the peer-to-peer music sharing that was popularized several years ago, but quickly was stamped out by the music industry, which was concerned about copyright infringement and royalties. Leveraging its peer-to-peer architecture and contracts signed with the big four music labels (it claims it's the first peer network to be awarded contracts), World Media is able to offer consumers an opportunity to buy music in a community environment, which lets them earn back a percentage of what they spend in exchange for utilizing their computing infrastructure to share music with others.

"Now, instead of purchasing a song from a centralized service and having their involvement end there, with Peer Impact, they have the same opportunity to purchase music from the same type of catalog," Hatch explains. "But because of the peer-to-peer community, they can earn money back from the redistribution of that content."

Here's how the concept works. Just like Apple iTunes or Microsoft's MSN Music service, customers join the Peer Impact network and can purchase songs for \$0.99 each. Once the music has been purchased, customers can leave their Peer Impact application open, which makes

IN THE WEEDS WITH PC CONNECTION

Bryan Cozart Senior Account Manager

On Peer Impact's coolness factor: It's the community aspect that's great. If you know a lot of people and what [kind of music] they're into, it's easier to find music that you want to listen to. You get to pony off of other's hard work ... and you end up getting something back from your investment.

On PC Connection's role: We helped orchestrate their storage architecture. We put them in front of the right people, aided in the design, and gave them the information they needed to make an intelligent decision on what to standardize on. That was our

biggest win.

On what he personally brought to the party: I got a lot of "help" e-mails. "Help, the server went down." "Help, I need a monitoring solution for a server environment." "Help, I need more Microsoft licenses." It's a long-standing relationship. I'm not only there for the products, but I talk about the business ventures and share ideas on what might be great ways to make money. I even participated in the Peer Impact pilot program.





“We recognize that the growth of the Internet is dependent on consumer involvement.”

—Joe Hatch

Executive VP of Business Development
World Media

COMMUNITY FOCUS: Peer Impact is a legitimate angle on peer-to-peer music sharing.

their music library accessible to others across the network in search of similar music. If your library is chosen as a source by the network, you get a commission on the sale, which goes into a Peer Impact account and can be applied to future music purchases. At minimum, customers can earn back 5% of what they spend, or if they're an active member, it can be as high as 20%.

What constitutes an active member? Those that opt to participate in the communities—taking part in chat rooms, creating blogs, or recommending certain artists or selections—are ranked higher, thus are more likely to be chosen as a source,

which means more rewards. World Media believes this aspect of its service will set it apart from the current leaders like iTunes.

Building out the infrastructure to support a peer-to-peer architecture, while not as involved as a centralized service, still required a significant investment and IT expertise. World Media had a hand with its long-time technology partner PC Connection Inc., of Merrimack, NH. PC Connection introduced World Media to service partners that understood the demands of such a network and was instrumental in helping the company get the best price from vendors on \$1.2 million worth of equipment, says Kirk

Feathers, World Media's president and CEO. PC Connection also was the key force behind the company's choice of a 34 terabyte storage network from Equal Logix, which is a core element of the peer network.

Having PC Connection to lean on for technology assistance was critical. Says Hatch: “When you've grown by 30% and you're juggling that many balls, it's nice to have someone like PC Connection there to help navigate the technology mazes.”

The Rocky Road of Technology Pioneers

CUSTOMER PROFILE

BY BETH STACKPOLE

Cubist hit a bump with early tablet PCs. Asset disposal helped them stake out new turf.



TRADING UP:
Asset disposal
services helped
Cubist's Anthony
Murabito.

WHEN CUBIST Pharmaceuticals Inc. made the decision in July 2003 to pioneer tablet PC technology, it fully recognized there could be bumps and challenges along the way. What it didn't anticipate, though, was the need to upgrade the tablet after only a year into deployment. Not the best situation for the technology group, which had recommended the platform to senior management.

But instead of being shown the door, Cubist's IT group was able to turn the situation into an advantage. Based on a recommendation from its key technology partner, PC Connection Inc., the biopharmaceutical company was able to leverage an asset disposal service that applied the value of the older systems to the purchase price of new, higher performance tablet PCs. "Without the asset disposal service, some people in our IT organization would probably be looking for new jobs," muses Anthony Murabito, vice president of information technology for Cubist, in Lexington, MA. "Being able to return the old tablets for money

PAUL FOLEY

toward the new helped greatly because it didn't look like an error on our part."

What it looked like was a smart move by Murabito's group. The original tablet PC turned out to be underpowered to run Cubist's proprietary salesforce application, which its sales representatives use to show interactive presentations showcasing its acute care pharmaceutical products to busy physicians. Cubist had felt a tablet platform was best suited for the application because of the need to show detailed data like clinical reports and interactive marketing brochures. They also required handwriting capabilities for things like sign-offs, which are critical for regulatory compliance. "We wanted to look outside the scope and felt tablets were portable, easy-to-use, and small enough to show someone something when they're walking down the hallway," Murabito explains.

After it was clear the first tablets were not up for the job, Murabito's group worked with its PC Connection account team to come up with a replacement. It settled on Toshiba's M200 tablet computer. Through the

asset disposal service, the company was able to apply \$550 per tablet (they had originally spent roughly \$140,000 for 70 Hewlett-Packard tablet PCs) to the cost of the new Toshiba tablets. "We were able to apply that credit toward the purchase of new tablets, and it offset a huge chunk of the cost," explains Kate Sohl, help desk coordinator for Cubist, which ended up buying 100 new units.

The new systems, now in place for nearly six months, have been

extremely well received by the sales team and have none of the old performance problems.

Despite the happy ending, Murabito admits he'd be less inclined to take a risk again on being a new-technology pioneer.

"We probably needed to be more circumspect in making the decision to go with an early [tablet] processor," he says. "In hindsight, I would have initially deployed the system on a laptop and waited for the next-generation tablets."

IN THE WEEDS WITH PC CONNECTION

Jack Driscoll



On what's unique about Cubist: They are very methodical and take their own approach to getting things done. When they needed a sales application for the tablet platform, they wrote it themselves because

they wanted to get it done right. They dot every "i" and cross every "t." They get everyone involved and get everyone's input and make decisions that are good for the company.

On how they've been able to successfully pioneer tablet technology: They got everything specified up front, got the product, and then hired a sales force. They told them this is the technology we're using and then they trained them on it. It's the only thing the

sales people have known so it minimizes push back. They also didn't like what they saw in terms of sales applications on the tablet platform, so they wrote their own. That shows they have what it takes to be a pioneer.

On PC Connection's contribution to the partnership: We make sure things get done right. Almost any company can say they're going to do something, but that's not always the case. Cubist can come to me and say they want something done and completed, and I've proved that I'm able to do that. I follow up, I take on their problems as though they were my own, and I get them fixed for them. I think they'd say we are an honest and solid partner.



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WHO YA GONNA CALL?

Finding the right tech support for your budget and work style can be tough. Here's how to navigate the choices.

WRITTEN BY LAUREN GIBBONS PAUL

ILLUSTRATED BY MIRKO IJIC

"Everyone knows informal support is draining a lot of time from people's regular jobs, but no one ever steps back to measure the cost."

HOW'S THIS FOR a nightmare scenario: It's midnight and you're putting the finishing touches on an all-important proposal. Suddenly, PowerPoint freezes, and you're locked out of the application. You reboot, but your screen remains ominously black. You don't want to stay on the phone with your PC manufacturer all night (and who knows if your machine is even still covered by a service plan), and you have that sick feeling that this problem is going to require in-person attention. Who do you call?

For some small businesses, the answer is to ring up a dedicated, on-staff person to troubleshoot IT problems. For most, however, it's a totally different story. Small to mid-sized shops usually have a person or two that are by default the IT experts. Yet leaning on them to handle system crashes or walk you through a software snafu means you're pulling them away from their day-to-day jobs, which—if you took the time to crunch the numbers—turns out to be a terribly misguided financial move (see sidebar, page 33).

"Everyone knows informal support is draining a lot of time from people's regular jobs, but no one ever steps back to measure the cost," says Laurie McCabe, vice president, small and medium business solutions for AMI-Partners Inc., a New York market research firm. Try this for a week: Have the person who wears the support hat in your organization make a note every time someone with a computer problem sends out an S.O.S. What you find might surprise you. You didn't really mean for your highest paid employee to spend three hours per month dealing with print cartridges, now did you?

There are hidden productivity killers, too. "Think about all the things that don't get fixed because the de facto support people don't know how to fix them—the little glitches that you just learn to live with," says McCabe. One staffer's e-mail might crash all the time. Someone else's computer takes 15 minutes to boot up in the morning. People can and do find ways to work around these things, but the situation is costing you money, whether you realize it or not.

Buying a PC vendor's extended support service for protection is wise, but it may not be enough. As a growing business, you may also need some extra IT handholding. So how can a company find that kind of resource without blowing the budget and without opening up security issues and management headaches?

These days, it seems everyone has a help desk support service for SMBs (see chart, page 32). Choices range from finding a local guy to receiving support via the Internet to paying a provider like ServiceConnection for regular service. It would be nice if there were a rule of thumb or two that would dictate exactly what kind of support you should have for your industry and number of employees—and how much you should pay for it—but that's not the case. "Every company has to evaluate each option individually," says McCabe.

To a great degree, of course, your choice of IT support will be based on cold, hard cash. Most small-business executives are extremely leery of anything that involves a recurring cash outflow, such as paying a contractor to come in every month and evaluate how the computers are faring. But as your business reaches a critical mass—you have a network with 15 or 20 computers, for example—the need for more formalized IT support processes (such as backup and storage) becomes clear.

Support on a shoestring

There is good news for the truly bargain-minded: New technologies, such as remote Web-based support, once the province of in-house IT departments, are now available to the masses and priced right. Companies like PlumChoice Computer Help Inc. and ComputerRepair.com allow technicians to tap into users' computers and fix the problem while they watch, for a reasonable price. Other larger service providers, like PC Connection, Inc., offer remote monitoring capabilities as part of their help-desk outsourcing services.

Take the PlumChoice option as an example. The computer user sends an e-mail to make an appointment with a PlumChoice technician. The tech calls the user back at the appointed time and then takes control of the user's computer via remote-control technology. For a set price, the technician will diagnose and repair everything



ENLIGHTENED CEO: Inward's Allan Steinmetz is a believer in formal support structures.

from deleting spyware/adware to finding missing files to assisting in back-up to fixing a printer problem.

Rose Attardo discovered PlumChoice via a piece of direct mail. As office manager at Ackles Steel & Iron Co., Inc., she found herself in charge of IT support decisions. Attardo had used tech support providers from the Yellow Pages before, but felt they were too pricey—up to \$200 per hour to come on-site. Now, for under \$100 per hour, PlumChoice helps her with everything from picking the right PC to setting up the firm's T-1 Internet connection.

"It's a little scary at first when they take over your mouse and start working on your computer, but I've never had any problems," says Attardo, in Waltham, MA.

When it comes to computer support, Allan Steinmetz is pretty enlightened. When he left Andersen Consulting and started his marketing services company in 1997, there were only three full-time employees—not enough for Steinmetz to justify hiring an in-house IT person. But that didn't mean that he let an informal support structure spring up and eat away at productivity. Even in the early, vulnerable days of starting a new business, Steinmetz could see that forcing employees to go without the computer help they needed would hurt him. So, he ponied up some bucks to a friend who had just started his own IT support business, SMR Consulting.

"He put in my whole IT infrastructure—four desktop PCs, two laptops, and a server. He put in

my network, my fax system, my phone system," says Steinmetz, CEO of Inward Strategic Consulting Inc., in Newton, MA. He pays by the hour for Andy Cohen's advice, whether on-site or via e-mail, plus the cost of software and hardware. These days, Cohen checks up at least once a month to be sure everything is running smoothly.

Lightening the load

Even for a company that is large enough to have its own help desk, outsourcing some or all of the function can make a lot of sense. Cubist Pharmaceuticals Inc., a biopharmaceutical company focused on the acute care market, recently added 100 mobile sales reps to its ranks, extending the approximately 200 employees already working at headquarters in Lexington, MA. The new sales force uses tablet PCs—the Toshiba M200 Tablet—and a custom-designed sales force application that gives them the flexibility to provide rich and interactive content presentations to the infectious care doctors they're courting, who are often on the go and require fast presentations (often in the hallways).

Cubist has an IT staff of 14, but only three are dedicated to help desk support. So when the IT group launched the sales force/tablet application a year or so ago, they decided to outsource help desk

THE LANDSCAPE A random sampling of help desk support options for SMBs.

Type of IT Support	Cost (approx. range)	What's usually included	Pros	Cons
PHONE SUPPORT FROM COMPUTER VENDOR (purchased at time of PC purchase) Or ISP (included with monthly subscription)	Typically runs from \$200 to \$300 for two to three years or is included with subscription	Toll-free phone support with limited on-site support	Cost-effective, 24x7, unlimited support	Potential cultural/accent issues if calling an offshore center; agent typically does not mention your right to some on-site support; on-site support is limited; spending lots of time on hold
PER-INCIDENT PHONE SUPPORT (from hardware or software vendor)	Ranges \$50 to \$80 per incident	One trouble-ticket worth of support (may include multiple phone calls related to that incident)	Cost-effective 24x7 support	Agent cannot always solve your issue; spending lots of time on hold; if problem occurs again, you'll have to pay again; no on-site support
PROFESSIONAL HELP DESK SUPPORT geared to SMBs from major vendor (such as HP or ServiceConnection)	Starts at about \$1,500 for a five-incident pack	Provides level-2 help desk support to back up your level-1 help desk	Nearly 24x7, technically more sophisticated, geared for SMBs	More expensive than other phone support; no on-site service
REMOTE CONTROL or chat-based Internet support	Runs \$19.95 per incident up to about \$100 per hour	Depends on what is being offered (offerings vary widely)	Cost-effective, often 24x7 support	With chat support, you generally have to do a lot yourself
HOSTED HELP DESK SOLUTION (such as Help Desk Express from HelpSTAR.com)	\$15 to \$20 per help desk agent per month	Helps you create a help desk portal to support your internal help desk	Cost-effective, self-service option	Does not help users who need help for complex problems
LOCAL CONSULTANT	\$95 to \$180 per hour	Can assist with the gamut of support needs, from break-fix to computer wellness checkups to advice of what to buy	Thorough, comprehensive services; local in-person support; no need to hold on the phone	Can be expensive, generally not available 24x7
INTERNET GROUP	Free	Like-minded individuals share their technical expertise and experiences in an online forum	Free; you might find someone who is a true expert	You usually get what you pay for
YOUR BROTHER-IN-LAW	Free	Expertise and quality of advice vary widely	Free	If divorce ends the relationship, you'll be back to square one

"Between time zones and traveling and their crazy hours, we felt an outsourced relationship would offer a broader scope of services."

support for the sales team. One reason was because the sales team was located all over the country and required a broader scope of services, particularly around support issues related to security and connectivity. "Between time zones and traveling and their crazy hours, we felt an outsourced relationship would offer a broader scope of services," says Kate Sohl, help desk coordinator for Cubist. They turned to their technology partner, PC Connection, which orchestrated an outsourcing relationship with one of its partners, which handles the actual support calls.

While three people can support the primary needs of the internal Cubist users (issues typically related to password resets, setting up new users, upgrading applications and the like), it would have been a huge burden to take on the roving sales team. "The sales force is constantly traveling so they call when they can. That means someone has to be at the help desk all the time to be supportive. Being that we're three people supporting 200 users, we're often away from our desk," Sohl says. That's why the outsourcing relationship was imperative.

As help desk coordinator, it's Sohl's job to manage the outsourcing relationship. She talks regularly to the crew of outsourced help-desk staffers and keeps them in the loop with what's going on at Cubist in terms of updates or changes in procedures. "There's a lot of information and knowledge transfer between the two groups," she says. "I tell them what we do and don't want on the machines, and they produce great automated reports so I'm always aware of what's going on. It's not like, 'goodbye sales force.'"

The sales team calls an 800 number for support, and the outsourcing partner provides a full range of services, including emergency after-hours help. Cubist pays a monthly, per-person fee that Sohl declined to specify.

But signing up with an outside firm to buttress your support organization is not without issues. You'll have to delegate a staffer to manage the relationship or, like Sohl, do it yourself. Keesal, Young & Logan P.C., a law firm based in Long Beach, CA, has 160 employees spread over five offices. Although there are two full-time IT people

in-house, the firm outsources much of its IT operations and support to Info Partners Inc. of San Mateo, CA. Justin Hectus, director of information for KYL, makes it a point to meet with his Info Partners team about once a month or so to ensure everyone is working toward the same goals.

If you're about to sign on the dotted line with an outsourcer, McCabe of AMI-Partners advises small business executives to get a service-level agreement (SLA), a document that specifies incident response times and other matters. Some firms give their clients Web-based access to reports that show if the outsourcer is meeting its commitments—so customers can see at a glance, for example, how many open trouble tickets there are and the average time to resolution.

If in the end, you still don't see the need to formalize your IT support, Hectus would like you to know you're playing with fire. "In 13 years at the firm, I've learned you pay now or you pay later. If you don't take the necessary precautions, you'll end up spending twice as much when things break."

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

SAY NO TO "HEY JOE"

You may be reluctant to hire or contract with a provider to take care of your IT support needs. But consider this: Employees typically have someone in-house they go to for support (this is often called "Hey Joe" support). Depending on that person's job title, you could be paying through the nose—and getting questionable quality.

"Hey Joe" Support with VP
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Cost (per month):

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*Assuming salary of \$100,000 and 10 hours of support per month vs. the same expertise supplied by a professional in less time.

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No More Help Desk SOS

VOICES

KEITH LANZILOTTI

Companies need to take a formal approach to help-desk support.

RESPONDING TO THE day-to-day help desk grind—Mary's system is down or the printer has stopped printing—has always been a chore for smaller companies. Today, businesses are finally realizing they have to take a more formal approach to handling help-desk support. PC Connection, Inc. Service Program Manager Keith Lanzilotti weighs in with some helpful advice.

What are the biggest mistakes companies make when dealing with help-desk support?

Doing it themselves, which often constitutes having unqualified people trying to fix technology that's critical for keeping the business running. That can leave companies resource-challenged for their help-desk needs.

What are the hidden costs related to help-desk support?

A major hidden cost is peer-to-peer support, with some estimates showing that this adds an

additional cost of 20% more than the support desk. Another hidden cost is the lack of IT support, which encourages people to attempt to fix the problem themselves or use their friend, "who is a computer guru." When non-dedicated people get involved, they lose sight of their primary job functions, and that wastes company time.

How can outsourcing help-desk functions mitigate some of these issues?

Outsourcing help-desk support provides faster resolution of calls with a greater level of expertise. This means there will likely be increased customer satisfaction because employees are back to work much sooner. Fixed pricing will help mitigate cost issues and also helps with budgeting.



PARTNER UP: Riding solo on help desk support is a mistake, contends PC Connection's Keith Lanzilotti.

What does PC Connection offer that's unique in this area?

We choose partners that are flexible, can rapidly adapt to our customers' environments and requirements, and who are accountable to our customers. We offer choices ranging from dedicated 800 phone support to 24x7 on-site dispatch. We're partnering with service providers that have mature, robust call-management systems.

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← JUST THERE

How to make the best match for a tech partner. WRITTEN BY STEPHANIE WILKINSON

SON KEVIN LEONARD SWEARS he could ascertain the status of his company's computer network simply by strolling by the Poland Spring dispenser. "If there was a crowd there, I knew it was bad news," recalls Leonard, executive vice president at Straight Source, a recruitment processing outsourcer in Dallas. "It usually meant our systems were down again."

For a company that "lives and dies by e-mail," that kind of continual downtime is disastrous. Especially when the company has a limited in-house IT staff, like Straight Source had. With just under 100 employees and only two technicians on hand, Leonard was finding that problems were outpacing solutions at an alarming rate. There was no question; it was high time to find a value-added reseller

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RUN FOR THE HILLS

Avoid these types of VARs at all costs:

1. The Hit-and-Run Experts.

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2. The "I Worked Six Hours But I'm Only Billing You for Two" Guy.

More likely than not, this guy's learning new technology as he goes along—and you're picking up the tab.

3. The "Pay No Attention to the Man Behind the Curtain" Guy.

If your VAR salesperson doesn't bring a techie to the table, beware; he could be promising more than he can deliver.

(VAR) who could replace his worn-out servers and provide integration and support services. The issue was how to find one that was highly compatible.

With more and more small- and medium-sized companies running their businesses with the aid of sophisticated computer applications these days, the need for help from a tech partner is growing. According to META Group Inc., an IT market-research firm based in Stamford, CT, small-business technology spending is expected to grow 11.4% in 2005. At the same time, according to a recent report by AMI Partners Inc., fully 70% of small businesses do not have an in-house IT department.

You get the picture: Lots of mission-critical systems, not much of a safety net. Picking the right partner to share the load can be the answer. But according to companies that have been through it, it's a dance as delicate as dating and as fraught with as many frustrations as hiring a home contractor.

So how do you do it without getting burned? With plenty of partners to choose from, experts recommend a solid regimen of references, research, and reality checks for making your selection. They say to approach a potential partner in much the same way that you would a life mate. With that in mind, here are some tips for making your best match.

■ **Get set up.** Remember, you're looking for a relationship here. Ask colleagues from other companies whom they've worked with and if they'd hire them again. Personal references from satisfied clients form the backbone of a partner's reputation.

■ **Decide what level of provider you need.** When Jason Needleman was hired last summer as CEO of Family Staffing Solutions Inc., an in-home care provider based in Nashville, job one was to get the company systems under control. With 16 in-house administrators and 350 home-care providers, the company had no IT department. "Our two office managers relied on a local fix-it guy to get the Linksys LANs running," Needleman recalls. "That worked fine for the first six years of the business. But once we outgrew our QuickBooks accounting system, we knew we needed to go bigger."

Bigger is not the best choice for everyone. "Some small businesses can get away with hiring the lone ranger—a guy with a pickup truck, cell phone, and pocket protector," says Susan Labandibar, president



of Computer Warehouse Inc., in South Boston, MA, who specializes in helping small- to medium-sized businesses. "But if you need guaranteed service, you'll have to go up the food chain."

■ Don't be afraid to ask lots and lots of questions.

When Straight Source's Leonard started his VAR search, he whittled a list of 40 VARs culled from a Dallas business journal down to four that sounded most promising. Then he asked the critical questions. "I asked for lots of details," he says.

For Needleman, getting the VAR salesperson to bring a technician along to the interview was key. "I've seen too many eager salespeople promise a solution only to have the tech guys say later, 'No way can we do that for that price,'" Needleman says.

■ **Set the bar high.** Needleman and Leonard agree, if you don't spell out your expectations, complete with timelines and penalties for late delivery, you might as well kiss your project satisfaction goodbye. "Every job runs into surprises," Needleman says. "It's a fact. But it's also a fact that if you don't hit them in the pocketbook for failures to meet your expectation, you won't get what you're paying for."

ON THE HUNT: Straight Source's Kevin Leonard asks for lots of details.

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

Keeping corporate software updated and free of holes is a colossal pain—but not half as painful as blowing it off.

WRITTEN BY TRACY MAYOR | ILLUSTRATED BY SEAN KELLY

LANDON SCISM IS thinking differently about patch management these days, and he's not alone. ■ As director of technology at the Pender County Schools, it's Scism's job to oversee patch management—the science, and art, of keeping an organization's myriad software applications and systems up to date and protected against cyber-intrusion. In times past, software patches used to trickle out from vendors every few months, and IT had the luxury of taking days, or even weeks, to determine if and when their firms needed to upgrade. Then came MyDoom and Blaster and the brave new world of viral warfare and patching went from a once-in-a-while task to a daily, critical chore. ■ “Especially when Microsoft was putting patches out there all the time, we had to be on it, making judgment calls every single day,” recalls Scism. ■ At one point, Scism had a team of seven technicians fanned out across the county, updating and securing by hand the district's 2,400 desktops at 16 different sites. Back in the office, Scism and his staff dedicated hours to tracking updates, determining which ones were critical to their systems, and then testing the patches for incompatibilities before okaying them for district-wide deployment. It was all getting to be too much, Scism says. He broke down and bought an automated patch-management system—Symantec Corp.'s ON iPatch—that allows him to roll out updates across his network and manage the patching process from one central location.

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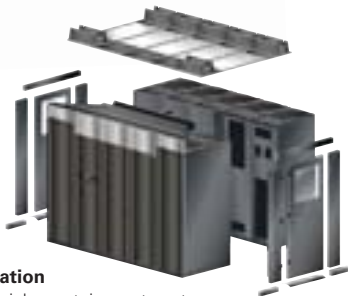
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“If you’re a one-person IT shop, then patch management is just one more challenge to add to your list.”

Across the country, technologists at companies of all sizes are taking patch management seriously these days—and for good reason. Network managers like Scism found themselves dedicating more and more resources—both digital and human—to keeping vulnerabilities at bay in their operating systems, communications packages, and critical business applications. In fact, according to research from Gartner Inc., IT managers now typically spend up to two hours a day managing patches, and the cost of manually installing a patch on a single machine can run as high as \$300 per server.

Faced with those kinds of numbers, managers like Scism from large or midrange companies are increasingly turning to automated patch-management software, either a standalone system or one that’s part of a larger, integrated SMS (System Management Server) package. But those types of systems are out of reach for most small and medium-sized businesses. In fact, patch management is a double-whammy for smaller firms, experts say. They’re just as susceptible to attack as their larger cousins, but lack those companies’ dedicated IT staffs and expansive technology budgets. Without them, these companies soldier on by tightening and better coordinating their machine-by-machine patching processes or by turning to an outside service provider for help.

“If you’re a one-person IT shop, then patch management is just one more challenge to add to your list,” says Fred Broussard, a research manager at International Data Corp., a Framingham, MA, market-research firm. “Some companies may feel that they’re less likely to be hit in terms of the size of their presence online, but if you don’t patch, you’re vulnerable to the extent that you have X number of servers and networks out there.”

Open to Attacks

There’s a definite correlation between patching and virus attacks, agrees Ben Melinger, director of product development at The Lloyd Group, a New York firm that provides patch-management services to small and medium-sized companies. “We have had multiple situations where a company [first] calls us in after they’ve been attacked and says, ‘How can we keep this from happening again?’ If you’re not at the right [patch] level, you’re vulnerable,” he says.

Indeed. The FBI and Carnegie Mellon University have found that more than 90% of all security breaches involve a software vulnerability caused by a missing patch that the IT department already knew about—but hadn’t gotten around to patching.

So how to get the word out—and the holes patched—at your firm? Companies of all sizes can maximize protection by following a set of patching best practices, says Jason Chan, co-moderator of the PatchManagement.org mailing list.

- **Inventory your network to determine upfront exactly what systems you’re responsible for and where your network is vulnerable to attack.**
- **Identify and monitor sources that carry information on patches relevant to your organization (see sidebar, below).**

KEEPING YOUR EAR TO THE GROUND

Smart network managers track news of patches by:



- **Monitoring Web sites of key software vendors.**
- **Subscribing to e-mail alerts from key vendors.**
- **Registering with third-party alert services.**
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“Before patching can be effective, you must have an up-to-date inventory. It’s tough to patch a computer you don’t know exists.”

- Establish a patch cycle for regular, non-critical updates.
- Develop a game plan for prioritizing critical security and functionality patches.
- Establish a process for testing patches before deployment.
- Develop a contingency and backout plan to ensure quick recovery from network outages caused by patch-related incompatibilities.
- Choose what tools and processes you’ll use to actually deploy and install patches.
- Audit and assess the success and extent of your patch-management efforts.

While small and midrange companies might feel overwhelmed by such a detailed list, Chan and other patch proponents urge them not to ignore the very first step: Inventorying.

“Before patching can be effective, you must have an up-to-date inventory. It’s tough to patch a computer you don’t know exists,” explains Todd Towles, a network system analyst at a medium-sized retail chain in the South. “If your patch-management system reports that 80% of your workstations are patched, but 25% of your total workstations aren’t in the system, you’re going to have a problem.”

Smaller firms can ease their patch burden in other ways, experts suggest. For one, they should take advantage of automatic update capabilities, offered by large vendors like Microsoft and Symantec, that “push” patches directly out to users’ desktops.

And testing doesn’t necessarily have to encompass a room full of networked machines. For small companies, testing can simply mean trying out the patch on one or two tech department computers running the software configurations most typically in use at the firm.

Finally, small firms in particular can benefit from maintaining as homogenous a computing

environment as possible, advises IDC’s Broussard. The reason is simple—the fewer the applications, the less patching they’ll need.

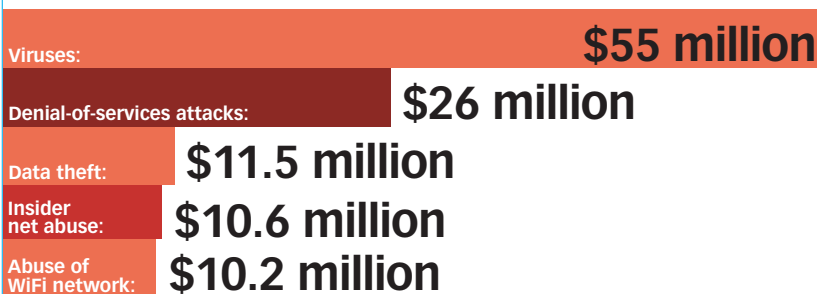
Even so, at some point the process of physically patching computers by hand simply becomes too time-consuming and inefficient for even the most stalwart of IT staffs. “You can go around with a CD-ROM to 10 or 12 desktops, but not to a thousand machines,” observes Broussard. How do you know when you’ve reached the point where you need help—either an automated system of your own or assistance from a service provider? Broussard throws out some handy numbers. “If you’ve got upwards of 500 desktops or say 50 servers or so, then it’s time for an automated tool,” he advises.

If the prospect of paying for automated patching seems painful to you, consider the pain you might face otherwise. Security giant Symantec logged in 1,237 new vulnerabilities in the first half of last year—that’s an average of 48 per week—and the average time between public disclosure of a vulnerability and the release of an associated exploit is down to 5.8 days. Now that’s painful.

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

VIRUSES MOST DEADLY

Why patch? It’s your best protection against virus-related breaches, which last year caused the largest dollar damage to corporate networks.



SOURCE: CSI/FBI Computer Crime and Security Survey

PAPERLESS IS THE OFFICE A PIPE DREAM?

Most small businesses will continue to rely on paper. But with the proper planning, moving to a mostly digital office is a goal worth having. WRITTEN BY ELIZABETH MILLARD

ASK BARRY MACQUARRIE to describe his CPA company's filing room during tax season and he responds with a shudder. As a small, but very busy accounting firm, KAF Financial Group rushed to meet the April 15 tax filing deadline every year, but the aftermath wasn't pretty.

"Files were stacked two feet high, and they were all over the room," says MacQuarrie, in Braintree, MA. "People were too intent on getting the work done to put the files away where they needed to go." If a client called looking for information, he says it sometimes took days and searches through mountains of paperwork to find it for them.

KAF is not the only small business braving a paper blizzard. Although the "paperless office" has been talked up since the early '90s, that golden age of digital documents has yet to come to pass.



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"We are much more efficient because the workflow is streamlined. Nothing gets lost, and time doesn't get wasted."

Even with the stunning amount of document management systems now available—and the increasing ease of using them—many people are still very attached to their 8.5 x 11 paper world.

According to a recent survey by NFI Research, small companies in particular are producing a bigger paper glut than ever before with 72% of respondents saying they still maintain nearly everything on paper. In their book, *The Myth of the Paperless Office*, researchers Abigail Sellen and Richard Harper explore businesses' hesitation about giving up paper. Based on their findings, they say paper will always have a role in offices simply because people like the tactile nature of paper and the familiarity of handling it. Walking down the hall to accounting with an invoice in hand provides a sense of control over the information that can't be replicated by e-mailing an invoice.

There are plenty of other reasons for companies' continued dependence on paper. High-speed printers make it easy to make copies of e-mails, Web pages, internal documents, and forms, and many companies put a restriction on e-mail storage space, prompting a continuous flurry of printing when people clean out their electronic in-boxes. Distrust of technology is also a factor, according to the NFI survey. Some respondents said past computer glitches have made them nervous about putting their faith in hard drives, even if they know the documents are being stored centrally. Given the number of virus warnings and identity theft reports, some employees fret about security as well, wondering if an all-electronic system is just ripe pickings for an adept hacker.

Goodbye, File Cabinets

Despite the misgivings, there are some companies making the leap to the paperless office, and they're finding that it's truly a jump worth making. The trend appears to be getting traction in certain industries, including health care, financial management, and legal firms. In these types of businesses, the volume of paper is becoming overwhelming, with hallways often serving as

temporary storage areas. As they move to digitally based document-management systems, these companies are discovering that there's more to be gained than document retrieval time.

MacQuarrie's firm is learning just that. Tired of that mid-April cleanup job, KAF purchased a Xerox document management system and hasn't looked back since. Although the company was looking for a way to respond faster to client requests, the Xerox system has turned out to bring much greater benefits than they anticipated. "It's completely changed how we do business," says MacQuarrie. "We are much more efficient because the workflow is streamlined. Nothing gets lost, and time doesn't get wasted."

For example, MacQuarrie used to do a tax return, bring it to the firm's auditor, and then wait for their notes. After getting the feedback, he'd make revisions and send it back for a second look. It's a straightforward process, but if someone else had taken relevant materials from the file room or the auditor was out of town, the work stalled.

PDF ALL GROWN UP

While Adobe Systems Inc.'s Acrobat Portable Document Format has done more than most technologies to drive the paperless office, to date, it's still far from making the myth a widespread reality.

"People aren't using PDFs to their fullest capacity," acknowledges Jonathan Knowles, head of technology strategy in the intelligent document business unit of Adobe in San Jose, CA. "But we hope with the release of Acrobat 7.0, that will change."

Adobe Acrobat, first unveiled in 1991, got a major overhaul late last year with a new release that pushes the technology far beyond a simple way to keep documents on a PC. With the new 7.0 version, people can implement security controls on a document, type notes directly to the PDF, and create forms and invoices quickly using Adobe's templates.

"We expect more as people understand the technology isn't just for distribution of information, but for controlling and streamlining their workflow," says Knowles. —E.M.

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DITCHING THE PAPER

■ **CompuThink's ViewWise Small Business Edition:** An electronic document repository that has user-defined virtual cabinet,

drawer, and folder configurations.

■ **Adobe's Acrobat 7.0 Professional version:** Allows you to create, control, and use PDF documents.

■ **Xerox DocuShare:** Web-based document management system specifically designed for small to midsized businesses.

■ **Auersoft's VisualVault:** Document management, business process automation, and collaboration technology using Microsoft .NET architecture.

Not so with their Web-based document management system. Now, all the files are available and searchable, so MacQuarrie can find information quickly. The auditor can also access the return from anywhere in the world, insert notes directly on the electronic file, and get it back to MacQuarrie in hours, not days.

Although it's hard to quantify the benefits of those kinds of workflow changes, experts say they can add up pretty quickly. "The ROI on paperless systems is difficult to measure because you're talking about subtle areas like efficiency gains," says Vince Rogusky, founder of Philadelphia-based Epitome Systems, a developer of technology applications geared toward helping companies go paperless. "But you can certainly see your investment working when your company gets more streamlined."

Path to Paperless

For a company that wants to cut down on its paper use, there are two things that are needed before any product shopping begins: A leader and a plan.

Companies that are successful in implementing paperless tactics usually have an advocate of the strategy. If that person is a president or CEO, it's even better. At Minneapolis-based property management firm Cities Management, founder Kim Carlson felt driven to reduce paper use not just in her company, but in the entire industry. After seeing the efficiency gains that could be realized by going paperless, CEO Mike Egelston took up the cause, too.

"Our industry produces an unbelievable amount of paper, in the form of invoices, statements, and reports," he says. "We realized that just recycling it wasn't enough." The company began building its own Web-based document management system, and within just a few weeks, it was ready to throw out some filing cabinets.

Egelston knows that without Carlson's vision, and the company's drive to put those ideas into motion, they'd still be filling up recycling bins. "People feel like they want that piece of paper in their hands," he says. "We're helping them

understand that they don't need it. The learning curve is our biggest impediment, but slowly, with management serving as an example, they're seeing the efficiencies and reducing paper use."

Beyond having strong, patient leadership, Rogusky recommends that companies take a step back and think about how a digital system can benefit them—not to mention, what it would take to implement it. A document management application isn't just a replacement for paper; it's an entirely new way of handling information, and the company needs the processes in place to handle the change.

"Smaller companies in particular are so busy that they might not realize their processes connect across an organization," Rogusky notes. "If you just jump into a digital system without understanding how that technology will affect all parts of the company, you could be wasting time, money, and effort."

With a plan in place and a commitment to long-term employee education, a company might find that it not only has a more agile, wired staff, but also a whole lot more space where those filing cabinets used to reside.

*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*.*

"People feel like they want that piece of paper in their hands. We're helping them understand that they don't need it."

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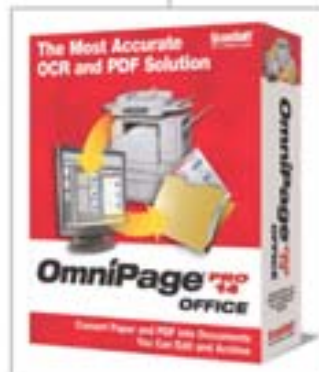
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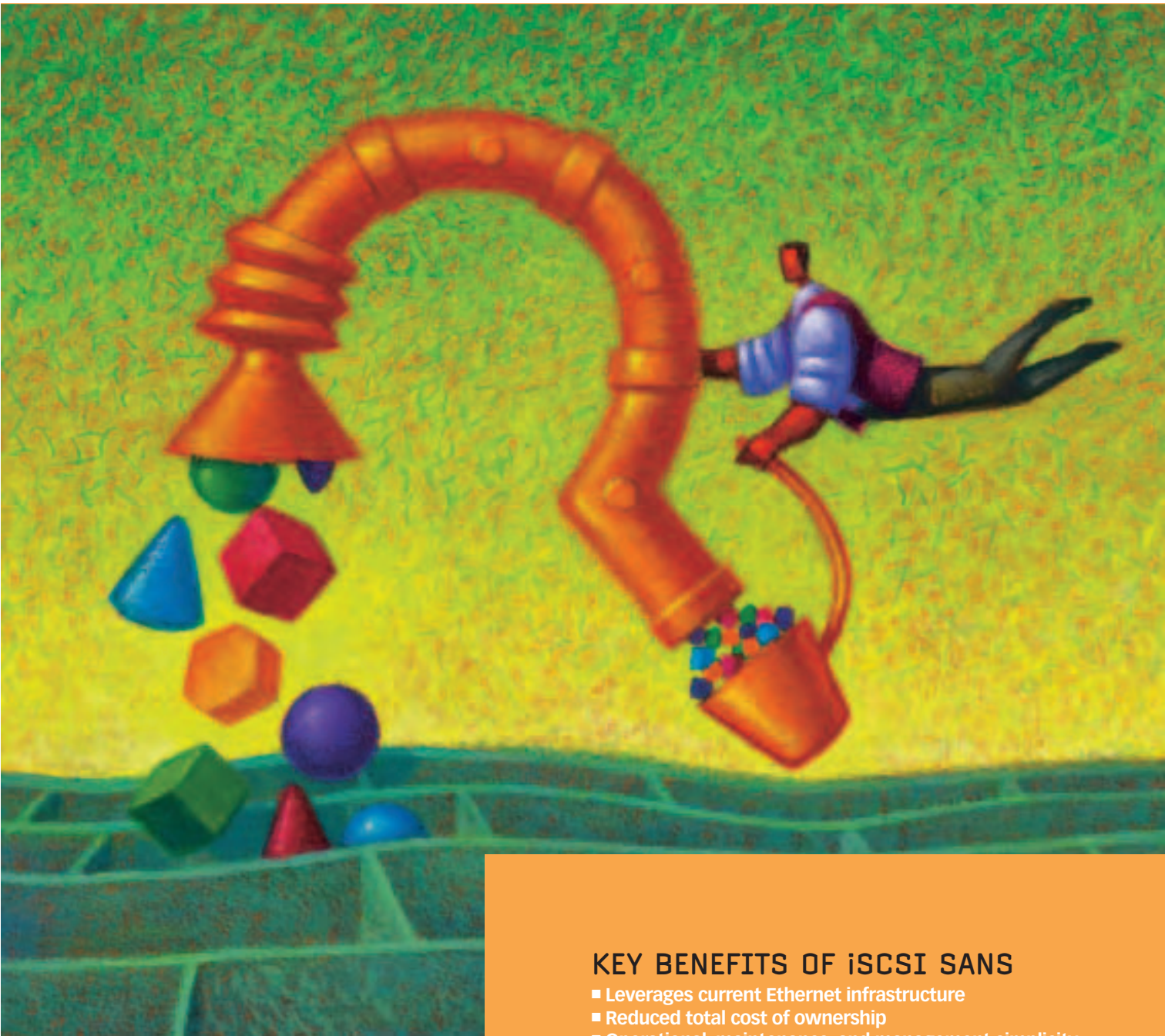
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To iSCSI SAN or Not to iSCSI SAN, That is the Question

You know your data is growing. How are you going to store and manage it?



KEY BENEFITS OF iSCSI SANS

- Leverages current Ethernet infrastructure
- Reduced total cost of ownership
- Operational, maintenance, and management simplicity
- Overcomes DAS distance limitations
- Storage and data backup consolidation

Look no further than your Ethernet.



You might be a small-to medium-sized business, or you could be a regional data center. Your budget is constrained, and while you wish you had more qualified IT staff to solve your burgeoning data dilemma, you simply do not. So you add more file servers, add more tape backup, and continue with a direct-attached storage (DAS) scenario. But your data is continuously multiplying, you are running out of disk space, and you are already spending too much time tending to fussy servers as it is. You know a better solution must be out there.

Enter an IP storage area network (SAN) to the rescue. By now you've probably heard the growing buzz about iSCSI and IP SANs. But you may not be sure what an iSCSI or IP SAN is exactly, if you can afford to implement one, or if its applications are right for your business.

With smaller IT staffs lacking a storage specialist or perhaps no dedicated IT staff at all, SMBs and workgroups can rely on iSCSI SANs to satisfy storage and backup needs without a particularly complicated or costly setup process. Many of the iSCSI storage arrays entering the market are easy to use and can self-manage, so you can connect them to your existing Ethernet network and enjoy built-in features including snapshots and virtualization.

Can I Get a Definition?

A storage area network consists of a scalable, subnetwork architecture that connects, consolidates, manages, and shares storage devices or disk arrays. Servers can access the storage devices, but because the SAN is separate

within your network, the usual traffic bottlenecks are eliminated. SANs are based on a Fibre Channel or iSCSI infrastructure.

iSCSI is an Internet Protocol or IP-based storage networking standard that enables block data transport by carrying SCSI commands over an Ethernet TCP/IP connection. An IP SAN solution, also often referred to as an iSCSI SAN, uses an iSCSI protocol for the creation of a separate storage area network.

How Does iSCSI Work?

By leveraging your current Ethernet infrastructure, you can consolidate multiple servers into one iSCSI storage network that uses SAN disk arrays. Application servers use iSCSI initiators, consisting of either host bus adapters (HBAs) or software drivers, to connect to your iSCSI storage network. This is accomplished using a Gigabit Ethernet switch and Ethernet cables. Because you are already familiar with Ethernet technology, and you already have and use switches and cables, an iSCSI SAN can be incredibly cost-effective and easy to manage.

What Can an iSCSI SAN Do For You?

Reducing the total costs associated with storage consolidation and backup is a key reason to invest in an iSCSI SAN. Backups can occur when they need to without impacting employee productivity, your IT staff isn't tied up trying to solve storage problems for scattered servers, and raw data storage capacity increases with a SAN disk array. Simplicity is also a key benefit in using

an iSCSI SAN. David Dale, Chair of the Storage Networking Industry Forum's IP Storage Forum, asserts that "iSCSI is particularly interesting for storage consolidation solutions for server applications in environments where simplicity, flexibility, and price/performance are the critical IT decision factors.

As a result, iSCSI SANs are heating up the SMB market. Workgroups, departments, and remote offices within larger enterprises are also implementing iSCSI SANs. Companies that need file and email data backup and disaster recovery especially in remote locations can take advantage of iSCSI because there are no distance limitations when dealing with an IP network—whereas Fibre Channel is limited to 10km.

All Aboard the iSCSI Train

As iSCSI SAN disk arrays, routers, bridges, host adapter cards, and software drivers from leading technology manufacturers enter the market at an increasing rate, you are certain to hear continued excitement about how iSCSI is being used exclusively and in conjunction with Fibre Channel for optimized storage solutions. Contact PC Connection today for a storage assessment to find out how an iSCSI SAN will benefit your company.

Storage Networking Industry Forum
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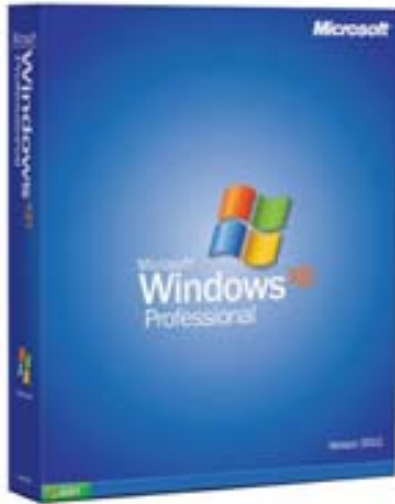
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On-Demand Computing

SNAPSHOT

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LEARN THE LINGO

Autonomic computing:

Invented by IBM, this is the idea that computer systems should be “self-aware” and able to repair, reconfigure, protect, and reallocate themselves.

Clusters: Groups of computer systems tied together to act as a single computing unit.

Grid computing: A form of networking that harnesses unused processing cycles of all

computers in a network for solving problems too intensive for any one machine. Grid computing is largely used today as an inexpensive alternative to supercomputers for research and scientific projects.

Pay as you go: The concept of paying for computing power on a metered basis (as with an electrical or water utility) rather than simply buying a piece of hardware and a software license.

Virtualization: The act of pooling servers or storage into a larger “virtual” resource. Rather than knowing exactly which machine or hard drive will be used, users simply request enough space and computing power from the pool to perform a given task. The goal is to increase utilization levels and reduce costs.



The Skinny On-demand computing refers to the concept of tapping into a network of powerful Unix, Linux, or mainframe computers for as-you-need-it computing power. The on-demand model lets companies avoid purchasing big-iron computer systems they don't need to use all the time.

IBM

The Players

IBM is leading the charge, but they're not alone in embracing the on-demand model. Others include Hewlett-Packard, Oracle, Sun Microsystems, EMC, and Computer Associates.

A New Twist Like so many phenomena in the world of technology, on-demand computing is simply an old concept with a new twist. According to Forrester Research Inc., capacity on demand (COD) and “time-sharing” go back to the 1970s when companies would pay a service bureau every month for each second of central processing unit (CPU) resources consumed.

FITS LIKE A GLOVE The on-demand or utility computing model is ideally suited to the small- and medium-sized business (SMB) market, according to Gartner, Inc. Analyst Bruce Caldwell. Features that make the model a great fit for SMB include:

- Predictable, flexible costs
- Lowered operating costs
- Short and simple contracts
- Improved service to end users
- Reduced or eliminated capital expenditure
- Pay-as-you-go pricing

Characteristics of an On-Demand Business

- **Responsive:** Sense changes and respond quickly
- **Focused:** Core competencies; strategic partner outsourcing
- **Variable:** Adaptable cost structure to reduce risk
- **Resilient:** Protect against threats; 24x7 operations

Source: IBM

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