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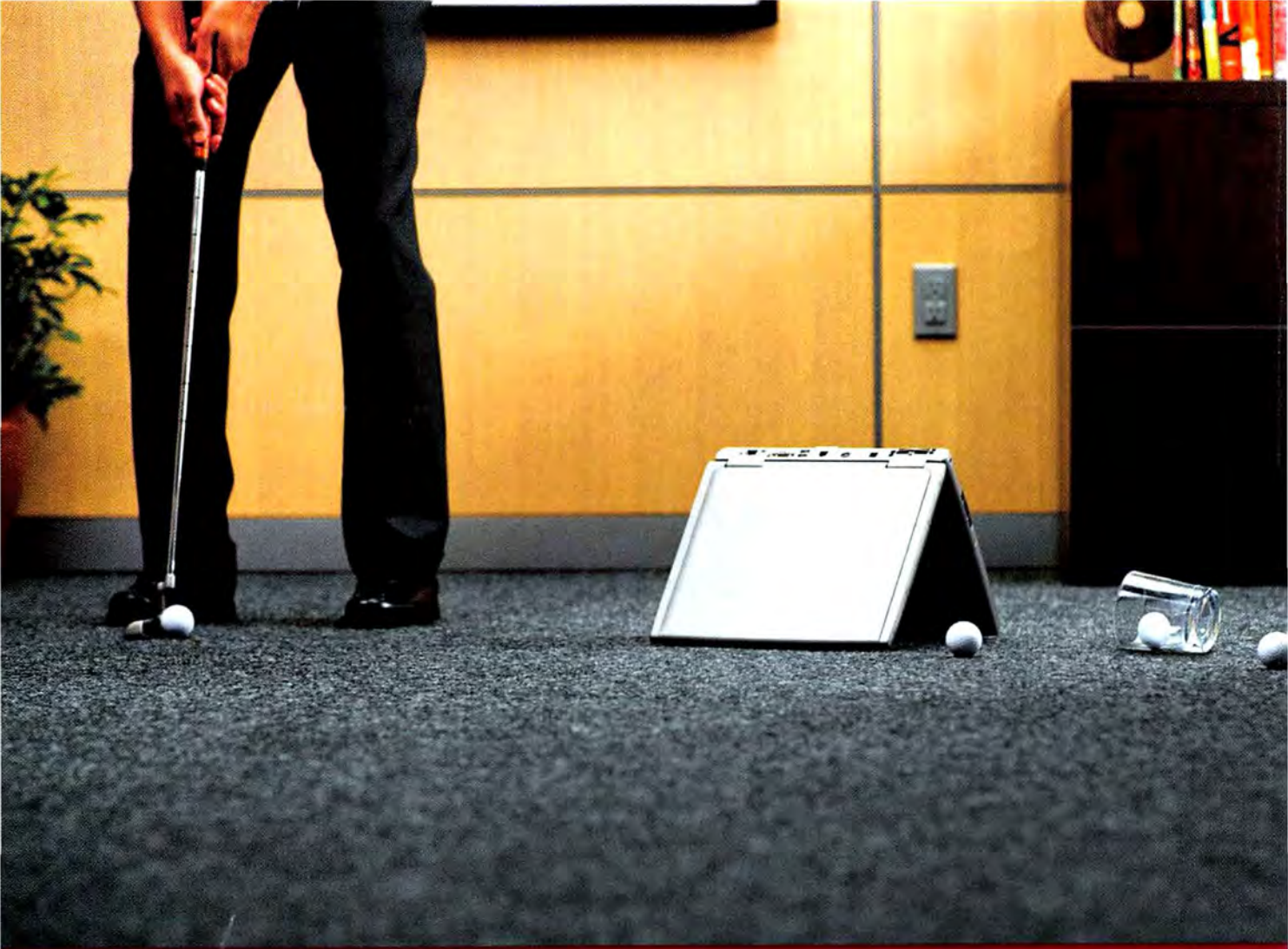

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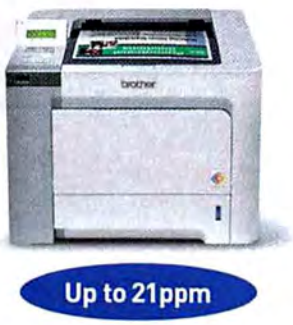

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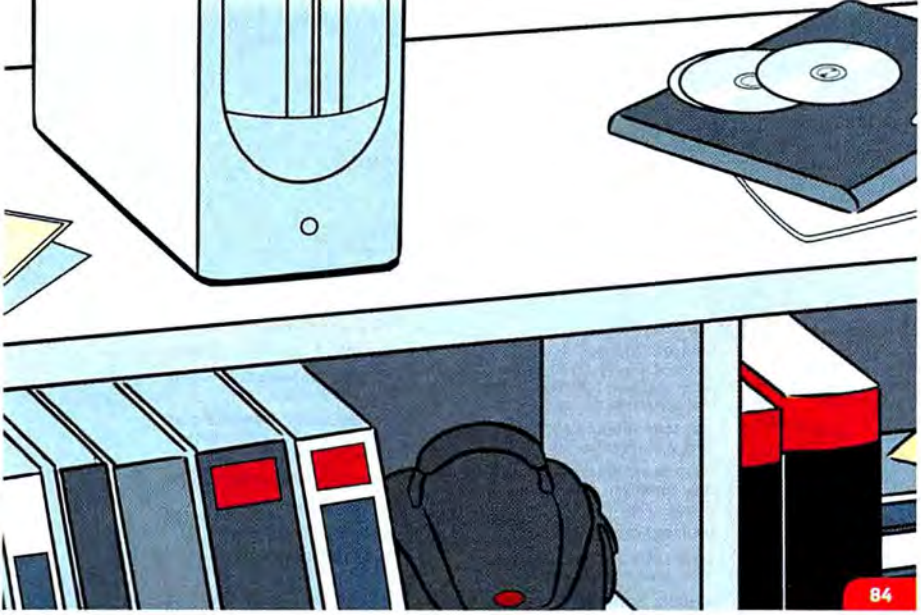

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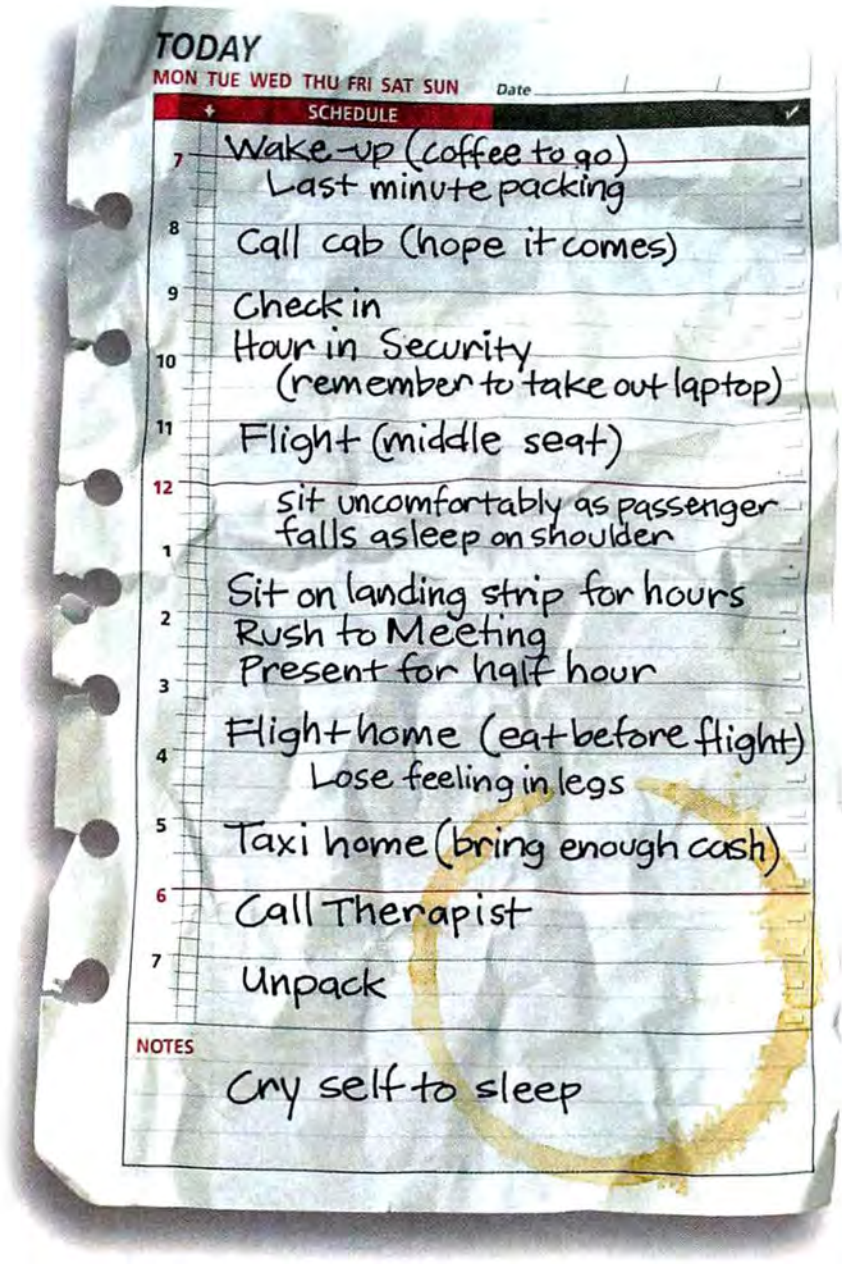

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Techlog

HARRY McCRACKEN

What's Hackable Today? Almost Everything!

Hacks make products better in unexpected ways. Blessed be the hackers who create them—and the companies that permit them.

"HACKER." IT'S A word that's been with us since the dawn of personal computing, but one whose connotations keep changing. At first it was positively complimentary: A hacker was someone who was really good at coming up with inventive, unexpected solutions to computing problems. Then it turned ugly, suggesting that the person in question was engaging in practices that were dubious or downright illegal.

Lately, though, hacking has swung back to a meaning closer to its original sense—and I couldn't be happier about it. Today it describes any clever trick that gives a product functions other than those specifically intended by its creator. Hackers, and the hacks they come up with, have gone mainstream; better yet, you don't need to be a hardcore geek to join the fun.

Witness this issue's lead *Here's How* feature, Scott Spanbauer's "Eight Great, Simple Ways to Hack the Web" (page 132). Scott, a *PC World* stalwart since before there was a Web to hack, shows how to perform cool Google Maps tricks, create your own RSS feeds and widgets, and a whole lot more.

All these feats are possible because the Web is the most inherently hackable piece of technology ever invented. And increasingly, smart Web companies are figuring out that the more hackable their sites and services are, the more successful they can be.

In May, for instance, the Facebook social-networking site opened up its platform, allowing any developer with the skills and interest to build new features. That gave millions of people who had been doing their networking elsewhere a big reason to switch their allegiances to Facebook. Scott's story explains how to customize your Facebook profile using add-ons from the vast assortment that has already emerged.

Hacker-Friendly Hardware

It's not just Web sites and services that are more hackable than ever. Time was when Intel and AMD were at odds with PC enthusiasts who overclocked the chip makers' CPUs to push them to a higher level of performance. Today, however, both companies sell chips designed with overclocking in mind.

Even hardware companies that don't build explicitly hacker-friendly features into their products often help out hackers in other ways. Opening up a TiVo DVR box, for example, voids its warranty. Even so, the company's support forums are full of open discussion among its customers on do-it-yourself topics such as how to perform hard-drive upgrades. In an earlier era, you might have expected TiVo to censor such valuable chatter off its site.

In short, tech companies have become surprisingly tolerant of hacks (at least ones that don't involve circumventing copy protection or compromising security). So it was startling when Apple announced back in January that it intended the iPhone to run only client applications that the company designed itself, a decidedly hacker-hostile move. "You don't want your phone to be an open platform," Steve Jobs told *Newsweek*'s Steven Levy.

Speak for yourself, Steve. The moment that the iPhone hit the street on June 29, hackers went to work on it, determining how to add useful features that Apple had left out, such as a capability to use the phone as a modem for a laptop. That's hacking at its best. And imagine what hackers could do if Apple decided to help, rather than hobble, the folks who seek to make the iPhone better for all of us.

Have favorite hacks of your own for the products you rely on? Drop me a line at harry_mccracken@pcworld.com and share them—I'm all ears.

Read Editor in Chief Harry McCracken's blog at blogs.pcworld.com/techlog. ●

PHOTOGRAPH: ROBERT CARDIN

PCW TAKES HOME SOME AWARDS

ON AUGUST 2, I had the privilege of representing *PC World* as we received one of the nicest compliments anyone has ever given us: At the Azbee Awards in New York City, the American Society of Business Publication Editors named PCWorld.com as its Web Publication of the Year. The judges called our site "well-organized, authoritative, informative, and entertaining," and singled out our videos for praise. As you can imagine, we're blushing.

The 43-year-old ASBPE gives awards for both magazines and Web sites. We won 13 national honors in all, including gold ones for Anush Yegyazarian's Tech.gov column "Censorship, Human Rights, and Capitalism" (find.pcworld.com/58271) and for our product reviews (www.pcworld.com/reviews/hardware).

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PCW Forum

Love it or hate it, the iPhone was on everyone's mind this month. Is it innovative and amazing, or overpriced and pointless? Should it do more for the price? Should you wait for the next generation? What about Apple's battery replacement policy? Tell us what you think at find.pcworld.com/58261.

iPhone

I'm sorry, but don't people who bought [the iPhone] for $600 deserve a *perfect* product? For 600 bucks I expect this thing to read my mind and order flowers for my girlfriend (and post it to Apple's account).

liquidwave22, from the PC World forums

The iPhone looks amazing, and it probably feels amazing in the palm of your hand, too. It's sleek, curvy, shiny, and sexy, with on-screen icons and buttons that just ooze and drip class.

andersonoscar5, from the PC World forums

Far and away, [the virtual keyboard] was my biggest concern about the iPhone. Having played with one for quite a while, though, I can say that all of my fears regarding the keyboard have been laid to rest. It is incredibly responsive and intuitive.

jasonact, from the PC World forums

The iPhone is nice but I would rather wait and see what other companies will carry it. Right now the iPhone may be revolutionary, but other companies are not far behind. Also, I would not buy something that is first generation.

lonewolf22, from the PC World forums

Users Blast iPhone Battery Policy

Uhh, call me naive or something, but if you don't like the battery policy then don't buy the phone. It isn't like Apple released the phone and didn't disclose that the battery was good for only about 350 cycles.

Inverse137, from the PC World forums

The complimentary one-year warranty covers battery issues due to normal use. If your iPhone won't hold a charge after ten months (as the Foundation for Consumer and Taxpayer Rights says may be the case), then either contact AppleCare or bring it in to an Apple Store and get it replaced for free. I wish people would read the terms instead of freaking out.

aboxofjosh, from the PC World forums

I have zero sympathy for iPhone suckers. They had to have their precious iPhones *now*, so they didn't do their homework, and didn't wait a few months to see what the problems would be with it. Apple has become successful in part because of fanatical users who are easily taken. Those customers have only themselves to blame for making a bad purchase decision.

jmartalo, from the PC World forums

Perhaps the question should be, "Is Google Too Scary?"

Bette Dowdlell, Glendale, Arizona

PC World's New Look

I just finished reading the latest issue of *PC World* with the new look, and I think it's great. I had subscribed to a different PC magazine who changed their look when I had about one issue remaining on my subscription. Their new look and features changed for the worse, which resulted in my not resubscribing. *PC World*'s overhaul, however, makes me want to continue reading the magazine for some time to come. Keep up the good work!

Anthony Bivens, Harrisburg, Pennsylvania

I absolutely hate the [magazine's] new font and printing. *PC World* is now following the trend of printing smaller and lighter. If this continues to be the case, I will follow the trend that I have with my other subscriptions and let them lapse. You've gone beyond what my 43-year-old eyes want to read! Please bring back the old font and easy-to-read format!

whoser34578, from the PC World forums

Is That a Social Network in Your Pocket?

After I read the August *Gadget Freak*, I began to wonder if I was missing out on something since I don't "social network" at all. And then I asked myself: Why would I want to send my friends a picture of my Steamer sub and who among them would even care? It seems to me that the tech industry has created a plethora of apps we use not because they do anything really useful but simply because we *can* use them. Think what a better world this would be if all that »

ILLUSTRATION HARRY CAMPBELL

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Go to find.pcworld.com/57702

PCW Forum

I hate how phone companies have a huge ring-tone business. I'm sorry, but if my phone is an iPod, I'm certainly not going to pay for some crappy ring tones.

kmitchell, from the PC World forums

creative energy worked to find a way to cure disease or feed the hungry.

Aaron Hurwitz, Carlisle, Pennsylvania

Consumer Rebate Horror Show

I stopped buying based on rebated pricing [because], from my perspective, if a company wants to discount a product, they should just discount it and not play these games ["Company Shutdown Sparks Consumer-Rebate Horror Show," find.pcworld.com/58287]. This kind of "rebate hell" is the second reason I Just Say No to all rebates.

Toulinwock, from the PC World forums

My solution to rebate debacles like Buy.com's is very simple: Just dispute the amount with your credit card company and charge it back to Buy.com. Buy.com is one of the kings of the rebate game. The company advertised it, reaped the benefits of the sales, and should pay. Maybe, *maybe* then it will learn to stop playing the game.

freejazz, from the PC World forums

Rebates stink. The best ones I've run across are offered by big companies that are stable. Little companies always give you a hard time when it comes time for redemption. Even better, don't buy rebated stuff.

buckwalter, from the PC World forums

Sex Offenders and MySpace

If these "predators" are truly dangers to society, why aren't they in prison? What's next? Will MySpace need to provide a list of traffic offenders, smokers, and those behind on their taxes?

DannyZ, from the PC World forums

This persistent, ridiculous rage against MySpace for any possible ill use of its services [is absurd]. The Internet as a whole is made up of people! Just like the real world! And just as in the real world, we don't know anything about the strangers we casually converse with on a daily basis.

ImaPhake, from the PC World forums

The state's attorneys are playing the easy trump card of "protecting our children" against sex offenders who already are under more scrutiny than perhaps they deserve.

GADGETGUY, from the PC World forums

PC World welcomes your feedback. We reserve the right to edit for length and clarity. Share your thoughts in the Comments area under each story on our Web site, or visit our Forums (find.pcworld.com/55165). Send e-mail to letters@pcworld.com.

CORRECTIONS

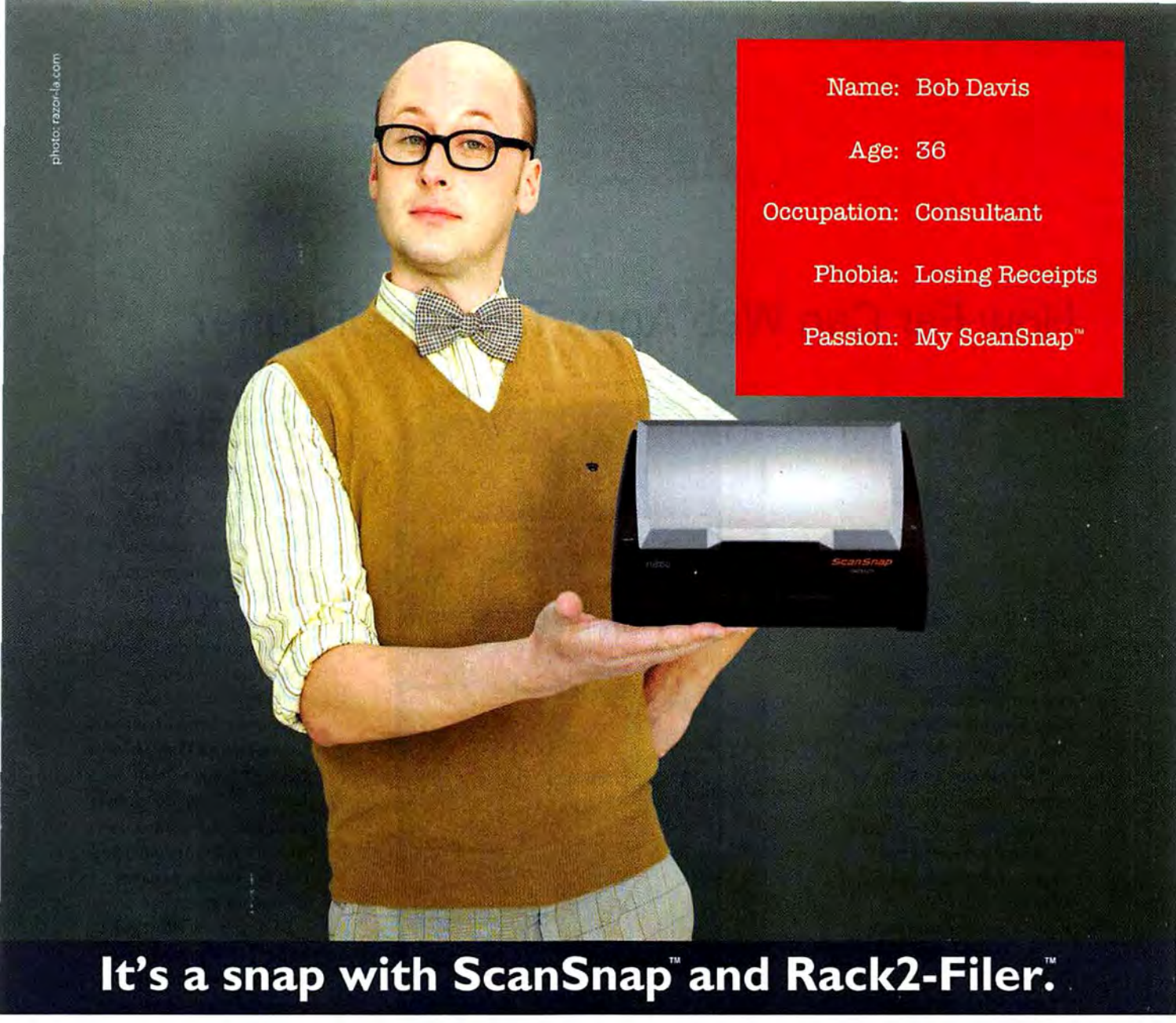
AUGUST'S *Answer Line* tip titled "Tell Windows to Knock Off the Restart Nags" should have stated that the tip works in XP Pro and in Vista Business and Ultimate, but not in XP Home or Vista Home Premium.

In the *Answer Line* column on page 138 of the July issue, the tip "Improve Access to Folders by Creating Virtual Drives" neglected to state that you must put quotation marks around the file path because it contains spaces. The correct command is subst g: "c:\documents and settings*username*\my documents", where *username* is your Windows log-in name.

PC World regrets the errors.

TELL US WHAT YOU THINK

RATE THIS ISSUE by going to www.pcworld.com/pcwinput—you could win a $300 Amazon.com gift certificate. The site explains the official rules and offers an alternate method of entry into the prize drawing.



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Forward

How Far Can Web Apps Take the iPhone?

Early apps let you Webcast baseball games, check gas prices, and network with friends, but true business software may require more than just Safari.

BY RYAN NARAINE

WHAT IF DELL released a new computer with nothing but a Web browser on it? Well, as slick as the iPhone is, if it's missing an application you need—instant messaging, for example—a tiny PC with a browser is really all you have. But as today's explosion of Web-based applications demonstrates, you can do a lot with just a Web browser.

Eager developers are already creating new Web-based applications for the iPhone (see page 20 for some of our favorites), and high-profile sites like Facebook and Netvibes have gone a long way toward making themselves more iPhone friendly. But questions remain about how much the iPhone's current incarnation can really do and what that means for the future of mobile computing.

PICKLEVIEW, AN APP written during the three-day iPhoneDevCamp, lets you Webcast baseball games while chatting with other users.

Citing security and reliability concerns, Apple opted against releasing a software development kit, or SDK, to allow the creation of native iPhone programs. Instead, Apple provided hooks to let developers access many of the iPhone's basic functions, such as sending e-mail, dialing a phone number, or tying into the embedded Google Maps through Apple's Safari browser. Ideally, developers would use those capabilities to build Web sites and apps that behave just as native iPhone programs do.

So how is the effort going so far? Just one week after Apple shipped the iPhone to droves of drooling early adopters, Richard Herrera traveled to Adobe's San Francisco office for iPhoneDevCamp, a three-day event where Web developers and designers brainstormed ideas for delivering applications to the shiny new device.

Just four hours into the first day, Herrera and three other developers he barely knew delivered Pickleview

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Can't get enough of the iPhone? Check out our satisfaction survey of more than 500 iPhone users at find.pcworld.com/58301. And watch our grueling stress test of the iPhone at find.pcworld.com/57880.

PHOTOGRAPH: MARC SIMON

(pickleview.com), an iPhone Web interface that shuttles real-time, interactive baseball scores from MLB.com to a live Twitter chat stream.

"When Apple said that any application fully compatible with Safari 3 would integrate perfectly with iPhone, I knew it would be real easy to build some fun apps," Herrera says. "It's only been a month [since the release of the iPhone], and I've seen some really interesting things being done."

While coders are still getting a handle on what they can and can't accomplish through Safari, impressive applications are already starting to emerge, and events like iPhoneDevCamp have produced some fun new features. But several developers believe that many serious business programs will require an SDK.

Early Applications

Raven Zachary, open-source research director for the technology-analysis company The 451 Group and one of the organizers of the iPhoneDevCamp, says he was blown away by some of the creations that came out of the development event.

"I saw a voting application that was motion controlled, where you could vote 'yes' if the iPhone was horizontal or 'no' if it was moved into a vertical position. That was neat," Zachary says. "Pickleview's interface was really impressive," he adds.

Other software coming out of the camp provides an early glimpse at what can be ported to mobile devices. Telekinesis (code.google.com/p/telekinesis/), for example, turns the iPhone into a remote control device to access Mac OS X computers through a collection of mini Web applications on the phone. There's even an iPhone-specific social network called iRovr (www.irovr.com) that offers MySpace-like functionality for groups of iPhone-using friends.

Some other ideas include Gas.App (www.gasapp.com), which delivers gas prices based on an iPhone user's zip code; txtDrop (txtdrop.com/iphone), which provides free Web-based SMS on the device; iPhone My eBay (www.iphonemyebay.com), for bidding and tracking auctions in a customized iPhone interface; iChess (ichess.morfik.com), a touch-screen chess game by Australian developers who have never laid hands on an iPhone; and FlickIM (www.flickim.com), an AOL instant messaging chat tool designed for the iPhone.

Then there are "launchers," or app aggregators, Web sites that mimic the iPhone screen layout on the Web, giving iPhone users a way to easily access third-party apps without having to bookmark individual Web pages. Three launchers that have gained momentum are AppMarks (www.appmarks.com), MockDock (www.mockdock.com), and Mojits (www.mojits.com), each offering preloaded programs and the ability to add and delete apps from a single iPhone Web page.

Tracking Development

Steven Schopp, a New York–based developer who is working on iPhone gaming software, came up with the iPhone Application List (www.iphoneapplicationlist.com) to track the many new apps created every day. He says the Safari app-delivery model makes it "supereasy" for anyone to hop aboard the iPhone gravy train.

"It really opens up the iPhone to everyone with basic Web developer knowledge. Once you stick to Web standards on Safari, your app will work perfectly on the phone. This makes it so easy for anyone to get involved," Schopp says.

Still, the big question on everyone's mind is whether Apple will bite the bullet and release a full SDK so that more people can write native iPhone programs, much as it did with Cocoa, the object-oriented application environment designed specifically for building Mac OS X–only native apps.

Michael Gartenberg, vice president and research director at New York–based Jupiter Research, notes that most current iPhone programs are consumer focused and fill a very small niche; he also argues that the iPhone won't truly be a killer device until third-party applications can attack issues »

PLUGGED IN

NEW IMACS: Aluminum, glass, and a new keyboard. That's the big product line update? Somebody wake us when Leopard finally arrives.

FREE MICROSOFT WORKS: Low-cost office suite finally joins the club—sort of. It's free only to OEMs. Honestly, you couldn't pay us to use it.

FILTERING ON YOUTUBE: Without illegal copies of TV shows, what's left? Man cannot live on Diet Coke and Mentos, and strange Japanese TV, alone.

SECOND LIFE CHARITY WALK: Do people pressing <Up Arrow> qualify as walkers? No matter—raising money to fight cancer is never a bad thing.

DON'T FEAR THE GOOGLE: Bill Gates doesn't—at least not as a mobile phone competitor. It worked great for Web search, so why not keep it up?

THUNDERBIRD LEAVES THE NEST: Apparently Thunderbirds are no longer "go" at the Mozilla Foundation. We wish the mail client well on its own.

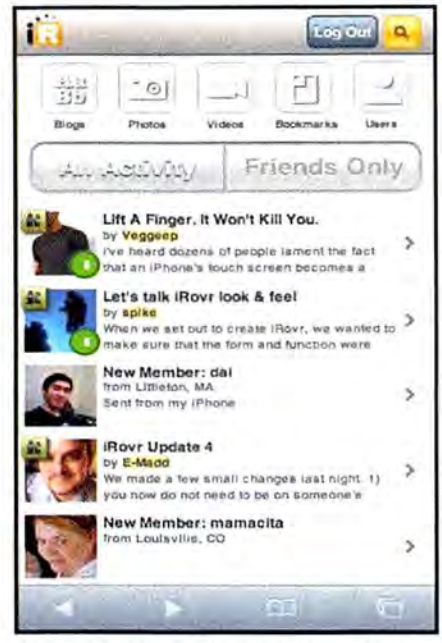
such as compatibility with Office documents, allowing the creation of Word or Excel files. "These things can be easily addressed with an SDK, but we'll have to wait to see what Apple decides to do," he adds.

Veteran developer Dave Winer, who bought an iPhone the day it hit retail shelves, isn't impressed with the Web-based application approach either. "How different the situation would be if the iPhone had a full SDK, if you could run Mac OS apps on the device, or if it had a built-in HTTP server that would allow you to browse or configure it over Wi-Fi from a Mac or Windows machine," Winer wrote on his widely read Scripting.com blog. "In other words, if it had the kind of revolutionary features and was an open platform in the tradition of Apple and the PC industry."

But could that level of openness be coming? Joe Hewitt, a software engineer who created the user interface rendering engine behind America Online's new AIM platform, believes Apple will give developers tools to tie Web utilities to different parts of the device, like the camera or the calendar app.

"They say they're going to focus on Web apps, and I believe this is going to be the main approach," says Hewitt, whose free tool iUI (www.joehewitt.com/iui) aids the creation of Web sites that look as if they belong on the iPhone.

Hewitt expects Apple to add Flash support to Mobile Safari, opening up the iPhone to gaming and video delivery. He also anticipates an offline caching utility similar to Google Gears so programs won't need constant connectivity.



CONNECT WITH YOUR techno-hip friends on iRovr, the first iPhone-specific social network.

iPhone 2.0?

The 451 Group's Zachary agrees that future iPhone updates—both to the firmware of the device and to revisions of the hardware—will find ways around the Web-delivery stumbling blocks, but he thinks it's inevitable that Apple will release an SDK to help build native iPhone software.

"Ideally, I think we'll see feature revisions with GPS to add location-based services. That will make online mapping apps much more effective. Right now, [Apple CEO Steve Jobs] is comfortable with Mobile Safari, but I think we'll see an SDK that allows native apps in some kind of sandbox to get around the security and stability fears," Zachary says.

"The guys who have dedicated their lives to building Mac apps are not going to do the Web paradigm. They will want to wait for an SDK before committing to any kind of iPhone development," he argues.

Web-based delivery could also limit iPhone application availability by making it harder for some developers to earn money with their creations.

Gartenberg believes that more native software and games will arrive, but that Apple will continue to work with a few select companies, as it has with Google and YouTube. "That's pretty much the model they've done with the iPod, where you can get third-party games, but only if you buy them directly from Apple. They're only working with select developers on those iPod games, and that's pretty much what they'll do with the iPhone," he says.

While selective development of native applications will continue—Steve Jobs has already promised an iPhone voice recorder—most of the action will be confined to Web-based applications. And that should be a good thing for mobile apps in general: Once a Facebook or a Netvibes runs on the iPhone, adapting it to operate on the next great mobile device becomes that much easier.

TRY THESE

Our Favorite Safari-Based iPhone Applications

LOOKING FOR A few new programs for your iPhone? These nine Safari-based gems (and one traditional Web site) are among our favorites:

IPHONE APPLICATION LIST: Though it's short on iPhone-specific presentation, this list is the place to start (www.iphoneapplicationlist.com).

APP LAUNCHERS: AppMarks (www.appmarks.com), MockDock (www.mockdock.com), and Mojits (www.mojits.com) all come with a selection of applications preloaded and let you add new favorites to a customized page.

REMOTE ACCESS: Telekinesis gives you access to files, media, and more on systems running OS X (code.google.com/p/telekinesis).

COMMUNICATIONS: Check out the txtDrop service (txtdrop.com/iphone) to send free Web-based SMS and FlickIM (www.flickim.com) for access to AOL instant messaging.

ON THE GO: Gas.App (gasapp.com) helps you find the best gas prices in your zip code.

GAMES & SPORTS: Some favorites include an iPhone-ready Duck Hunt Clone (find.pcworld.com/58279) and an app that lets you chat while watching live baseball scores (pickleview.com).

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Wi-Fi Draft 2 Ensures Compatibility

Interoperability is no longer an issue, but prices and performance still vary.

MORE THAN A year after the first products based on an initial draft of the superfast 802.11n Wi-Fi standard arrived, a second draft—reinforced by Wi-Fi Alliance certification—appears to have solved the interoperability and stability problems we saw in the initial crop (see find.pcworld.com/58227). But our informal tests of the first certified products also suggest that prices and performance vary widely as a result of issues that are unrelated to the standard.

We tested Belkin's $90 N (F5D8233-4), Buffalo's $99 AirStation Nfiniti (WZR2-G300N), D-Link's $180 Xtreme N Gigabit (DIR-655), and Netgear's $130 RangeMax Next (WNR834Bv2) first with their own matching PC Cards and then again with PC Cards made by each of the other three vendors. Connection utilities showed that in our tests at a midrange distance of 20 feet, all of them connected at theoretical single-channel draft-n speeds of up to 130 megabits per second (mbps). The Buffalo and the D-Link proved the fastest (see chart, below), and the Buffalo's sub-$100 price makes it a good deal.

But actual throughput for different router–PC Card combos varied widely, from 6 mbps to 35 mbps. Why? In part, different chip sets are responsible; also, the routers and PC Cards had either two or three transmitting and receiving antennas. Generally the greater the number of antennas, the faster (and pricier) the gear.

Check Model Numbers

Some vendors are offering multiple draft-n products with different antenna arrays and other options, such as the D-Link's gigabit ethernet (which typically adds $50 to the price). Differences aren't always obvious from product names, so shoppers should note model numbers.

Draft-2.0 Wi-Fi certification also ensures compatibility with 802.11b/g and, when specified, 802.11a gear, and with the Alliance's WPA2 (Wi-Fi Protected Access) and WMM (Wi-Fi Multimedia) specs for security and streaming multimedia, respectively. As 802.11n is optimized for WPA2's strong AES encryption, AES improves performance compared with older (and weaker) software-based WEP and WPA security.

Nearby Wi-Fi networks using the 2.4-GHz band (all 802.11b/g networks qualify, as do 2.4-GHz 802.11n networks) can slow things down. Draft 2's "good-neighbor" policy (but not Wi-Fi Alliance certification) requires stepping down to single-band 20-GHz channels (the dual-band 40-GHz mode enables the fastest speeds) when a 2.4-GHz network that might otherwise be crowded out is sensed. This happened often enough that we decided to test in single-channel mode.

The bottom line for shoppers: Don't worry about interoperability, but be aware that performance will vary widely based on your equipment and on factors, such as nearby networks, that are beyond your control. No matter what you buy, coverage and throughput should be better than with older 802.11a/b/g gear, but look beyond the Wi-Fi Alliance's logo to choose the features you need.

—Becky Waring

BUFFALO'S 802.11n router (left) has three transmitting and three receiving antennas; Belkin's N Wireless has two of each.

PHOTOGRAPH: MARC SIMON

Draft-2 802.11n Products Are Not Created Equal

IN OUR TESTS of throughput (in megabits per second) at a distance of 20 feet with different PC Card combos, routers from Buffalo and D-Link, with 3 x 3 antenna arrays, turned in the best times.

PC CARD (number of transmitting and receiving antennas)	Router (with model number), price, Find-It URL, chip set maker, and number of transmitting and receiving antennas			
	Belkin N Wireless Router (F5D8233-4) **$90** find.pcworld.com/58253 **Ralink** **2 x 2**	**Buffalo AirStation Wireless-N Nfiniti Router (WZR2-G300N)** **$99** find.pcworld.com/58252 **Ralink** **3 x 3**	**D-Link Xtreme N Gigabit Router (DIR-655)** **$180** find.pcworld.com/58254 **Atheros** **3 x 3**	**Netgear RangeMax Next Wireless-N Router (WNR834Bv2)** **$130** find.pcworld.com/58257 **Broadcom** **2 x 3**
Belkin (2 x 2)	6.1 mbps	5.1 mbps	27.8 mbps	7.3 mbps
Buffalo (2 x 3)	14.5 mbps	32.7 mbps	15.2 mbps	32.7 mbps
D-Link (3 x 3)	15.2 mbps	35.5 mbps	28.4 mbps	22.8 mbps
Netgear (2 x 2)	24.1 mbps	26.1 mbps	27.8 mbps	30.4 mbps

CHART NOTES: Results are based on timed copying of a 53.2MB file from the Public folder on a Mac using Windows Sharing to a Dell Latitude D600 laptop (with XP Pro SP2) using various PC cards, with WPA2 on, in mixed b/g mode. Results represent the average of three iterations.

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New HDTV Tech: LED Backlighting and 120 Hz

1080P IS EVERYWHERE, the new sweet spot for displays has become 40 inches, and LCD HDTVs are taking over. But sets slated for arrival this fall and winter will be among the first mainstream displays to incorporate a pair of new technologies that can seriously boost picture quality.

Sports fans will want to check out HDTVs with a 120-Hz refresh rate—double the 60 Hz of standard LCD TVs. The higher rate allows the TVs to smooth out any residual motion blur on fast-moving images found in sports broadcasts or scrolling news tickers. While several vendors launched their first 120-Hz displays earlier this year, most manufacturers—including JVC, LG Electronics, Philips, Sharp, Sony, and Toshiba—will be building this high-refresh-rate technology into their more mainstream displays that debut this fall.

SAMSUNG'S 81 SERIES LCD TVs incorporate LED backlights.

LED Backlighting

If you're less concerned about fast-moving images, a display equipped with LED backlighting—the other new technology—may be more to your liking. LED backlighting lets TVs display a wider range of colors than does the Cold Cathode Fluorescent Lamp (CCFL) backlighting that most LCD HDTVs use.

The technology also allows finer-grained control of lighting, enabling manufacturers like Samsung to adjust the backlight for specific parts of the picture automatically, greatly increasing contrast.

The 120-Hz displays won't be that much more expensive than standard 1080p units are today, but you will pay a premium for an LED-backlit display. The 40-inch model in Samsung's 120-Hz 71 series line retailed for $2699 when it shipped in August, for example, while Samsung's 40-inch LED-backlit model from the 81 series went for $2999.

—Melissa J. Perenson

BETA WATCH ED ALBRO

Hakia: Search With Less Scrolling

When Google serves your search results, it highlights the places where your search terms appear. Hakia, a new search engine in public beta, tries to make the highlighting experience better in two ways. Hakia's developers say the engine looks not just for the words in your query, but for the meaning; it also tries to match your query with phrases on the sites it finds that match that meaning. And if you use the service's Internet Explorer plug-in (a Firefox plug-in is due in October), it'll scroll to exactly the portion of the page that contains your phrase. hakia.com

SpaceTime: Better 3D Browsing

Most approaches to three-dimensional browsing have been seriously disappointing. SpaceTime, a free public beta download, has some good ideas, though it's still too buggy to use regularly. SpaceTime arranges large thumbnails of sites in a line stretching out into a blue sky. To interact with a page, you double-click the thumbnail. SpaceTime lets you quickly flip through the top five results of a Web search, and seeing images of the pages instead of a snippet of text sometimes makes it easier to figure out whether you want to visit them. On my system, though, generating the thumbnails took a noticeable amount of time—10 seconds or so. spacetime.com

BROWSE THUMBNAILS OF search results in 3D using SpaceTime.

Pownce: Microblogging Plus File Transfers

Microblogging—broadcasting one-sentence updates on your life—is the Web's latest trend. The early leader is Twitter, but Pownce, an invitation-only beta, adds the ability to send files and easily make links or format information on events. Pownce, though, loses the element of voyeurism that can make Twitter a guilty pleasure. At Twitter, it's easy to see anyone's inane posts. Pownce mostly shows you the inane posts of people you know, which can be less entertaining. pownce.com

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1. A HP SC11Xe Host Bus Adapter ($209) is a required option needed to connect the Ultrium 448 solution to the DL360 G5 server. Prices shown are HP Direct prices; reseller and retail prices may vary. Prices shown are subject to change and do not include applicable state and local taxes or shipping to recipient's address. Offers cannot be combined with any other offer or discount and are good while supplies last. All featured offers available in U.S. only. Savings based on HP published list price of configure-to-order equivalent ($5125 - $1426 instant savings= SmartBuy price $3699). 2. Financing available through Hewlett-Packard Financial Services Company (HPFS) to qualified commercial customers in the US and subject to credit approval and execution of standard HPFS documentation. Prices shown are based on a lease 48 months ir term with a fair market value purchase option at the end of the term. Rates based on an original transaction size between $3,000 and $25,000. Other rates apply for other terms and transaction sizes. Financing available on transactions greater than $349 through June 30, 2007. HPFS reserves the right to change or cancel these programs at any time without notice. Intel, the Intel Logo, Xeon and Xeon Inside are trademarks of Intel Corporation in the U.S. and other countries. © 2007 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

What Will Windows 7 Look Like?

WITH THE NEXT major release of Windows due in 2010, the first hints about Microsoft's plans for Windows 7 have started to emerge. Few details are available, but analysts have already begun to speculate on the features it will include. Here's what they're thinking:

Michael Cherry, an analyst with Directions on Microsoft, expects fewer "earth-shattering" new features and more improvements to ones introduced in Windows Vista, such as the difficult-to-use Bitlocker encryption.

Ben Fathi, a vice president in Microsoft's Windows Core Operating System Division, hinted at a conference this year that a hypervisor or an overhaul of the user interface could be forthcoming.

According to Michael Silver, a Gartner analyst, the hypervisor—"a really thin OS" that manages virtual machines running on the system—"almost has to go" into the next Windows.

A touch-screen UI in Windows 7—perhaps one derived from Microsoft's Surface technology—is another possibility, Silver says.

Microsoft plans to extend its desktop search feature to find files on Windows Server 2008 machines. That ability might also make its way into the desktop OS.

—Elizabeth Montalbano

GEEKTECH TOM MAINELLI

Rock Your iPod With an Open-Source Upgrade

Rockbox, free firmware for digital music players, can teach your old iPod some useful new tricks.

LIFE IS TOO short to listen to crappy digital music. So I recently decided to begin ripping all of my newly purchased CDs into FLAC, the Free Lossless Audio Codec. Music files in FLAC format sound better than those using lossy compression formats such as MP3—plus, FLAC is an open standard. The only downside is that my 80GB Apple iPod doesn't play FLAC files.

Happily, we can fix that.

Rockbox to the Rescue

Rockbox (rockbox.org) is an open-source software project that develops firmware replacements for a growing list of portable media players, including Apple's iPod. Rockbox firmware offers features you don't get with most players, support for geek-approved codecs such as FLAC and Ogg Vorbis, and interfaces users can configure. Best of all, it's free, courtesy of a dedicated community of programmers. (Matthew Newton, our *Free Software* columnist, recently wrote about Rockbox too—see find.pcworld.com/58159.)

There are a few caveats. Most Rockbox builds are works in progress, with almost daily updates, so their stability may vary. Similarly, not every one of the hundreds of user-submitted interface themes works equally well on all builds, and many are less than attractive. Bottom line: Expect to tweak some settings (it really is half the fun), and remember that you can always revert to your player's original firmware by performing a fairly simple uninstall, or by using Rockbox's dual-boot capability.

ROCKBOX LETS YOU choose an interface (shown above is Analog Cassette Deck) or create your own.

To install Rockbox I first had to connect my 5.5-generation video iPod to my PC so I could enable disk mode using iTunes; be sure to use a USB port right on the PC as opposed to a USB hub, which can cause write errors.

Next, I downloaded the appropriate Rockbox firmware for my player, the standard fonts package, and the Rockbox bootloader, which resides in an application called iPodPatcher (all of these are available at the Rockbox site). A few more minutes of installation, a quick disconnect and reboot, and suddenly my iPod wasn't acting like a plain old iPod anymore.

New Interface, New Features

Admittedly that first bootup is just a bit jarring—the app's font is quite tiny (but easy to change). Initially, I accessed my music files using a straightforward file browser. But the first time you load Rockbox, it scans the onboard files and collects tag data in a database that you can subsequently browse by categories such as album, artist, and genre. You can also create and save playlists.

Perhaps Rockbox's greatest attribute is the level of audio control it offers. Besides its many preset and customizable equalizer options, it supports terrific precision in fine-tuning. For example, while you can raise or lower bass and treble on any iPod, Rockbox lets you adjust by specific dB (decibel). You can also tweak balance and channel settings (including stereo, mono, and karaoke).

Rockbox offers some unique sound settings such as crossfeed, which uses a special algorithm to make audio from headphones sound closer to the way it would through freestanding speakers. Dithering uses low-level noise and noise shaping to fix bit-depth discrepancies between Rockbox's audio decoders and the iPod's.

I got Rockbox for its FLAC compatibility, but its customizability has made me a true fan. And with programmers worldwide tinkering with the code, I expect that it will only get better.

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Go to find.pcworld.com/58035

Silverlight Brings Speedy Video to the Web

Microsoft's browser plug-in aims to displace Adobe's Flash with superior video streaming and support for Windows Media files.

A SHOWDOWN IS brewing between two PC-industry heavyweights: Microsoft is preparing to launch its competitor to Adobe's Flash, a cross-platform plug-in called Silverlight. As Silverlight nears its final version (you can grab a release candidate at find.pcworld.com/58251), the first apps built on it have begun to emerge. And by the looks of them, Silverlight should allow Web sites to add some high-quality video integration, among other things.

Video Ready

Netflix, Fox Movies, and Major League Baseball are among the first major outfits to hop on board the Silverlight bandwagon, rolling out several new video-heavy services.

MLB.com has launched a Silverlight-based video offering that seamlessly takes over for its older video player when you have Silverlight installed. The player streams high-quality highlight-reel clips with almost no buffering delays (see find.pcworld.com/58281 after downloading and installing Silverlight).

Netflix has demonstrated a Silverlight-based online movie player with DVD-like controls that it will use to expand its streaming-movie offerings. Using Silverlight allows Netflix to take advantage of its existing library of Windows Media Video while also making its streaming service available to users outside of the Windows world.

FoxMovies.com is working on a similar interactive player for movie trailers at silverlight.net/fox. The picture quality we've seen through Fox's Silverlight player was noticeably clearer than other Web-delivered video, with no playback hesitation.

FOX MOVIES USES Silverlight to stream movie trailers in high quality.

Then there's Skinkers, a London-based Internet technology group that's beta-testing a peer-to-peer live video streaming platform called LiveStation that uses Silverlight to cut down on the time typically required to buffer online video. The P-to-P approach minimizes bandwidth usage and removes the need for costly server farms to stream live TV shows and events. Users can click on the LiveStation viewer and see live content, switching between channels as if multiple live TV streams were available. LiveStation runs outside the browser, letting a viewer simultaneously watch a live feed and browse the Web.

Beyond Broadcast

Browsing through Microsoft's Silverlight gallery (at find.pcworld.com/58255) reveals plenty of less video-centric Silverlight apps. Silverlight Map, for example, is a version of Mindjet's MindManager productivity software. Rapidly emerging is a library of components that developers could use to build full programs, such as a version of Office 2007's ribbon interface and an app called Page Turn that convincingly simulates the turning of pages in a book or magazine.

Whether Silverlight gains much traction against Flash remains to be seen, but the speedy video playback we've witnessed from early Silverlight apps could give everyone a good reason to download yet another browser plug-in. If developers can deliver more programs like Netflix's streaming-movie player, one more plug-in will be a small price to pay.

—Leslie O'Leary

MULTIMEDIA

Adobe Readies Flash Video on the Desktop

AS MICROSOFT TRIES to move into a category long dominated by Adobe's Flash, Adobe is making its own move into Microsoft's territory.

The Adobe Media Player, which will be available as a free download by the end of the year, will allow you to play Flash movies outside of your browser and manage a library of your favorites, as you would in iTunes or Windows Media Player. It's one of the first programs developed using Apollo, an application framework that permits Web developers to build media-rich Internet software applying technologies such as Flash, PDF, and HTML.

Based on open standards including Really Simple Syndication (RSS) and Synchronized Multimedia Integration Language (SMIL), this cross-platform desktop media player lets users stream, download, manage, and play rich media content. It features full-screen playback, one-click viewer ratings, and a Favorites utility that automatically downloads new episodes of favorite TV shows or video podcasts.

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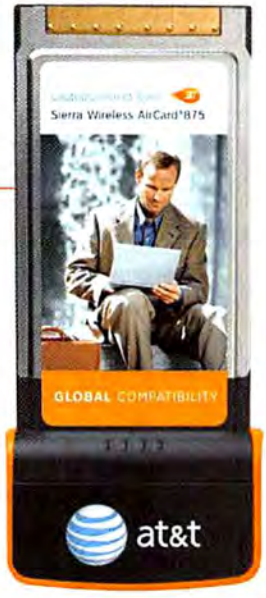

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Health Risk From Laser Printers?

MANY OFFICE LASER printers could represent "a significant health threat," according to an Australian study that measured the particulate output of 62 laser printers, mostly from Canon, Hewlett-Packard, and Ricoh (see find.pcworld.com/58267).

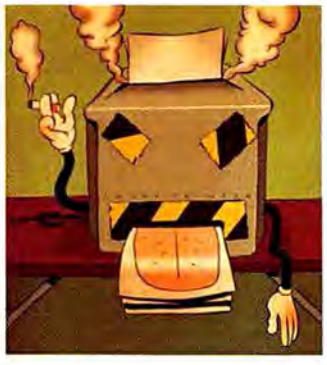
Lidia Morawska and colleagues at the Queensland University of Technology classified 17 of the 62 printers, or 27 percent, as "high particle emitters."

Morawska says the particles' small size makes them easily inhaled and able to lodge in deep, tiny passageways of the lungs. Effects, she says, could range from simple irritation to serious illness.

HP maintains that particulate emissions from its printers "are consistently below recognized occupational exposure limits."

More research would be necessary to definitively link laser printers, particulates, and health risks. Until then, Morawska advises ensuring that rooms with laser printers are well ventilated.

—Gregg Keizer



GADGET FREAK DAN TYNAN

Want a More Secure PC? The Answer Is Online

THESE DAYS, LOGGING on to the Net with an unsecured PC is like walking into a lion's den with A1 sauce slathered on your chest. In less time than it takes to read this column, your machine could be absorbed into a botnet, infected with a keylogger, or suffer some other ugly fate.

So far, the only recourse has been to install a posse of security software—firewalls, virus and spyware scanners, spam filters, and the like. But I've yet to find a security suite that doesn't nag me constantly, bog down my PC, or cost buckets of money to keep updated. Even then, few suites can keep up with the latest zero-day exploits.

You have a better way to protect your PC: Hire someone to monitor your Internet traffic and weed out the bad stuff for you. Called "managed security," it's how enterprises keep their networks safe from hackers, malware, and other Net nasties. Now managed services are becoming available for consumers.

Keep your family computers safe with less hassle by using managed security.

@Your Service?

"My mother doesn't want to have to worry about viruses and spyware, she just wants her computer to work," says Bruce Schneier, security guru and author of *Beyond Fear: Thinking Sensibly About Security in an Uncertain World* (Copernicus Books, 2003).

Outsourcing security to an ISP or other third party is the only practical way to keep up with Net threats that change by the hour, Schneier says. Most big ISPs provide free security suites with their broadband packages, and some, like EarthLink, go a step further, supplying a site where users can find news on the latest threats and employ a wizard to identify potential PC vulnerabilities (www.earthlinksecurity.com). However, ISPs have yet to offer enterprise-level security services to individual customers.

One reason, says EarthLink senior product manager Ben Kaplan, is that users themselves may be reluctant to give up control over their Web experience in order to surf more safely.

That in turn may be because managed security is still unfamiliar to most people. Last year Microsoft introduced the first consumer-oriented service, Windows Live OneCare. For $50 a year, the applet will scan up to three PCs for viruses and spyware, manage Windows updates, control Net access for applications, and back up your files.

It's slick and painless (two things that I never thought I would say about a Microsoft product). But so far few consumers have signed on, says John Pescatore, vice president for Internet security at the Gartner research firm.

Security for Free

As more services arrive, that situation will likely change. By the time you read this, PCLive Security Services will be available for free at www.pclive.com (though 24/7 support will cost $4 a month). You'll still have to install the software locally, but PCLive manages the rest, keeping everything updated, including Windows patches. While it's not a fully managed service, it's a big step in the right direction.

"Security software is too daunting for the average user to maintain," says Bob O'Dell, CEO of PCLive's parent company SecurityCoverage, which provides security services for 240 regional ISPs. "You shouldn't have to become a technologist to keep your PC safe."

He's right. And as managed security makes it easier for everyone to protect their PCs, we'll all be able to surf more safely, without being devoured by the dark side of the Net.

ILLUSTRATIONS: TOMER HANUKA (LEFT); MARC ROSENTHAL (UPPER RIGHT)

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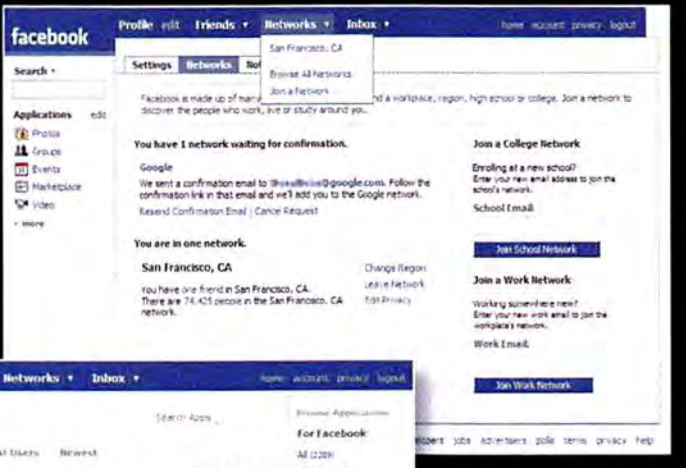
IT'S EASY TO drop HTML code into a MySpace page template to add images, change colors, and move elements. But the results are frequently unappealing: The background images often compete with the text, producing cluttered pages.

MYSPACE USERS ROUTINELY receive junk messages and friend requests from random rock bands, rappers, comedians, and the like. You don't have to "add" anybody you don't know, of course, but the upsurge in promotion contributes to the impression that MySpace is less and less "my" space.

FACEBOOK'S INTERFACE IS cleaner and more adult-looking than most MySpace pages—its "block" presentation, neat lines, and preservation of white space add up to a less chaotic browsing experience than you're likely to have at MySpace.



FACEBOOK OFFERS A lengthy list of such applications as blogging tools, media players, and sticky notes. Simply try a new app on your profile page, and discard it later if you don't like it.

YOU CAN RUN a Facebook search on your current or former high school, college, grad school, or company to find people you know.

SOCIAL NETWORKING

Is Facebook the New MySpace?

FOR A COUPLE of years, MySpace was just about the only game in town for social networking. But today it's facing increasing competition from Facebook, which has reinvented itself to retain its core members as they move on from college life. The site allows you to search for new friends at companies, not just schools. And Facebook's growing focus on useful little applications is helping to turn the site into a networking home page. Facebook apps can let you track data on friends or share more info about yourself, and when you try a new app, your friends receive a notification.

Those new features (and Facebook's clean design) are beginning to attract an older audience of high-tech professionals seeking to stay in touch with colleagues, friends, and business contacts. Here's a look at the two services and some of the reasons why many new social-network users are choosing Facebook over MySpace.

—Mark Sullivan

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- 135° vertical viewing angle
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- 5ms response time
- Internal power adapter
- Black color

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ATI RADEON GRAPHICS

AMD Turion64 MOBILE TECHNOLOGY

Acer® Aspire® 5050

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[1] Depends on availability of PC-supported connections and location.
[2] Enhanced Virus Protection (EVP) is enabled by Microsoft® Windows® XP Service Pack 2. By default, EVP will protect the user's Windows operating system only. Users must enable the protection of their applications and associated files to be protected from memory buffer overrun attacks. AMD and Microsoft strongly recommend that users use third-party anti-virus software as part of their security strategy.
[3] When referring to storage capacity, GB stands for one billion bytes and MB stands for one million bytes. Some utilities may indicate varying storage capacities. Total user-accessible capacity may vary depending on operating environments.
[4] For a free copy of the standard limited warranty end-users should see a reseller where Acer products are sold or write to Acer America Corporation, Warranty Department, P.O. Box 6137, Temple, TX 76503.

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Companies to Customers: You're Fired!

BY TOM SPRING

FRANK CARREIRO, of West Jordan, Utah, admits that his family of eight guzzles a lot of bandwidth downloading videos, playing online games, and buying music tracks from services such as iTunes. But he never expected Comcast to terminate his Internet service for using it too much.

"The service I signed up for was advertised as 'unlimited access'," Carreiro says. But in December 2006, Comcast warned him to reduce his bandwidth consumption, which the company pegged at 279 gigabits over the prior month, Carreiro says. When Carreiro's Internet use remained at high levels the following month, Comcast yanked its service.

Carreiro insists that he used significantly less bandwidth than Comcast claims. Meanwhile, Comcast spokesperson Charlie Douglas says that the company gave Carreiro the boot because its Acceptable Use Policy permits it to cut ties with customers who "typically and repeatedly consume exponentially more bandwidth than an average residential user."

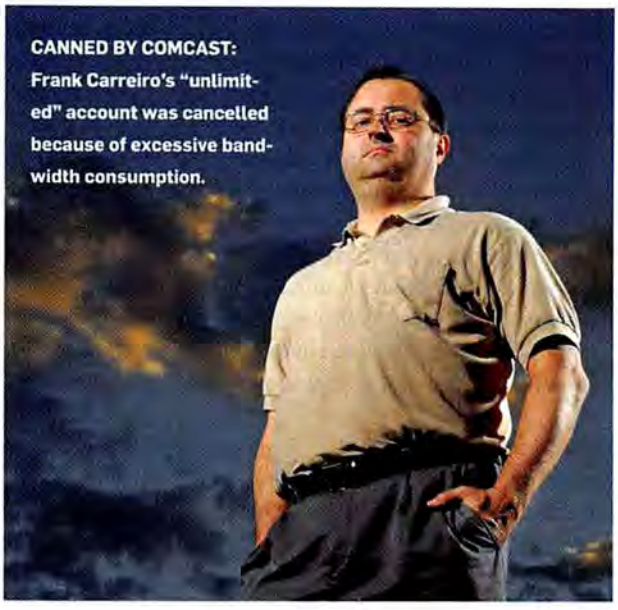
Sprint's termination of 1200 problem customers is just one example of companies ditching unprofitable accounts.

We've all had experiences with companies that don't seem to believe that the customer is always right, but Comcast and a growing number of other service-oriented firms are weeding out clients who aren't right (read, profitable) for them.

Customers Who Cost Too Much

The most recent high-profile example is Sprint Nextel, which in July terminated service to 1200 customers who made what spokesperson Roni Singleton termed "excessive" customer-service calls—40 to 50 a month—or too many roaming calls.

AT&T has curtailed service to—and in some cases kicked out—cell phone subscribers who roam or use data services frequently, spokesman Mark Siegel says. Verizon Wireless, meanwhile, ushers out subscribers to its EvDO high-speed wireless data service if their bandwidth use regularly exceeds 5GB per month. Spokesperson Tom Pica says that Verizon takes this step only if a customer ignores its warning about violating terms of service that prohibit use of the network for downloading or streaming music and video, transferring large files, or making voice-over-IP calls. On rare occasions, Pica adds, Verizon has canceled the accounts of callers who are "extremely abusive" to customer service representatives.



CANNED BY COMCAST: Frank Carreiro's "unlimited" account was cancelled because of excessive bandwidth consumption.

PHOTOGRAPH: STEVE SMITH

Putting Profits First

Companies have a right to boot problem customers, says Geoff Colvin, coauthor of *Angel Customers and Demon Customers*.

"Problem customers are the type that buy a plasma television the day before the Super Bowl and the next day 'discover' something wrong with it and take it back," Colvin says.

Roger Entner, senior communications vice president for IAG Research, puts it bluntly. "There's always someone who's going to pee in the pool," he says. "You need to get rid of that customer. If you don't, all your other customers suffer."

For example, customers who make frequent roaming calls could force carriers to raise prices for all customers. Similarly, an EvDO broadband hog can degrade service for other EvDO customers nearby. But how can you justify marketing a service as "unlimited" when your terms of use impose limits? »

PCWORLD.COM

Do carriers have the right to terminate the accounts of troublesome customers? PC World editors have different points of view. Read the debate this story sparked at find.pcworld.com/58179.

Early Termination Fee?

At least one consumer group has taken Sprint to task over its mass dismissals of customers: The New York State Consumer Protection Board believes that the company should pay $200 to each customer it cut loose prematurely.

"Customers should receive the same compensation that Sprint receives after a customer cancels their contract before the expiration date," explains Mindy Bockstein, executive director of the Consumer Protection Board.

Sprint officials declined to comment on the New York board's suggestion.

Dissuading Customers

Some firms have come up with other ways to deal with excessive service demands. Netflix offers subscribers unlimited DVD rentals for a flat monthly fee, which draws some customers who rent so often that they cost the company money. But instead of kicking them out, Entner says, Netflix degrades their service by giving less frequent renters priority access to hot new DVDs.

The policy, Netflix spokesperson Steve Swasey says, isn't meant to deter customers from renting lots of movies; rather, it is the "equitable" thing to do.

To avoid these kinds of disputes, it helps to be proactive. When shopping for a phone with high-speed data service, check the terms of service for restrictions on bandwidth usage, and talk to other users about how strictly the carrier enforces these provisions.

Try to identify roaming issues early on, while you can still cancel service without a penalty: If you have to roam when calling from your home or business, talk to the carrier about the implications it may have on your bill.

If you can't resolve a problem in three calls, ask what can be done so you won't have to call again. If the rep seems ineffectual, ask for a supervisor.

Carriers are businesses, not charities, Entner points out. "But companies also need to ask themselves if their policies can withstand public scrutiny."

SKEPTICAL SHOPPER YARDENA ARAR

Who's Behind That Web Site? Hard to Know

Some self-described consumer sites are actually industry shills—and it's not always easy to tell.

FROM SHOPPING gotchas (see find.pcworld.com/58263) to mystery charges on bills (see find.pcworld.com/58265) to separation issues (see page 41), cell phone-related outrages are hot-button issues. So a consumer group that focuses on wireless services makes sense.

That's how MyWireless.org portrays itself: "MyWireless.org is a non-profit consumer advocacy organization giving wireless consumers a powerful and unified voice to protect the freedom, value, security and mobility they enjoy with wireless services," says its Web site.

It sounded like a club that I'd want to join, until I read a little more. A tab marked My Wireless Issues applauded early termination fees because they allow carriers to charge less for service and handsets—a view not shared by most consumers I know. Similarly, the site's take on wireless cell sites (carriers should be able to put them wherever their trained engineers have determined that they're most needed) seems more industry- than consumer-oriented.

Strange Consumer Advocates

MyWireless.org complained bitterly about cell phone-related taxes (okay, nobody likes those), but I wondered about its opposition to state regulation of cell phone companies: Some states, including my own California, have championed consumer rights more strongly than the FCC.

So I began to wonder: Who was behind this "consumer" group? Though the About Us section wasn't very enlightening, it did have a link to a FAQ (not accessible from the home page, oddly) that finally got down to brass tacks with the question, "Does MyWireless.org just represent the wireless industry?"

The FAQ's carefully worded response acknowledged that MyWireless.org "has the support of wireless companies because it empowers wireless consumers to make their voices heard on important issues" (including, apparently, preventing government from telling cell phone companies how to treat their customers).

An even clearer picture emerged when I checked the My Wireless Coalition tab, where a list of the group's backers includes such business interests as various chambers of commerce and—surprise, surprise—CTIA, the cellular industry's premier North American trade group. Talk about a wolf in sheep's clothing.

MyWireless.org's Web site illustrates how easily a special-interest group can pose as an unbiased educational resource. It's not the only one, but at least some similar sites are a little more direct about identifying their backers.

Hawking Hi-Def Formats

For example, the battle over DVD's high-definition successor has yielded two sites that promote specific combatants. Their names seem impartial: HollywoodinHiDef.com and TheLookandSoundofPerfect.com. But if you know what to look for, the sites' home pages give the game away. HollywoodinHiDef's tagline is "Built for Blu-ray/Powered by Blu-ray Supporters"; and the rival site bombards you with HD DVD promotions and propaganda.

You can't count on a site's backers to reveal their identity or their agenda. So do a little research before trusting a site to represent your interests or to provide an unbiased presentation of the facts.

ILLUSTRATION: HARRY CAMPBELL

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ON YOUR SIDE AMBER BOUMAN

I RECENTLY SIGNED a three-year contract with Bell Canada and got a Samsung A640 phone with a built-in camera and Bluetooth. Samsung's Web site said I should be able to transfer images from my phone to my PC via Bluetooth, but I couldn't. A Bell Canada customer service rep told me that the company doesn't support this capability, and wasn't helpful when I asked about data cables for transferring the photos. According to the rep, I'd have to pay 50 cents per picture to upload them to the Web; then I could download them to my PC. How can Bell Canada get away with this behavior?

—Andrew MacDowell, Pincourt, Quebec

OYS Responds: Bell Canada's restriction on customers' use of Bluetooth isn't uncommon. You can always use Bluetooth on your cell phone to connect to a Bluetooth headset or hands-free kit, but it's up to your cell phone company to enable the use of Bluetooth phones as wireless modems or for syncing data wirelessly with a PC, and many (including Bell Canada) don't. But as the reader suspected, various third-party companies—such as Datapilot (www.datapilot.com)—will sell you a data cable and software for moving address books, photos, ring tones, and other data from your phone to your PC.

Bell Canada says that the cable and software will cost more than its phone image service—but that depends on how many photos you transfer over the lifetime of the phone. Either way, if you plan on moving photos off your cell phone, be sure to ask your carrier what your options are before you sign a contract. Newer, more-expensive phones generally have so-called side-loading features—the ability to move data to and from flash storage (built-in or in the form of removable memory cards)—so you may be able to dodge the image transfer charges that MacDowell ran into.

Rebate Ruckus

A Better Business Bureau report says that memory vendor Connect3D has gone out of business after failing to pay Buy.com customers mail-in rebates that would have made various Connect3D products free or nearly free.

Though some customers who contacted Connect3D about missing rebates received an e-mail response stating that

delays in processing rebates were due to problems with its distributor, more-recent e-mail inquiries to the company have gone unanswered, and its phone lines have been disconnected. Buy.com has filed a lawsuit against Connect3D after paying some of the rebates itself. Read more at find.pcworld.com/58110.

AOL Handle Hassle

Jay Braiman of Brooklyn, New York, was one of several readers who wrote to let us know that their AIM screen names had been suspended a few days after they signed up for a free account at XDrive, an AOL-owned secure online storage site. Braiman says that he was unable to obtain AOL support.

By the time we contacted AOL, the service had already resolved the problem—which it explained was the result of a user authentication issue specific to XDrive—and said that it had reactivated the affected AIM screen names.

AOL says that AIM users who experience a problem of any type can look for answers—and file a report about the incident, if need be—at find.pcworld.com/58109.

Companies Must E-Mail Policy Changes

IN A DECISION that could affect how companies deal with their customers online, a federal appeals court ruled that a company could not change the terms of its customer contract merely by posting the revisions to its Web site. The July decision (find.pcworld.com/58181) rendered by the Ninth Circuit Court of Appeals paves the way for a class-action lawsuit to proceed against long-distance service provider Talk America.

The plaintiff, Joe Douglas, formerly an America Online long-distance customer, became a customer of Talk America when it took over AOL's long-distance business. Soon afterward, Talk America altered key customer contract terms, changing prices and introducing clauses mandating that disputes be submitted to binding arbitration and waiving class-action suit rights.

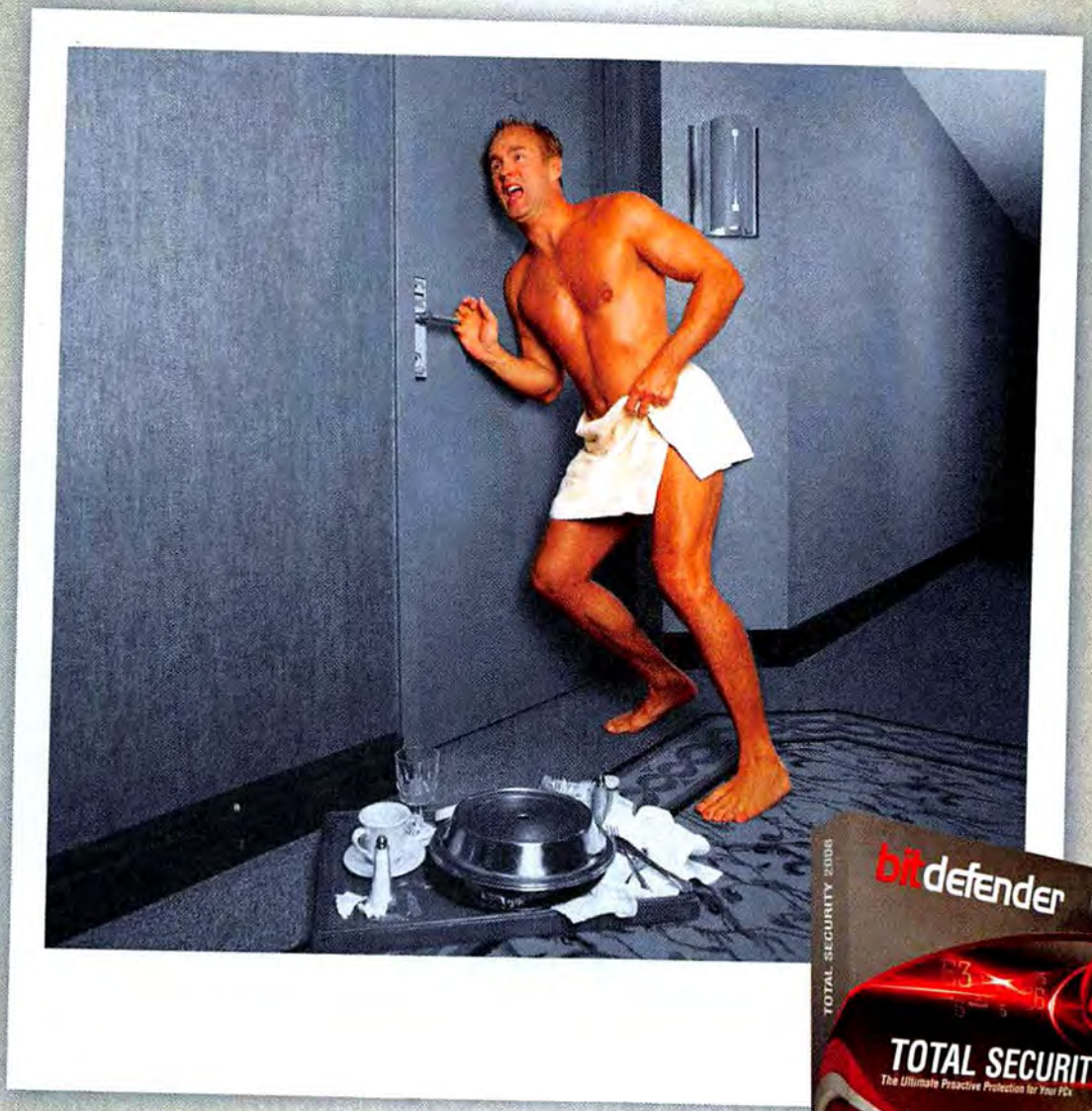
However, Talk America notified customers of these changes only by posting them to its Web site, and Douglas—who paid his bill online—said he was unaware of the changes for four years. When he did notice them, he filed a class-action lawsuit.

"Parties to a contract have no obligation to check the terms on a periodic basis to learn whether they have been changed by the other side," the court found, adding that both sides must agree to any changes in order for a modified contract to be valid.

—Yardena Arar

ILLUSTRATIONS: HARRY CAMPBELL (TOP); GORDON STUDER (BOTTOM)

If you could only see the future...



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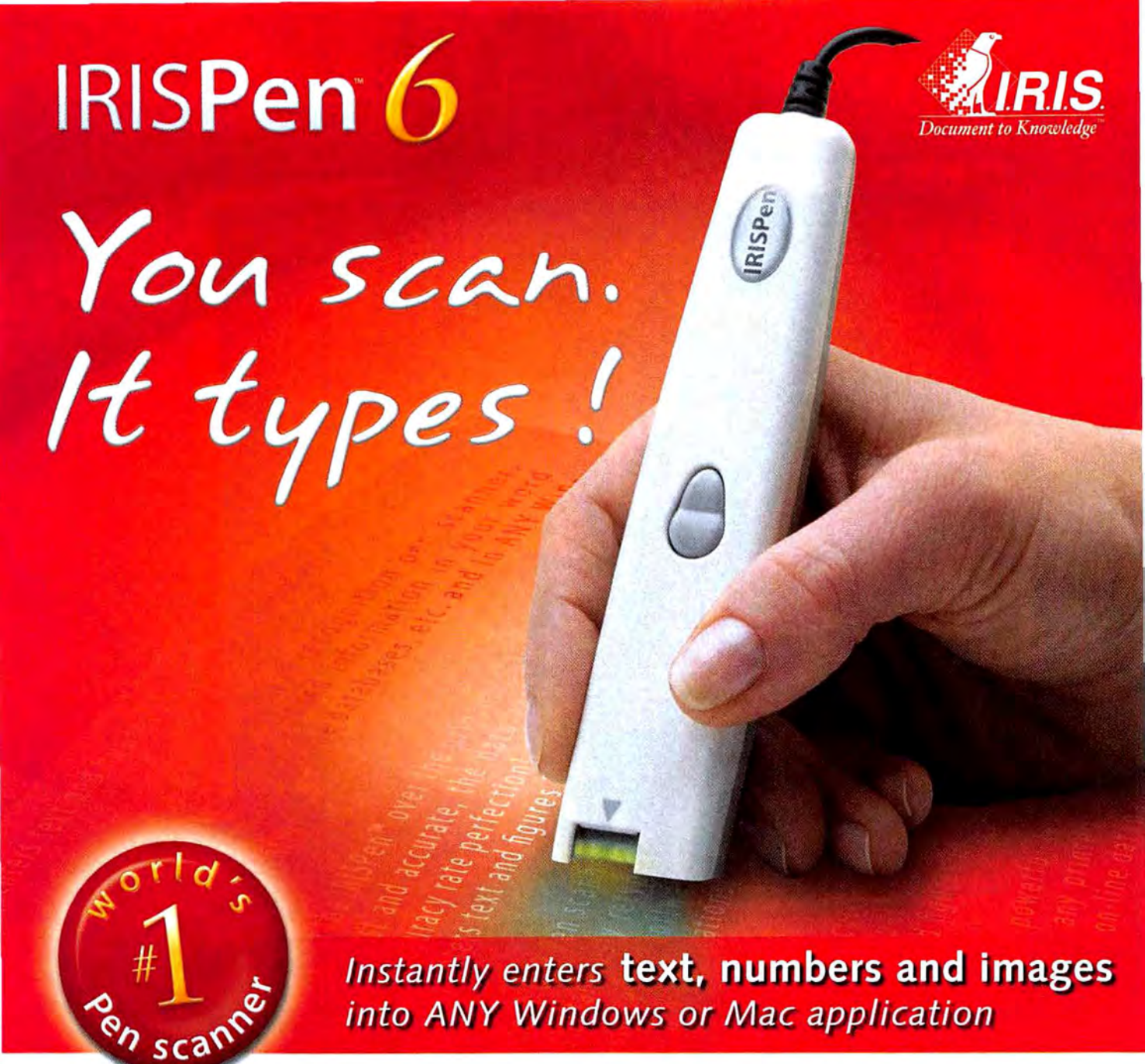

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Going Green Is Good Business

BY NARASU REBBAPRAGADA

CHANCES ARE, YOU'RE not ready to compost in the office kitchen or turn off all the lights. "Greening" your computing equipment, though, is a low-risk way for your business to not only help the environment but also reduce costs. It's also one of the hottest trends in business today.

"You want to be seen as a leader and not a laggard," says Nik Kaestner, the founder of Green Squared Consulting (www.green2consulting.com), which advises companies on being environmentally aware.

Reducing energy usage, which also reduces carbon dioxide emissions and your energy bill, is the most effective thing you can do. The average PC wastes about half the energy provided to it, according to the Climate Savers Computing Initiative (www.climatesaverscomputing.org), an industry group dedicated to reducing greenhouse-gas emissions. Encourage employees to shut down their PCs, or put them into sleep mode, when not working on them. Kaestner recommends using a smart power strip such as Smart Home Systems' $42 LCG4 (find.pcworld.com/58291), which can tell when you've shut down your PC and turn off peripherals that are plugged into the computer.

You should replace older equipment with products that are Energy Star 4.0 certified. The new 4.0 standard, which went into effect in July, limits the energy a PC can use in sleep and idle modes and requires the use of an internal power supply that is 80 percent efficient. Dell's Energy Calculator (find.pcworld.com/57953) compares the amount of electricity used by its Energy Star 4.0–rated OptiPlex 745 desktop PCs with a 17-inch LCD monitor and enabled power-management settings against that of a non-power-managed OptiPlex GX620 with a 17-inch CRT. Dell says using a rated OptiPlex 745 can save $70 and 0.56 tons of carbon dioxide emissions annually. Energy Star's savings calculator for desktops (find.pcworld.com/57954) reports more modest electricity-cost savings of $2 per computer annually with an Energy Star–rated desktop instead of a nonrated one.

> Here are several practical ways you can start running a green office.

ILLUSTRATION: JON KRAUSE

One step further: Buy a product registered by EPEAT (www.epeat.net), a database of desktops, laptops, and computer monitors that meet three levels (bronze, silver, and gold) of environmental performance criteria defined by the IEEE 1680 specification. Four of the 51 criteria address energy conservation (including Energy Star certification). Other criteria categories include reduction of toxic substances, use of recycled materials, and corporate policy. In June, HP announced the first product to meet the stringent EPEAT gold standard; HP says that this model, called the rp5700 Long Lifecycle Business Desktop PC, is Energy Star 4.0 certified, has a five-year life cycle, and is constructed with 95 percent recycled components.

You can also buy other equipment that uses fewer toxic materials and more recycled components. Many new electronics sold in the United States already meet the European Restriction of Hazardous Substances Directive (RoHS), a standard banning the general use of six hazardous substances including lead and mercury, and many manufacturers are committed to further reducing use of toxic substances. But finding products with large amounts of recycled materials is difficult, largely due to the low supply of nontoxic materials.

"Availability of materials is the biggest challenge," says Carl Eckersley, manager of product stewardship in HP's PC group. Finding consistent quanti- »

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For more help with hot business technology issues, turn to PC World's new Business Center at find.pcworld.com/57875. You'll find news, reviews, tips, and information about trends in business technology.

ties of engineering-grade plastics that don't contain toxins such as brominated fire retardants is difficult, he says.

Recycling your old equipment is another important action to take. Companies such as California's Green Citizen (www.greencitizen.com) will responsibly dismantle and recycle electronics for a fee (and for some products the service is free), while the Rechargeable Battery Recycling Corporation (www.rbrc.org/call2recycle) has a program that will perform the same service for used rechargeable batteries at no cost.

While you're waiting to replace your more expensive equipment, you can reduce paper use by printing double-sided pages, and you can purchase refillable printer-ink cartridges. Small steps, but taken in large measure, they can lead to a cleaner planet.

NET WORK RICHARD MOROCHOVE

Salesforce.com's New Small-Business Service

IF YOUR E-COMMERCE site is an important source of customer leads, a new Salesforce.com service could be just what you need to streamline the work of turning a new lead into a new customer.

Salesforce Group Edition (find.pcworld.com/58015) is the successor to the company's Team Edition customer relationship management service. The major enhancement is its tight integration with the Google AdWords (find.pcworld.com/58017) pay-per-click (PPC) advertising service. The integration with AdWords is the best I've seen, as it allows you to easily determine which search engine advertising keywords deliver the most new customers and added revenues to your business. You will need to make a few modifications to your Web site to take advantage of this feature, however.

> The Web-based customer relationship management giant's new Group Edition integrates tightly with Google AdWords.

Complete AdWords Integration

A PPC ad service can drive more visitors to your Web site. You write text ads that display next to the results for specific terms, or keywords, that people enter in search engines. You pay for each visitor who clicks on your ad and is then redirected to your Web site. (Read more about AdWords at find.pcworld.com/58018.)

The ability to track the trail of PPC ad clicks, from the initial site visit to the sales lead and ultimately to a sale, is not new. Generally you can see this information in several places: your AdWords account, your Web server logs, and a CRM application.

The elegance of Salesforce Group Edition lies in the way it seamlessly assembles the data from all of these sources in one place so that viewing and analyzing the results of your PPC ads is easier. You can readily see which keywords bring you the biggest bang for your advertising buck. Since the lead-source information updates every 15 minutes, you can track results almost as they happen.

Tracking Leads From Other Sources

Unfortunately, Salesforce Group Edition isn't integrated in the same way with other PPC ad services, such as Microsoft adCenter (find.pcworld.com/58020) and Yahoo Search Marketing (find.pcworld.com/58019); though you certainly can use Salesforce Group Edition with these services, the reports aren't as complete. However, you can also employ the service to track other leads, such as telephone inquiries, e-mail, trade shows, and referrals from other Web sites.

Automate Visitor Tracking

To make full use of the AdWords feature, you need to add a new Web-to-Lead inquiry form to your site to collect information from visitors, such as name and contact details. In addition, you must insert a bit of JavaScript tracking code into each page of your site. Salesforce Group Edition generates code for both new elements that you can copy and paste into your Web editing application.

You must also enter your Google AdWords Customer ID and password into Salesforce Group Edition. If need be, you can create an AdWords account from within Salesforce.

Group Edition: Right for You?

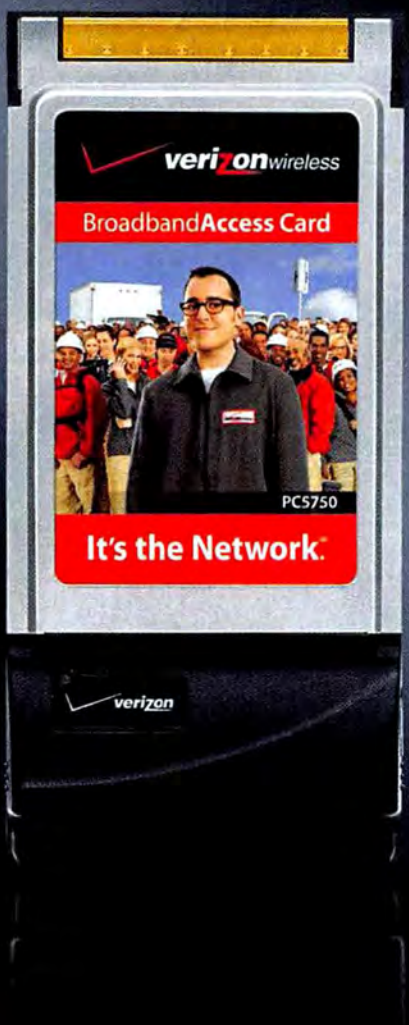
If you don't require sophisticated lead tracking or AdWords integration, a simple online CRM service such as Highrise (find.pcworld.com/58021) may suit you better.

Also, Salesforce Group Edition lacks features available in Salesforce.com's more expensive products—and unlike NetSuite (www.netsuite.com), which offers a complete end-to-end online business management service, Group Edition concentrates on CRM. For example, you must enter the amount of a sale manually; the service doesn't automatically generate a sales invoice. You can, however, enable integration with third-party accounting apps that do include invoicing, such as QuickBooks, via one of the add-on services available at Salesforce AppExchange (find.pcworld.com/58022).

Salesforce Group Edition costs $600 per year for five users. A free seven-day trial is available, and you may be eligible for a $50 AdWords credit if you establish a new Google AdWords account via Salesforce. Normal Google AdWords advertising charges apply.

ILLUSTRATION: HARRY CAMPBELL

verizonwireless



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Custom Search Delivers Google Results Your Way

BUSINESSES HAVE been able to incorporate Google search into their Web sites for some time. But with the introduction of Custom Search Business Edition, companies can customize the search page with their logo and color scheme. A business can also manipulate an XML feed of the raw search results to guide visitors toward products the company wants to sell.

TOTAL TRAINING NETWORK implemented Google's Custom Search Business Edition into its site in a matter of minutes.

Custom Search Business Edition uses the same index that Google employs to deliver its other search results, and Google's own servers are used for searches. To begin the service, you follow a setup wizard and then copy a small amount of code to your Web site. Your company then gets access to a reporting graph showing daily and monthly views of how many times site visitors used the search engine and what search terms were used.

The service costs $100 per year for Web sites with up to 500 pages, and $500 a year for sites with up to 50,000 pages, thus providing an option for businesses that want to take advantage of Google's powerful search technology without having to pay for more-expensive Google products. The company already sells the Google Search Appliance, starting at $30,000 for 500,000 documents, which indexes material stored in file servers, content management systems, databases, and other sources. Google also offers the Mini Search Appliance, starting at $1995 for 50,000 documents.

—Jeremy Kirk

Dell Gives Trialware the Heave-Ho

NOT INTERESTED IN all of the trial software that clutters up new PCs? You're not alone: According to Dell's recent research in both focus groups and broader surveys, small-business users overwhelmingly view trialware as an irritant, not a benefit. That research has led Dell to axe the extras from its new Vostro line of small-business desktop PCs and laptops. (See our review of a Vostro desktop on page 70.)

Eliminating demo applications is a major step for Dell, which has caught flack for the quantity of trialware on its consumer PCs. (One frustrated customer went so far as to develop a "Decrapifier" utility, available at find.pcworld.com/58153.) The company says that consumers who buy PCs for personal use do express interest in preloaded trial software, but that small-business users have different needs. By eliminating the trialware from Vostro machines, Dell says it has cut the system setup time in half.

For now, Dell is the only major PC manufacturer to ship small-business systems without preinstalled trialware as a standard practice. (Some competitors, such as HP, allow customers to choose a no-trialware configuration.)

—Melissa J. Perenson

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Is the U.S. at Risk From Cyberwarfare?

BY ROBERT McMILLAN

MAY WAS NOT a good month for geeks in Estonia.

The tiny Baltic republic weathered a month-long cyberattack that shuttered Internet servers nationwide. At the height of the crisis, people who wanted to use payment cards to buy bread or gas had to wait, as the onslaught crippled Estonia's banks.

Investigators traced the attack to Russians angered by Estonia's decision to relocate the statue of a Red Army soldier erected during the Soviet era. Tensions over the incident led to rumors of Russian state involvement in the cyberattacks.

Even if these suppositions are never corroborated, Estonia's experience may be repeated elsewhere. "Estonia shows us how, as we become more networked and more wired, our vulnerabilities increase," says James Mulvenon, the director of the Center for Intelligence Research and Analysis, a Washington, D.C., think tank. With a population of just over 1.3 million, Estonia is one of the most wired countries on earth. Elections, banking, and point-of-sale systems have largely moved to the Web, so cyberattacks such as the one in May can have a profound effect on its commerce.

Hostile governments may be behind the next wave of Internet attacks.

ILLUSTRATION: TIM MARRS

United States at Risk

The United States faces many of the same dangers as Estonia. And with public utilities such as hydro-electric plants and nuclear power plants moving away from proprietary (and more secure) systems toward open-standards-based systems that use common Internet protocols such as TCP/IP to connect to one another, the list of potential targets is increasing.

Attacks on U.S. systems have never been linked directly to state-sponsored cyberwarfare, but in 1999 Chinese hackers took down three U.S. government sites after NATO bombers mistakenly attacked the Chinese embassy in Belgrade.

Though identifying adversaries in cyberwarfare is difficult, preparing for computer network attacks involves many of the same steps as preparing for other online threats, according to Gregory Garcia, assistant secretary for cybersecurity and telecommunications with the U.S. Department of Homeland Security. "For our purposes, we really need to focus on reducing our vulnerabilities so those attacks don't happen in the first place," he says.

Planning Ahead

Last November the U.S. Air Force set up a new cyberwarfare group, called the Cyberspace Command, as part of the Eighth Air Force. "The aim is to develop a major command that stands alongside Air Force Space Command and Air Combat Command," says Secretary of the Air Force Michael Wynne.

Though much of the U.S. Department of Defense's cyberplanning is classified, some aspects of its strategy are public knowledge.

According to the *Washington Post*, President George W. Bush signed a secret directive in July 2002 that set down guidelines for determining when and how the United States would attack foreign computer systems.

Fifteen months later, then–Secretary of Defense Donald Rumsfeld approved a 74-page "Information Operations Roadmap" outlining his department's plan to develop cyberwarfare capabilities. The cyberwarfare sections of the plan remain classified, but a March 20, 2007, report prepared by the Congressional Research Service states that the Pentagon has proceeded cautiously with these capabilities, "since a cyber attack could have serious cascading effects, perhaps causing a major disruption to networked civilian systems." »

PCWORLD.COM

Get the scoop on what new privacy policies at Google, MSN, and Yahoo mean for you at find.pcworld.com/58203, and read a former spammer's take on the business at find.pcworld.com/58204.

Security Alert

The U.S. military decided not to launch a cyberattack in Iraq as part of its 2003 invasion, the report states. Concern that any such attack might have rolled over into civilian networks outside Iraq may have played a part in its decision.

Civilian Spillover a Danger

Estonia's situation aptly illustrates this key problem with cyberwarfare, according to Mulvenon, who has tracked cyberskirmishes between attackers in China, Taiwan, and the United States. "None of the cyberwars that I've seen in the last 10 or 15 years has been clean," he says.

This characteristic complicates matters for states that engage in cyberwarfare because an attack may reach beyond its original objectives into civilian territories or neighboring countries.

Nations must also contend with rogue agents, such as the ones in Russia and China who may have acted without their government's approval. One official who helped coordinate Estonia's response says the attack on Estonia's computer infrastructure amounted to a cyberriot.

"In war you have definite targets," says Hillar Aarelaid, manager of Estonia's Computer Emergency Response Team (CERT). "In a riot you don't care, you're just breaking windows."

Aarelaid was struck by the sheer variety of the attacks Estonia endured. Some assailants had simply downloaded software on their home computers that repeatedly sent information requests to Estonian servers, while others had marshaled sophisticated botnet armies.

Are civilian attackers part of any nation's cyberwar strategy? Perhaps. "I tend to think that the government views them as useful idiots," Mulvenon says.

For now, Mulvenon predicts, fears of unintended consequences—whether in the form of civilians joining in the fight or of a cascading network failure—will keep cyberwarfare planners cautious, especially in conflicts with powerful nation-states. But that won't prevent attacks like the ones in Estonia, where civilian irregulars pile on in hopes of serving their nation's interests.

BUGS & FIXES

STUART J. JOHNSTON

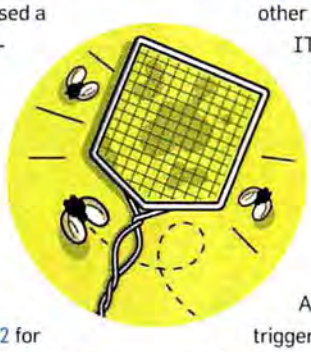
New Attack Gets at Firefox Through IE

Plus: iPhone's Safari problem, and a slew of critical Microsoft patches.

BEWARE, DUAL BROWSER users: In a rare twist, a Mozilla Firefox browser bug could give an attacker control of your PC if you happen to click a booby-trapped link in Microsoft's Internet Explorer.

If you browse with IE but don't have Firefox installed, you're fine. If you browse with Firefox, you're hunky-dory. But if you have both and click a poisoned link in IE, Microsoft's browser will start Firefox, which will run the attack command contained in the passed-along URL.

Though each group said that the other was at fault, Mozilla released a fix in its version 2.0.0.5 update, sent via Firefox's automatic update feature. If you're an IE user and haven't started Firefox in a while, fire up the alternate browser and select *Help•Check for Updates*. See find.pcworld.com/58002 for more on the Firefox patch, which also squashes a few other security bugs.



Holey iPhone

A problem in the iPhone's Safari browser introduces a hole that an attacker might exploit via a drive-by download from a malicious Web page to take over the phone. Researchers at Independent Security Evaluators discovered the flaw, which affects Mac and Windows versions of Safari, too. To make sure you have the mobile fix, connect your iPhone to your PC, select your phone in iTunes, and click *Update*. For details and links to Mac and Windows patches, head to find.pcworld.com/58003.

Crucial Microsoft Fixes

Microsoft's latest batch of patches (all available via Automatic Updates) corrects three critical flaws, along with other less dangerous holes. The most important vulnerability affects users of Windows XP SP2 and 2000 SP4 who've installed versions 1.0, 1.1, or 2.0 of the popular .Net Framework, used by many programs—including some excellent free downloads (get details at find.pcworld.com/58004). Viewing a poisoned site with IE could trigger an attack. And an Excel vulnerability could expose your PC to a takeover if you open a tainted spreadsheet in Excel 2000. The flaw is rated only "important" for newer Excel versions (more at find.pcworld.com/58005). The other critical flaw is mostly for IT administrators, as it hits Windows 2000 Server and Server 2003's implementation of Active Directory (read more at find.pcworld.com/58006).

Flawed Flash

Adobe's Flash Player can trigger an attack if you open a specially crafted .swf movie file in versions matching or prior to 9.0.45.0, 8.0.34.0, or 7.0.69.0 on any supported OS. Use the auto-update feature to get the fix, or see find.pcworld.com/58009.

QuickTime Pitfalls

Apple scotched a bevy of nasty bugs in its QuickTime player that would let attackers run any command on your system after you viewed a rigged site or opened a hacked movie file. Versions prior to 7.2 for Windows XP SP2, Windows Vista, and Mac OS X are at risk. Apple's security bulletin at find.pcworld.com/58008 has details, plus links to the corrected version, sent via Apple's automatic updates.

BUGGED?

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ILLUSTRATION: HARRY CAMPBELL

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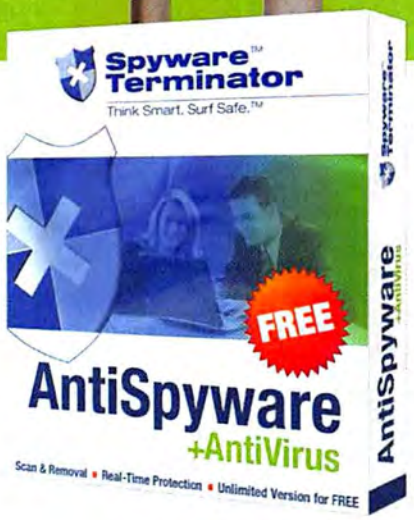

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Free Security Tool Flags Old or Unpatched Apps

MAKE YOUR PC safer with a downloadable utility from Secunia, a company that tracks known vulnerabilities in software and operating systems. This new beta app can identify missing Windows patches and outdated, insecure apps on your PC (get it at psi.secunia.com).

The Secunia Personal Software Inspector isn't perfect, but since keeping your computer up-to-date is one of the best ways to stay safe, it's pretty useful. Secunia says that the utility can scan for more than 4200 different programs. It picks up the same version information you would see if you right-clicked a program file, chose Properties, and then selected the Version tab. But if an app doesn't report the right version of itself, as happened with my Thunderbird e-mail software, PSI won't list the proper version either.

PSI'S CLEAR INTERFACE makes both identifying and updating potentially unsafe programs on your PC easy.

If you click the name of any listed insecure software, you'll get handy links to patches or newer software versions. You'll also receive a link to Secunia's advisory about why your version isn't safe, and explanations of the multiple versions of a program you may see listed.

To obtain all this data, the program communicates with Secunia's servers. According to its privacy statement, the firm stores information about your software for up to 12 months, but it doesn't collect any personal data beyond version numbers.

—Erik Larkin

PRIVACY WATCH ERIK LARKIN

Evade Snoops by Cloaking Your Internet Activity in Anonymity

AT&T HAS ANNOUNCED plans to snoop on Internet traffic to discourage people from sharing pirated music and movies. The company hasn't provided details—like whether it intends to spy only on its own ISP customers, or on all traffic in its massive Internet backbone network (see find.pcworld.com/57971).

Piracy is and should be illegal, but using indiscriminate spying to catch pirates goes too far. Add to this the many Web sites and services that save records of what you searched for, posted, or looked at, and it may seem as though browsing online is about as private as standing on the corner with a bullhorn, shouting out your plans.

Conceal Your Online Trail

I spent some time with JanusVM, a program that attempts to counteract this epidemic of indiscriminate snooping by disguising the source of all of your Internet traffic—not just your surfing. The software's creators request a donation, but they allow you to use the app for free. It'll definitely cost you some speed online, however. Still, if you want to stay unknown as you perform sensitive tasks, JanusVM may be worth the price in slower performance.

JanusVM is a collection of free, open-source privacy tools, such as Tor, which links you with other Tor users to mask your virtual location. These tools are packaged in a virtual appliance that makes

Free program helps obscure your online tracks, but your browsing speed will take a hit.

setup and configuration a breeze; nab the 20MB app at janusvm.peertech.org. To use it, you'll need the also-free VMWare Player (a chunky 145MB download from VMWare.com), which lets you run virtual PCs within Windows distinct from the operating system.

Once you've downloaded and unzipped JanusVM, start up VMWare Player, click *Open*, and browse to the JanusVM folder. Soon after selecting the one file there, you'll see the JanusVM startup menu. At the top of that screen are two commands you need to run from the command prompt in order to set up Windows to use JanusVM. One is for the PC you installed JanusVM on; run the other, as needed, from any other networked machine you want to use the app with. It works with Windows XP, 2000, and Server 2003, as well as Linux. I also used it successfully on a Vista system.

After running one of the two commands, you'll see a new desktop icon. Double-click it and click the *Connect* button (to change the default user name and password, head to the JanusVM menu).

A system tray icon will appear, indicating that you're using Tor and other privacy-protection tools. Regrettably, whereas my laptop's Wi-Fi connection ran at 1.5 mbps without the software (according to tests at DSLreports.com), it dragged along at 350 kbps with it. Though browsing was noticeably slower, it was still functional.

To stop the service and restore your speedier but traceable connection, right-click the system tray icon and choose *Disconnect*. ●

ILLUSTRATION: HARRY CAMPBELL

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Reviews & Rankings

Online Video Shoot-Out: Blip.tv Beats YouTube

Scrappy video-sharing rivals offer better quality than YouTube does, and many will share ad revenue with you.

YOUTUBE, NOW owned by Google, may still be the 800-pound gorilla of video sharing sites, but an impressive number of rivals—some merely clones, others offering unique twists—are nipping at its heels.

We whittled down an initial list of 50 contending services (see find.pcworld.com/58285) to 17 topflight sites we tested to determine the best place to share your videos online. Blip.tv's video quality and functionality made it our overall Best Bet, but each free service has strengths in areas that others may not.

EDITS, TRANSITIONS, EFFECTS: Taking cues from Jumpcut's Editor, Brightcove's Aftermix (top) and YouTube's Remixer tools let you edit video online.

Video quality and embedded player design remain the major points of comparison, so we put together a special evaluation page on our PC World.com Web site so that you can judge the video from each service for yourself, side-by-side: Just go to find.pcworld.com/58311.

For our rankings, we also took into account policies on shared advertising revenue, potential audience size, the entire upload experience, and the design of each embedded player, including the intrusiveness of any advertising, watermarks, and other nonvideo elements. In addition, we considered social-networking options, the ability to make videos private, and other attributes.

Each site that we tested—our top 10, plus AOL Uncut Video Beta, Crackle (previously Grouper), Dailymotion, Facebook, Google Video, Metacafe, and Yahoo Video—will let you upload a variety of video types, but the only format supported across the board is QuickTime. Most sites don't limit video length or the number of videos you can upload, but many restrict file sizes to 100MB. Consequently, we used the same 1-minute-long, 95.5MB QuickTime (MPEG-4) test file with Apple Lossless stereo audio to test each site.

To gauge video quality and audio, we incorporated shots from past PC World Videos and Test Center footage from the Panasonic PV-GS500, our current MiniDV Camcorder Best Buy (find.pcworld.com/58232), in our 720-by-480-resolution video.

Our Recommendations

Video quality: Blip.tv gets the nod here because it permits users to stream and download the original, high-quality file. Stage6's DivX compression also gets high marks.

PHOTOGRAPHS: MARC SIMON

INSIDE

66 HP PHOTOSMART R937

68 MICROSOFT ROUNDTABLE

70 VALUE BUSINESS DESKTOP PCs

79 SPRINT KATANA II

Most of the services we tested convert video uploads to good- but not great-looking Flash 8 format, which uses the On2 VP6 codec. On the other hand, some sites—notably YouTube—still use the lower-quality Flash 7 format, which relies on the older Sorensen Spark codec.

Besides enabling users to stream or download your original high-quality video file, Blip.tv lets you make video that's ideal for iPod and cell phone playback available.

Eighth-place Vimeo also allows users to download—but not stream—the original high-quality file; and DivX Stage6, our number two service, lets viewers stream or download original files, with a couple of small catches.

Not surprisingly, since it's run by the folks behind the DivX format, Stage6 requires you to convert video to that format before you upload it. Thankfully, the site links to free and painless conversion software (Dr. DivX), and the resulting video quality ranks as the best we saw outside of an original source file—impressive, given that the software took just under a minute to squish our test file down to only 10.5MB.

The fame game: If you want your video to reach the largest possible audience, then you'll need to follow the eyeballs. In South Korea, that would mean using Cyworld, while in France you'd probably use Dailymotion. The rest of us have YouTube. You could try MySpaceTV or Google Video instead, though Google "envisions most user-generated and premium video content being hosted on YouTube."

Making money: Are you an independent producer looking for profit? Blip.tv, Brightcove, Metacafe, Revver, and Veoh will split advertising revenue with you, 50/50.

We particularly appreciated a unique feature of Revver whereby you earn 20 percent of the revenue from videos you've shared (on, say, your Revver page or a personal blog) even if they're not yours; the remaining 80 percent is halved between the video's creator and Revver.

REVVER'S DASHBOARD OVERVIEW makes it easy to monitor video revenues and traffic analytics.

Mobile uploads: Blip.tv and Jumpcut let you upload videos captured by your camera phone by attaching the video to an e-mail message while YouTube uses your cell phone's MMS (Multimedia Message Service) capabilities. But in previous tests (find.pcworld.com/58233) conducted with a Palm Treo 750 smart phone, we couldn't upload videos of more than 5 seconds' duration at the phone's best resolution because the Cingular service it used limits files sent via MMS to 300KB. Verizon limits its MMS video transmissions to 350KB, and Sprint limits them to 15 seconds.

Think before you link: Even if you're posting embedded video on your personal blog, most of the players that we looked at link back to their Web site in some way. This state of affairs raises the possibility of stumbling upon video, comments, or advertising that some people might consider inappropriate. Many sites have "family filters" that are enabled by default, but it's still worth checking what surrounds your video before you dispatch a mass e-mail notification to friends, family, and colleagues.

Protect your copyright: Be sure to read a video sharing site's terms and conditions

MORE ONLINE

Visit find.pcworld/58135 for full reviews of each video sharing site on our Top 10 chart.

carefully before you upload. Most sites we looked at have license agreements under the terms of which you grant the service the right to do things like host, transcode, distribute, and make money by selling advertising around your video. Usually, these are basic boilerplate agreements that let you retain copyright control and the ability to remove a video at all times. Most sites inform visitors that your video is a protected work—not in the public domain. Some, like Blip.tv and Revver, even let you use certain Creative Commons licenses (creativecommons.org) that let you decide whether you want to require attribution, restrict commercial use, or allow modifications and reuse under specified terms.

PC WORLD TOP 10 VIDEO-SHARING SITES

VIDEO SHARING SITES	PCW Rating	Performance	Features and specifications
1 BEST BET **Blip.tv Beta** **Free** find.pcworld.com/58123	84 VERY GOOD	• Video/Audio quality: Superior/Very Good • Ease of upload: Very Good • Embedded player design: Very Good • Sharing options: Superior	• File size/length limits: 100MB/none • User storage: Unlimited • Revenue sharing: Yes • Converts files to: Flash 8
BOTTOM LINE: Web video connoisseurs will like Blip.tv's superior video feed quality and optional revenue sharing.			
2 **DivX Stage6 Beta** **Free** find.pcworld.com/58125	83 VERY GOOD	• Video/Audio quality: Very Good/Very Good • Ease of upload: Good • Embedded player design: Superior • Sharing options: Very Good	• File size/length limits: 2GB/none • User storage: Unlimited • Revenue sharing: No • Converts files to: DivX
BOTTOM LINE: Though its use involves a few extra steps, Stage6 supports high-def video and has a well-designed Web player.			
3 **Brightcove Beta (Personal)** **Free** find.pcworld.com/58126	81 VERY GOOD	• Video/Audio quality: Good/Very Good • Ease of upload: Very Good • Embedded player design: Superior • Sharing options: Very Good	• File size/length limits: 100MB/none • User storage: Unlimited • Revenue sharing: Via free upgrade • Converts files to: Flash 8
BOTTOM LINE: Brightcove provides professional video management tools and extensive revenue-sharing options.			
4 **Revver** **Free** find.pcworld.com/58127	80 VERY GOOD	• Video/Audio quality: Good/Very Good • Ease of upload: Very Good • Embedded player design: Superior • Sharing options: Superior	• File size/length limits: 100MB/none • User storage: Unlimited • Revenue sharing: Yes • Converts files to: QuickTime, Flash 8
BOTTOM LINE: Revver might be the easiest way to monetize videos; you even make money by sharing video from other users.			
5 **Veoh** **Free** find.pcworld.com/58128	80 VERY GOOD	• Video/Audio quality: Good/Very Good • Ease of upload: Very Good • Embedded player design: Very Good • Sharing options: Very Good	• File size/length limits: none/none • User storage: Unlimited • Revenue sharing: Via free upgrade • Converts files to: Flash 7 or 8
BOTTOM LINE: Veoh impressed with a large and easy-to-use embedded player and its useful VeohTV desktop software.			
6 **Microsoft Soapbox Beta on MSN Video** **Free** find.pcworld.com/58129	79 GOOD	• Video/Audio quality: Good/Very Good • Ease of upload: Very Good • Embedded player design: Very Good • Sharing options: Very Good	• File size/length limits: 100MB/none • User storage: Unlimited • Revenue sharing: No • Converts files to: Flash 8
BOTTOM LINE: Well designed and syncs with MSN Messenger; but unlike rival embedded video players, it lacks full-screen mode.			
7 **YouTube** **Free** find.pcworld.com/58130	79 GOOD	• Video/Audio quality: Fair/Very Good • Ease of upload: Very Good • Embedded player design: Good • Sharing options: Very Good	• File size/length limits: 100MB/10 min. • User storage: Unlimited • Revenue sharing: Selected users • Converts files to: Flash 7
BOTTOM LINE: Its video quality isn't the greatest, but YouTube can't be beat for drawing the widest possible audience.			
8 **Vimeo** **Free** find.pcworld.com/58131	78 GOOD	• Video/Audio quality: Good/Very Good • Ease of upload: Very Good • Embedded player design: Very Good • Sharing options: Very Good	• File size/length limits: 250MB/none • User storage: 250MB per week • Revenue sharing: No • Converts files to: Flash 8
BOTTOM LINE: Easy-to-use Vimeo can make your original file available for download along with a streaming Flash version.			
9 **Jumpcut Beta** **Free** find.pcworld.com/58132	78 GOOD	• Video/Audio quality: Good/Very Good • Ease of upload: Very Good • Embedded player design: Good • Sharing options: Superior	• File size/length limits: 100MB/none • User storage: Unlimited • Revenue sharing: No • Converts files to: Flash 8
BOTTOM LINE: Uniquely, Jumpcut makes it fun to mash up videos, music, and photos from yourself or from others.			
10 **MySpaceTV Beta** **Free** find.pcworld.com/58133	77 GOOD	• Video/Audio quality: Good/Very Good • Ease of upload: Very Good • Embedded player design: Good • Sharing options: Very Good	• File size/length limits: 100MB/none • User storage: Unlimited • Revenue sharing: No • Converts files to: Flash 8
BOTTOM LINE: Best for those seeking video uploads to their MySpace blog or profile without the need for other sites.			

CHART NOTES: Prices, ratings, and specifications as of 8/8/07. Visit find.pworld.com/58135 for a more detailed chart and comparison videos.

YouTube Shares Video, Not Income

Surprisingly, YouTube and Google Video's revenue programs tend not to be accessible to the average Joe. YouTube's Partner Program is limited to big-media or hand-selected individuals, while Google wants producers backed by at least 1000 hours of video for its High Quality or Day-Pass (time-limited) download sales. By contrast, Brightcove permits you to create paid downloads and distribute them through AOL's Video store; Veoh has a similar system. Both let you keep a 70 percent share of the profits.

These services also maintain syndication programs wherein either you or the service develops commercial relationships with third-party Web sites interested in using certain video content.

Some parting advice courtesy of Revver: The IRS requires anyone who is being paid more than $600 by a U.S. company to fill out a W-9 (U.S. citizens) or a W-8 (internationals) form for tax purposes. Does such income sound like pie in the sky? At the time of this writing, the top earner in Metacafe's Producer Rewards program had collected over $45,000.

—Danny Allen

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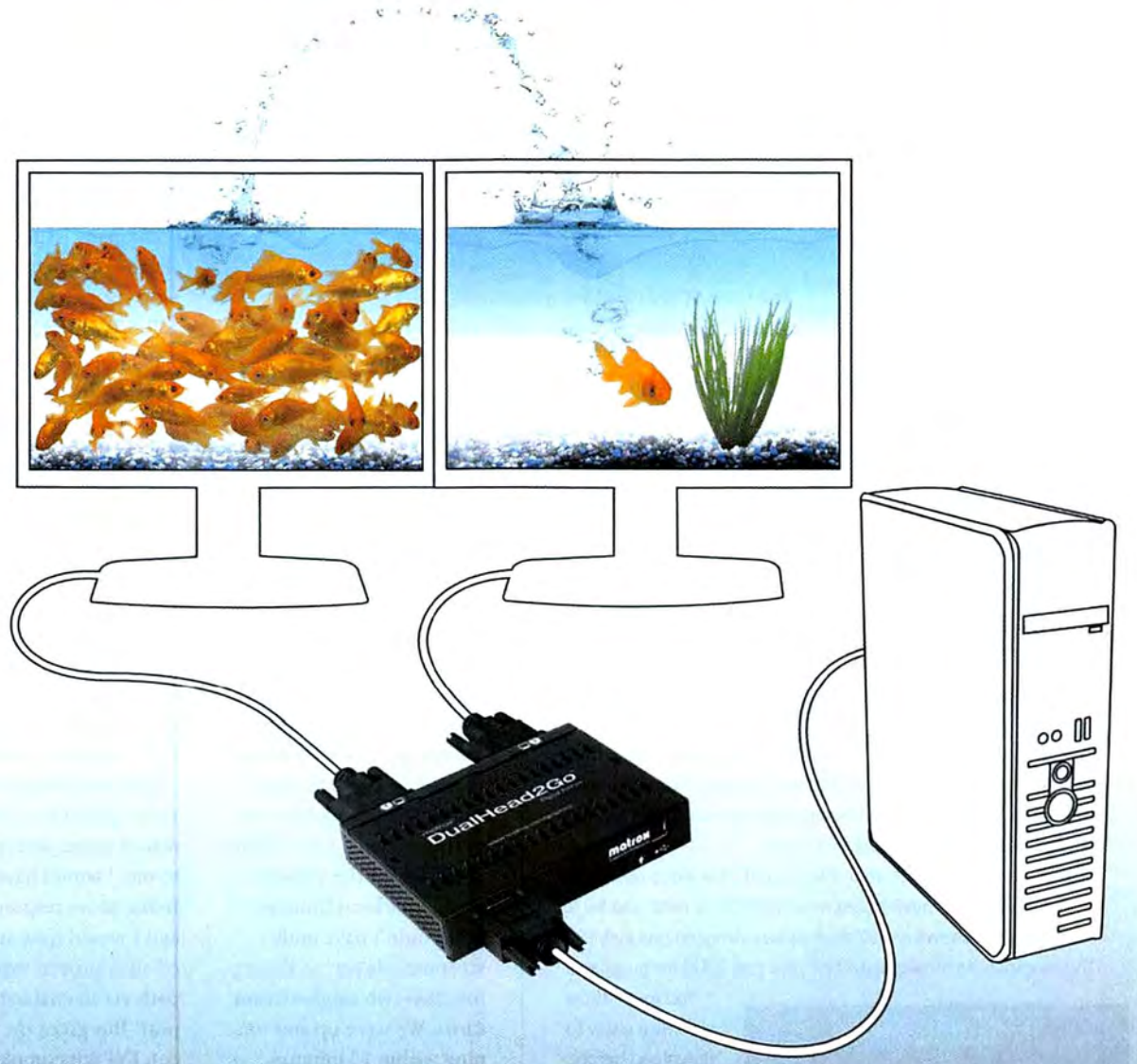

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Graphics for Professionals

Bargain TiVo Records HD Video Without a Cable Box

WHEN I REVIEWED the TiVo Series3 HD digital video recorder last year, I loved it—except for its $800 price tag. The new TiVo HD has most of the Series3's features, but costs only $300. I love the TiVo HD even more.

THE HIGH-DEFINITION TiVO HD is CableCard-enabled, and costs $500 less than last year's HD model.

The new TiVo contains a 160GB hard drive, to which you can record 180 hours of standard-definition programming or 20 hours of high-definition programming, versus the Series3 HD's 250GB hard drive, which is good for 300 hours of SD or 25 to 35 hours of HD. The TiVo HD also comes with a less-expensive remote control; it isn't backlit or capable of controlling other components, as is the one that accompanies the Series3 HD. (And just in case you were wondering, TiVo says it has no plans to drop the price on the Series3.)

Both models have dual tuners and two slots for CableCards, which allow them to decrypt premium cable channels such as HBO and Showtime without a cable set-top box. But the TiVo HD also accepts multi-stream CableCards, which can decrypt two data streams that are going to the two tuners. You need only one of them (saving yourself the rental fee on the second card). Our local Comcast office didn't have multi-stream cards yet, so the rep installed two single-stream cards. We were up and running within 15 minutes.

TiVo says the TiVo HD uses the same architecture as the Series3 does, so it should operate similarly. I thought the new model scrolled menu screens a tad more quickly, but the TiVo HD still seemed much more lethargic than a TiVo Series2 model.

As with the Series3 HD, high-definition programming looked great, and the 5.1-channel Dolby audio that the TiVo HD captured when recording HD channels sounded really nice. However, I noticed that the audio on a couple of HD recordings was slightly out of sync with the video. TiVo reps suggested that perhaps this was a "cable company issue." I didn't have any sync problems with the Series3 HD.

The TiVo HD has all of the same ports as the Series3 does, including an eSATA port that is locked (TiVo says it is for "future use"). You could use an undocumented command to enable the port; though TiVo says that it won't provide customer support for a hard drive that is connected to the port, it also says that attaching one does not void the DVR's warranty and won't cause TiVo to terminate service.

With the exception of the syncing problem, the performance issues seemed minor to me. I would have liked a faster, more responsive box, and I would have appreciated an approved expansion path via an enabled eSATA port. But given the big price cut, I'm not complaining. If you're hooked on TiVo, the new box is still a bargain.

—Alan Stafford

88
VERY GOOD

TiVo HD | TiVo

This inexpensive TiVo records high-definition programming—including content on premium channels, thanks to its two CableCard slots.

List: $300

find.pcworld.com/57955

PHOTOGRAPH: MARC SIMON

QUICK TAKE

Hands-On With Amazon Unbox

SETTING UP AND using a TiVo DVR to rent or buy videos from the Amazon Unbox download service is simple. Some annoying gotchas, however, make old-fashioned cable-company pay-per-view a better option, at least for rentals.

You select shows with your TiVo or a PC; the video downloads to your TiVo. Most movies cost from $2 to $4 to rent, and $9 to $15 to buy. TV shows are $2 each to buy. Amazon has just 1500 TiVo-compatible movies listed for rent and 2300 for purchase.

SETTING UP YOUR TiVo to download movies from Amazon Unbox is easy.

You must allow an entire show to download before you can watch it. Also, while you can keep a rented video on your TiVo for a month, once you start it up you have only 24 hours to finish viewing it. You can redownload movies you've bought, so you can save space on your TiVo by deleting them. But, for an as-yet-unspecified period of time, you can't redownload some newly released movies. Sigh.

Still, the service works smoothly and is worth trying. See find.pcworld.com/58001 for step-by-step instructions.

—Erik Larkin

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Low-Cost Drive Plays Blu-ray, Burns DVDs

IF YOU WANT to play Blu-ray movies on your computer but you don't want to pony up $500 for a drive that can burn data to Blu-ray discs, Pioneer's $299 BDC-2202 Blu-ray combo drive may be just what you're looking for. That is, as long as you have Windows Vista (the bundled Ulead WinDVD 8 LE software player is Vista-only). And you'll need to tolerate this SATA-interface model's slow speeds compared with those of an average $50 DVD drive: The BDC-2202 burns single-layer DVD media at 8X, dual-layer DVDs at 4X, and CD-R/RW discs at 24X.

LOW-COST BLU-RAY: THE BDC-2202 makes high-def video playback affordable.

In addition to Windows Vista, your PC must be equipped with an HDCP-ready graphics card, graphics driver, and display for full-resolution playback over a DVI connection.

When I tried to install the drive, none of the software in the Pioneer-specific Corel bundle (WinDVD 8 LE, Burn.Now 4.5 SE, and Video Studio 11 SE) recognized the BDC-2202, and as a result wouldn't install. I ended up using a vendor-agnostic version of WinDVD 8, as well as of CyberLink's Power DVD 7.3 and Nero Ultra Edition, for playback and burning. According to Pioneer, this bug doesn't hit every system, but a fix for affected PCs should be posted online by the time you read this.

My 2GB, Intel Core 2 Duo test bed played *Casino Royale* easily—but so did my 1GB, AMD Athlon FX-53 single-core system. My secret? I used a powerful GeForce 8600GTS graphics card, which shouldered the decoding duties. (Such support is Vista-only for the nonce; XP drivers that will handle Blu-ray decoding are due later this year.)

Software issues aside, the BDC-2202 is a flawless performer, and it's the best deal in town for Blu-ray playback.

—Jon L. Jacobi

80
VERY GOOD

BDC-2202 | Pioneer
Blu-ray playback and DVD/CD burning make this drive versatile, but hardware requirements are high and burn speeds are low.
List: $299
find.pcworld.com/58023

Affordable GPS Navigation Device Puts Safety First

JOB ONE FOR any in-car GPS unit is to help you get to your destination safe and sound. In the past you would have paid extra for such features as school-zone and speed alerts, and text-to-speech pronunciation of street names. Now Netropa brings these and other important safety features to the low end of the GPS market with its Intellinav 3, which lists for only $330.

The Intellinav 3 preloads maps for the United States, Puerto Rico, and the U.S. Virgin Islands on an included 2GB SD Card, along with a points-of-interest database totaling 6 million entries.

THE INTELLINAV 3 is small—as is its screen.

The downside to the Intellinav 3's small size is its crowded 3.5-inch touch-screen LCD. Moving between menus in the device's settings and other controls is clear and easy, but locating a specific item on the map, such as your next turn or estimated arrival time, can be a challenge while you're driving. The screen also washes out in bright sunlight. That's where the pronunciation of street names comes in handy.

The Intellinav 3's route selections were usually spot-on, though I disagreed with a couple of the device's rush-hour suggestions. The product uses historical traffic patterns to choose your route and to calculate your arrival time—but in my testing, I did not see any actual reduction in travel times.

You cannot play audio files and view images on the device while navigating or viewing the map; I also missed being able to stream the navigation audio through my car's FM stereo. But the ability to hear street names while you navigate puts this GPS unit miles ahead of other entry-level devices.

—Dennis O'Reilly

80
VERY GOOD

Intellinav 3 | Netropa
High-end features such as spoken directions and school-zone and speed alerts make this inexpensive GPS a good deal.
List: $330
find.pcworld.com/58262

PHOTOGRAPHS: MARC SIMON

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Big Touch Screen Helps HP's New Digital Camera

THE LARGE, 3.6-INCH touch-sensitive screen on the HP Photosmart R937 makes framing your shots and assigning tags to photos easy. However, the camera omits an optical viewfinder to make room for it.

PCW Test Center

A HUGE LCD is the star feature of HP's Photosmart R937. During my hands-on testing of a production model, it caused complete strangers to stop to watch as I composed my shots, and friends said they loved how easily they could view images on it.

The 3.6-inch screen leaves no room for an optical viewfinder, but it's touch sensitive, making the camera a breeze to operate using the plastic stylus that dangles from the wrist strap. Tap on the colorful buttons and menus, and you can glide quickly through the settings. For most of the operations, a question-mark icon in the top corner leads to a wealth of useful information. The camera has just a few real buttons—power, shutter release, zoom control, and display mode—plus a slider for switching among still shots, movies, and playback.

The $300 R937 lacks some of the fancier features you'll find on similarly priced cameras. For example, though it has an antiblur mode for reducing the effect of camera shake, that function works by increasing the exposure speed and light sensitivity, making the R937 more prone to noise than optically stabilized models.

The touch-screen menus, however, provide some novel in-camera editing functions. You can add borders, modify colors, and apply artistic effects, such as cartoon or kaleidoscope patterns. Via the photo enhancement tools, you can make people look slimmer, touch up skin blemishes, and fix red-eye. HP even includes a tool to address reflections from your pet's eyes, but I didn't have much luck correcting flash photos of my two cats. I took a whole bunch of shots, but only once did the tool change the appearance of an eye—and that result looked very unrealistic.

The R937 also lets you assign keyword tags to your photos, which helps you organize your images in the included HP Photosmart software, in Windows Vista's Photo Gallery, or in iPhoto on a Mac. A virtual keyboard pops up on the camera's screen when you want to enter new tags.

In PC World Test Center tests, images looked bright and colorful; the scores for sharpness and distortion, though, were roughly average. My own photos looked impressive, with strong contrast and vivid (though slightly unnatural) colors. The R937 uses a single USB port for both downloading images and charging the lithium ion battery. At 261 shots on a single charge, battery life was a bit above average—surprising considering the large size and brightness of the LCD.

The iPhone has made big color touch screens fashionable. But with its ease of use and good image quality, the HP Photosmart R937 may be the coolest touch-screen toy to carry.

—Paul Jasper

76
GOOD

Photosmart R937 | HP
The enormous touch-screen display looks spectacular and makes the R937 a cinch to use.
List: $300
find.pcworld.com/58011

PHOTOGRAPH: MARC SIMON

ASK OUR EXPERTS

Cross-Platform Drive Sharing

? I HAVE A rather old HP desktop and an Apple MacBook Pro. Which external hard drive, preferably in the 40GB to 100GB range, should I get so that I can back up both machines?

Jim Lordeman, Nashville

Senior Editor Narasu Rebbapragada responds: You can buy any external USB 2.0 drive and format it in the FAT32 file system. Keep in mind, however, that the FAT32 format supports file sizes of only 4GB or less. Or you can create two partitions and format them in the Mac HFS+ or Windows NTFS systems, respectively (but remember that Mac OS X can only read from, not write to, the latter). An alternative is to get a network-attached storage (NAS) device, which can back up both computers over a network and is OS agnostic. See our network-attached storage chart (find.pcworld.com/58247) for options.

E-mail your question to askourexperts@pcworld.com or post it online at forums.pcworld.com.

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Interactive Browser Puts All of Web in One Place

ADDICTED TO THE Brave New Web's feeds, streams, tags, pics, and flicks? For a simple, consolidated window to the interactive Web, try the free Flock browser, which comes preconfigured for creating and consuming RSS feeds, shared photos, and other Web 2.0 fare—just enter your existing accounts' user names and passwords.

FLOCK'S CONTENT-CREATION TOOLS enable you to quickly post to a blog; the strip across the top shows image and video thumbnails.

Flock is based on Firefox, and Firefox users will like the familiarity of Flock's menus, sidebars, and tabbed layout. Once you log in to one of the media sharing accounts and a blogging service, you can create with just one click a blog post that includes photos and videos; or, you can upload batches of pics using an included photo uploader. Flock saves bookmarks locally by default, but lets you use Del.icio.us as well so you can maintain just one set.

Web junkies, however, will quickly note Flock's major drawbacks: its limited choice of supported services and the inability to change the contents of its My World default home page. You could use Firefox add-ons (most of which are compatible with Flock) to access unsupported services, but people who are constantly seeking out the latest and greatest extensions, toolbars, aggregators, and portals will probably continue to roll their own interactive Web interfaces.

—Scott Spanbauer

87
VERY GOOD

Flock 0.9.0.1 for Windows | Flock
This one-stop Web browser offers easy blogging and integration with Web services, but not all of its features are configurable.
Free
find.pcworld.com/58161

RoundTable Enables Panoramic Videoconferencing

GIVE YOUR NEXT videoconference a sci-fi look with the RoundTable, Microsoft's 360-degree video camera. The device is designed to work with Office Communications Server 2007, as well as with the new version of the Office Live Meeting conferencing software (currently in beta). Situated around the RoundTable's circular dome are five video cameras that cover every inch of a meeting room. Tied to the cameras are six microphones in the unit's base; the device switches automatically to show remote users whoever is currently talking.

The camera's 360-degree view presents meetings in a 3000-by-480-resolution panorama, and the meeting-space screen in Office Live Meeting can accommodate video streamed from the Webcams of remote meeting participants. Remote attendees without Webcams can dial in to the conference audio using the Live Meeting client application, the Java version of Live Meeting that runs in a browser, or a standard telephone line.

Microsoft says it expects the RoundTable to cost less than $3000—which would be much cheaper than a standard videoconferencing system such as Polycom's VSX series. If the RoundTable saves you a couple of business trips, it's paid for itself.

—Dennis O'Reilly

THE ROUNDTABLE'S 360-DEGREE video capture means you can't hide at meetings.

85
VERY GOOD

RoundTable | Microsoft
Provides an unprecedented view of meetings for remote attendees, but microphones are a bit weak.
Price not yet announced
find.pcworld.com/58053

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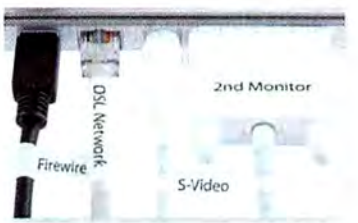

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Small-Business PCs Give Short Shrift to Specs

HP'S COMPAQ DX2250 and Dell's Vostro 200 pair the companies' most basic hardware designs with small-business services.

PCW Test Center

TECH COMPANIES ARE redoubling their efforts to attract small-business customers with low-cost desktops and targeted software and services. Small-business buyers, however, would do better to avoid Dell's and HP's new low-end small-business PCs and instead stick with those companies' products for large enterprise customers.

Dell's entry-level Vostro 200, the first desktop in its new small-business line of products, costs $1198 with a 20-inch display and a one-year warranty. HP's entry-level business PC, the Compaq dx2250, costs $1413 with a 19-inch LCD monitor and a three-year plan. These two PCs lack the innovative hardware features found in some other models in Dell's and HP's lines—even machines that cost little more than these systems. For example, the plainly designed Vostro 200 and dx2250 lack the convenience of tool-less mechanisms.

Thanks to a discrete graphics card and more RAM than the previously tested Compaq dc5750, the dx2250 earned a score of 70 on our WorldBench 6 Beta 2 tests—a result that was 13 percent better than that of the dc5750, which had the same 2-GHz Athlon 64 X2 3800+ processor. The Vostro 200, equipped with a 1.86-GHz Core 2 Duo E6320 CPU, achieved a WorldBench 6 Beta 2 score of 80; that's the best mark among the value systems we've tested running Windows Vista.

Services for Business

Both PCs come with software and services designed to help their owners work better. For example, Dell's Automated PC Tune-Up utility runs 30 different maintenance tasks, such as cleaning out temp files and cookies and defragmenting your hard drive, with one click. Access to this tool and 10GB of online storage is free for only the first year, though.

HP has a similar tool set called HP Total Care Advisor. One component monitors PC health and security; another, Business Solutions, provides access to free or inexpensive online classes covering software, business skills, and IT concerns.

Dell boasts that Vostro PCs "come without annoying trialware preinstalled." True, our Vostro 200 bore no desktop trial-offer icons, but it did sport icons for Dell's own utilities. The dx2250 had no icons whatsoever on its desktop, other than Windows's own.

Vostro PC users have 24/7, year-round access to "dedicated small-business-trained technicians," and each machine ships with software that those techs can use to attempt fixing the PC remotely. HP says that its business-PC customers receive faster access to tech support than its home-PC customers get, and that such business customers talk to a different set of reps.

These PCs, nevertheless, aren't the best values that Dell and HP have to offer.

—Alan Stafford

PHOTOGRAPH: MARC SIMON

PC WORLD TOP BUSINESS PCs

	VALUE BUSINESS PC	PCW Rating	Performance	Features and specifications
1	BEST BUY Dell OptiPlex 740 $1012 find.pcworld.com/57137	87 VERY GOOD	• WorldBench 6 score: 70 • WorldBench 6 rating: Very Good • Overall design: Very Good • Graphics: Poor	• 2.2-GHz Athlon 64 X2 4200+ • 160GB drive capacity • 20-inch Dell E207WFP LCD • Integrated nVidia GeForce 6150 LE
	BOTTOM LINE: Superb internal design makes this system ultraquiet and easy to work on. Same-day on-site service is optional.			
2	Dell Vostro 200 $1198 NEW find.pcworld.com/58088	83 VERY GOOD	• WorldBench 6 score: 80 • WorldBench 6 rating: Superior • Overall design: Fair • Graphics: Fair	• 1.86-GHz Core 2 Duo E6320 • 160GB drive capacity • 20-inch Dell E207WFP LCD • 128MB nVidia GeForce 8300GS
	BOTTOM LINE: This small-business PC is inexpensive but offers no noteworthy features other than Dell's business services.			
3	HP Compaq dx2250 $1413 NEW find.pcworld.com/58087	71 GOOD	• WorldBench 6 score: 70 • WorldBench 6 rating: Very Good • Overall design: Fair • Graphics: Poor	• 2-GHz Athlon 64 X2 3800+ • 80GB drive capacity • 19-inch HP LP1965 LCD • 256MB ATI Radeon X1300
	BOTTOM LINE: A graphics card helped boost this PC's WorldBench 6 score over that of the dc5750, but it upped the price, too.			
4	HP Compaq dc5750 $1268 find.pcworld.com/57136	70 GOOD	• WorldBench 6 score: 62 • WorldBench 6 rating: Good • Overall design: Good • Graphics: Poor	• 2-GHz Athlon 64 X2 3800+ • 80GB drive capacity • 20-inch HP L2045w LCD • Integrated ATI Radeon X1150
	BOTTOM LINE: This PC has a better design than the dx2250, but its desktop orientation limits expandability, reducing its score.			

CHART NOTE: Prices and ratings are as of 8/8/07. For more information on the PCs reviewed in this chart, including testing details, go to find.pcworld.com/58183. WorldBench 6 scores are from the Beta 2 version of the benchmark; results may differ under the final benchmark, and are not comparable to scores from WorldBench 5.

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OCZ OCZ3P13332GK
Platinum 2GB (2 x 1GB) 240-Pin DDR3 SDRAM DDR3 1333 (PC3 10666)

PATRIOT MEMORY

Log on to see best price

Patriot PDC32G1600ELK
2GB (2 x 1GB) 240-Pin DDR3 SDRAM DDR3 1600 (PC3 12800)

CORSAIR

Log on to see best price

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Dual Channel Kit Desktop Memory

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Acer Gets Glossy; Lenovo Perfects Its Tablet

PCW Test Center

THE ACER ASPIRE 5920G debuts this month on the desktop replacement side of the chart. It bears Acer's new Gemstone design, which features a glossy lid, a putty-colored keyboard, accent curves, and a custom button that looks like a blue-quartz jewel. This laptop isn't just pretty, however; it's a home and office workhorse with a panoply of attractive multimedia features, such as a subwoofer.

Lenovo's two newest ultraportables, the ThinkPad X61 and its tablet version, the ThinkPad X61t, top our list of ultraportables; the latter model has a swivel touch screen. These easy-to-carry notebooks lack integrated optical drives but come with nice, lightweight docking stations that house the optical drives. These ThinkPads don't have touchpads either; instead, they provide only eraserhead pointing devices.

—Carla Thornton

LENOVO'S UPDATED THINKPAD X61t tablet is well designed.

MORE ONLINE

For more information, including details on how we test, go to find.pcworld.com/55176.

PC WORLD TOP 10 LAPTOPS

DESKTOP REPLACEMENT	PCW Rating	Performance	Features and specifications
1 BEST BUY HP Pavilion HDX $3000 find.pcworld.com/57901	84 VERY GOOD	• WorldBench 6 Beta 2 score: 86 Superior • Overall design: Superior • Tested battery life: 2:22	• 2.4-GHz Core 2 Duo T7700 • 20.1-inch wide screen • 15.5 pounds • HD DVD-ROM/DVD±R DL/DVD±RW/-RAM
BOTTOM LINE: Stylish, high-end desktop replacement is huge and heavy, but its speed makes it a great gaming machine.			
2 Apple MacBook Pro $2949 find.pcworld.com/57902	83 VERY GOOD	• WorldBench 6 Beta 2 score: 88 Superior • Overall design: Very Good • Tested battery life: 2:44	• 2.4-GHz Core 2 Duo T7700 • 17.0-inch wide screen • 6.6 pounds • DVD±R DL/DVD±RW/-RAM
BOTTOM LINE: Lightweight 17-incher has a beautiful screen and comes loaded with useful software. It's fast, too.			
3 Acer Aspire 5920G $1999 NEW find.pcworld.com/58189	82 VERY GOOD	• WorldBench 6 Beta 2 score: 77 Very Good • Overall design: Very Good • Tested battery life: 3:15	• 2-GHz Core 2 Duo T7300 • 15.4-inch wide screen • 7.0 pounds • HD DVD-ROM/DVD±R DL/DVD±RW/-RAM
BOTTOM LINE: Sophisticated multimedia unit has oodles of custom keyboard buttons and one-touch sound settings.			
4 Asus G2P-7R009C $1949 find.pcworld.com/57459	82 VERY GOOD	• WorldBench 6 Beta 2 score: 81 Superior • Overall design: Very Good • Tested battery life: 1:57	• 2-GHz Core 2 Duo T7200 • 17.1-inch wide screen • 9.6 pounds • DVD±R DL/DVD±RW/-RAM
BOTTOM LINE: For a dream desktop replacement that doubles as a lights-flashing gaming machine, look no further.			
5 Gateway NX860XL $1500 find.pcworld.com/56862	81 VERY GOOD	• WorldBench 6 Beta 2 score: 80 Superior • Overall design: Good • Tested battery life: 1:56	• 2.16-GHz Core 2 Duo T7400 • 17.0-inch wide screen • 8.0 pounds • DVD±R DL/DVD±RW
BOTTOM LINE: Looks can deceive: The Gateway NX860XL lacks flair, but it's a fast and powerful desktop replacement.			

ULTRAPORTABLE	PCW Rating	Performance	Features and specifications
1 BEST BUY Lenovo ThinkPad X61 $1724 NEW find.pcworld.com/58289	86 VERY GOOD	• WorldBench 6 Beta 2 score: 75 Superior • Overall design: Very Good • Tested battery life: 6:14	• 2-GHz Core 2 Duo T7300 • 12.1-inch screen • 3.6 pounds • DVD±R DL/DVD±RW
BOTTOM LINE: The optical drive is not integrated, but in all else—especially battery life—this business portable is top-notch.			
2 Lenovo ThinkPad X61t $2333 NEW find.pcworld.com/58293	82 VERY GOOD	• WorldBench 6 Beta 2 score: 64 Very Good • Overall design: Very Good • Tested battery life: 5:02	• 1.6-GHz Core 2 Duo L7500 • 12.1-inch screen • 4.5 pounds • DVD±R DL/DVD±RW/-RAM
BOTTOM LINE: Tablet version of the X61 adds a swivel touch screen so the unit doubles as an easy-to-hold note-taking device.			
3 HP Pavilion tx1000 $1100 find.pcworld.com/56592	77 GOOD	• WorldBench 6 Beta 2 score: 64 Very Good • Overall design: Very Good • Tested battery life: 1:45	• 2-GHz Turion 64 X2 TL-60 • 12.1-inch wide screen • 4.2 pounds • DVD±RW
BOTTOM LINE: This easy-to-use tablet PC is graced with thoughtful design touches, but it had a short battery life in our tests.			
4 Asus W5Fe-2P025E $2199 find.pcworld.com/56872	76 GOOD	• WorldBench 6 Beta 2 score: 74 Superior • Overall design: Good • Tested battery life: 2:27	• 2-GHz Core 2 Duo T7200 • 12.1-inch wide screen • 4.0 pounds • DVD±R DL/DVD±RW
BOTTOM LINE: The powerful, light W5Fe-2P025E has an always-on lid LCD that lists e-mail and appointment information.			
5 Fujitsu LifeBook P7230 $1849 find.pcworld.com/56868	76 GOOD	• WorldBench 6 Beta 2 score: 32 Poor • Overall design: Very Good • Tested battery life: 5:12	• 1.2-GHz Core Solo U1400 • 10.6-inch wide screen • 2.6 pounds • DVD±R DL/DVD±RW/-RAM
BOTTOM LINE: This sub-3-pound laptop has an integrated DVD burner, a superbright screen, and an easy-to-use keyboard.			

CHART NOTES: Prices and ratings are as of 8/8/07. Weight does not include AC adapter, power cord, or optical drive.

PHOTOGRAPH: MARC SIMON

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New Chocolate Phone a Bit Sweeter

PCW Test Center

THE LG VX8550, an upgraded version of the Chocolate phone, is available from Verizon for $250. Its design eschews the older model's four-way button in favor of a mechanical scroll wheel with some button functionality. The new design simplifies navigation in some menus but makes it more onerous in others.

The top half of the VX8550 slides upward to reveal the phone's keypad. At the top of the keypad, LG has added a row of buttons for send, camera, and end/power. To play music, you must push the slider up first so you can power on the phone. The four capacitive touch buttons include one for a speakerphone, which the first Chocolate lacked. The standard 3.5mm headphone jack is a welcome feature as is the microSD card slot, which can handle 4GB cards.

Otherwise, much remains the same on this CDMA phone: You get a 240-by-320-pixel, 11-line color display; high-speed EvDO support; a surprisingly capable 1.3-megapixel camera/camcorder, albeit with serious shutter lag; and stereo Bluetooth capability. The phone supports Web-based e-mail and instant messaging.

LG'S CHOCOLATE PHONE looks as tasty as its predecessor and is easier to navigate.

Audio sounded clear in my informal tests. In our formal talk-time battery tests, the VX8550 lasted 5 hours, 12 minutes—nearly twice as long as the first Chocolate.

The included V Cast Music service charges $1.99 and up for music downloads. You'll use airtime minutes for each download, unless you get the VPak music and video service for $15 per month.

The VX8550's interface for music playback lacks the finesse of those on competing phones. But the new Chocolate is a pretty nice standard cell phone, and its improved battery life helps you enjoy it.

—Melissa J. Perenson

75
GOOD

Chocolate VX8550 | LG
This minor revision of the popular LG Chocolate phone has plenty of multimedia options and a new mechanical scroll wheel. Street: $250 (with two-year contract)
find.pcworld.com/58277

Free Web Service Helps You Get Price-Drop Refunds

STORES OFTEN PROMISE that if an item you buy from them drops in price, they'll refund the difference to you. But consumers rarely take advantage of these policies.

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The site offers directions for requesting a refund from each retailer and provides links to store policies. The covered time period may range from 14 to 90 days, depending on the store and the particular item involved.

Some stores will match competitors' price drops for items purchased in stores (but not online), too. But because Price Protectr tracks the price only at the store where you bought the item, you must track it at other stores on your own to take advantage of such a policy.

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—Erik Larkin

85
VERY GOOD

Price Protectr | Price Protectr
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find.pcworld.com/58093

PHOTOGRAPH: MARC SIMON

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Color Laser Prices Limbo Lower, to $299

PCW Test Center

JUST WHEN YOU think that color-laser printer prices can't get any lower, they do. Dell's new Color Laser Printer 1320c debuts at the top of our chart this month, with a killer price and competent overall performance. Its most notable achievement: surprisingly smooth photo quality for a low-end laser. Its major drawback: tiny, pricey toner cartridges. Replacing all four of them at once could cost almost as much as the printer itself (though that's not an unusual phenomenon; many inexpensive color lasers' toner sets cost as much as or even more than the printer itself).

THE DELL 1320c has small but easy-to-swap toner cartridges.

You'll get a better cost per page out of the other new arrival, the fourth-place Brother HL-4040CN; it also boasts supercrisp text quality (a bit better than the Dell's). Neither printer is particularly expandable, but that's the price you pay for the price you pay.

—Melissa Riofrio

PC WORLD TOP 10 PRINTERS

	COLOR LASER PRINTER	PCW Rating	Performance	Features and specifications
1	BEST BUY Dell Color Laser Printer 1320c $299 NEW find.pcworld.com/57973	84 VERY GOOD	• Text quality: Very Good • Graphics/photo quality: Superior/Very Good • Tested speeds (ppm): 12.4 text/4.2 graphics	• 16 ppm text • 12 ppm graphics • 600-by-600-dpi maximum resolution
	BOTTOM LINE: A low price and great-looking photo quality help this model stand out, but its toner cartridges are expensive.			
2	Oki Printing Solutions C3400n $383 find.pcworld.com/55217	83 VERY GOOD	• Text quality: Superior • Graphics/photo quality: Good/Fair • Tested speeds (ppm): 20.7 text/4.6 graphics	• 20 ppm text • 16 ppm graphics • 1200-by-600-dpi maximum resolution
	BOTTOM LINE: This small, entry-level model is fast at printing both text and color graphics, though paper handling is limited.			
3	Konica Minolta Magicolor 2530DL $399 find.pcworld.com/56555	81 VERY GOOD	• Text quality: Very Good • Graphics/photo quality: Good/Fair • Tested speeds (ppm): 17.3 text/2.6 graphics	• 20 ppm text • 5 ppm graphics • 2400-by-600-dpi maximum resolution
	BOTTOM LINE: The compact 2530DL can print directly from a digital camera and offers competitive costs per page.			
4	Brother HL-4040CN $400 NEW find.pcworld.com/57915	81 VERY GOOD	• Text quality: Superior • Graphics/photo quality: Good/Fair • Tested speeds (ppm): 19.3 text/4.2 graphics	• 21 ppm text • 21 ppm graphics • 2400-by-600-dpi maximum resolution
	BOTTOM LINE: This competent printer balances good pricing, speed, and print quality with a sometimes-awkward design.			
5	Lexmark C500n $349 find.pcworld.com/55219	80 VERY GOOD	• Text quality: Superior • Graphics/photo quality: Fair/Good • Tested speeds (ppm): 24.9 text/3.0 graphics	• 31 ppm text • 8 ppm graphics • 1200-by-600-dpi maximum resolution
	BOTTOM LINE: The C500n prints high-quality text quickly at a competitive price, though color graphics quality wasn't as good.			
6	Lexmark C530dn $499 find.pcworld.com/56554	78 GOOD	• Text quality: Very Good • Graphics/photo quality: Good/Fair • Tested speeds (ppm): 20.7 text/3.6 graphics	• 24 ppm text • 22 ppm graphics • 1200-by-1200-dpi maximum resolution
	BOTTOM LINE: This model's price is attractive for a color laser that handles double-sided prints and has two paper trays.			
7	Oki Printing Solutions C5500n $600 find.pcworld.com/56552	77 GOOD	• Text quality: Very Good • Graphics/photo quality: Good/Fair • Tested speeds (ppm): 23.9 text/5.0 graphics	• 24 ppm text • 20 ppm graphics • 1200-by-600-dpi maximum resolution
	BOTTOM LINE: This midpriced GDI-based printer offers dual paper trays and fast print speeds, especially for graphics.			
8	Ricoh Aficio CL3500N $500 find.pcworld.com/55218	77 GOOD	• Text quality: Fair • Graphics/photo quality: Poor/Fair • Tested speeds (ppm): 19.3 text/4.3 graphics	• 22 ppm text • 22 ppm graphics • 1200-by-1200-dpi maximum resolution
	BOTTOM LINE: Excellent paper handling is the CL3500N's best feature, but print quality of graphics and text disappointed us.			
9	Xerox Phaser 6180/N $499 find.pcworld.com/56551	76 GOOD	• Text quality: Very Good • Graphics/photo quality: Fair/Fair • Tested speeds (ppm): 23.7 text/1.9 graphics	• 26 ppm text • 20 ppm graphics • 600-by-600-dpi maximum resolution
	BOTTOM LINE: The Phaser 6180/N prints high-quality text at decent speeds, but it finds color images more of a challenge.			
10	Dell 3110cn $549 find.pcworld.com/55216	75 GOOD	• Text quality: Very Good • Graphics/photo quality: Fair/Good • Tested speeds (ppm): 25.3 text/1.7 graphics	• 31 ppm text • 17 ppm graphics • 600-by-600-dpi maximum resolution
	BOTTOM LINE: The 3110cn is economical to run, and takes a duplexer that costs just $199. It's slow to print in color, however.			

CHART NOTE: Prices and ratings are as of 8/8/07.

MORE ONLINE For more information about these color laser printers and for details on how we test, go to find.pcworld.com/58259.

PHOTOGRAPH: MARC SIMON

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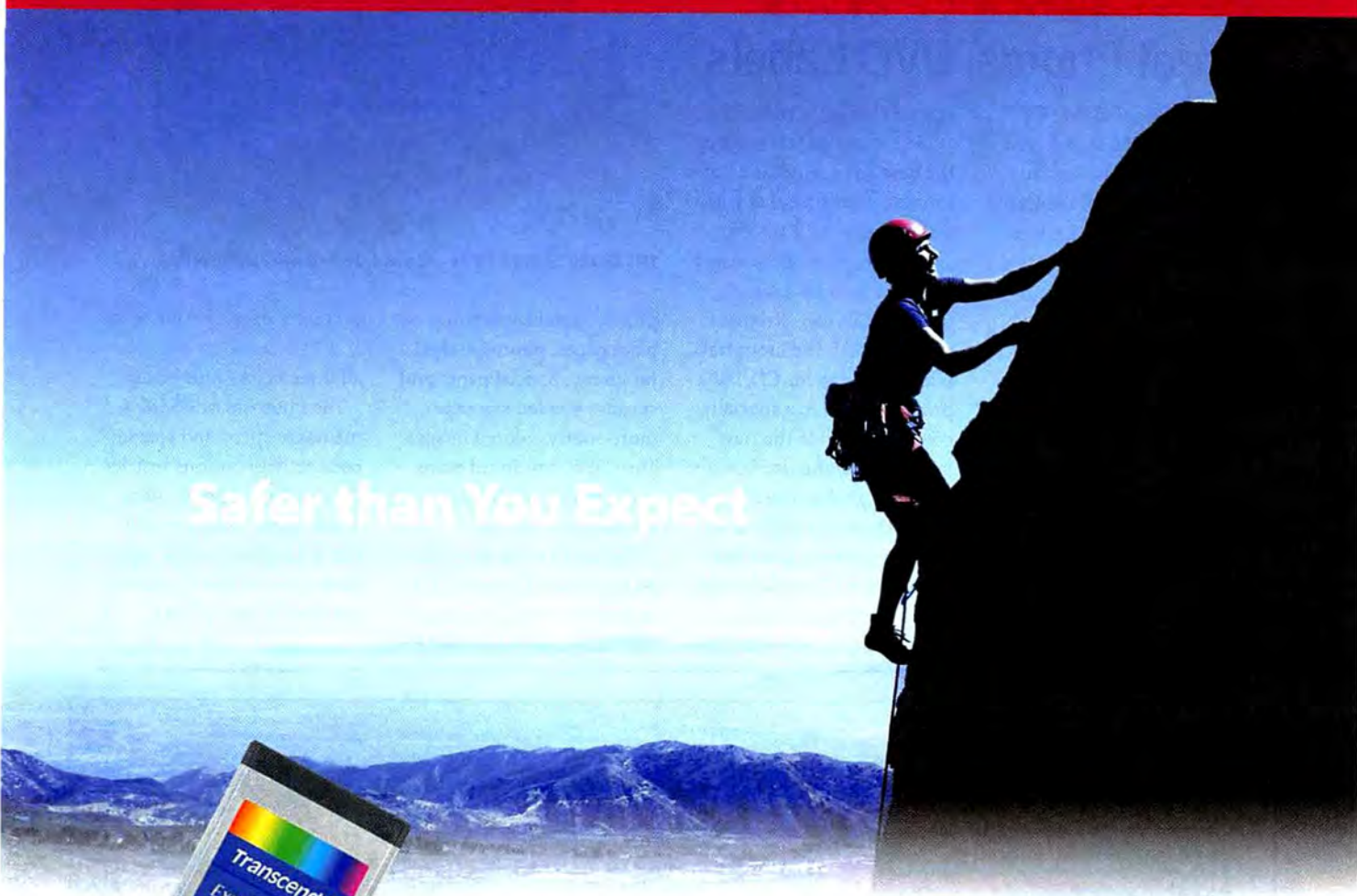

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Go to find.pcworld.com/57733

HP's Latest MFP Prints Great Photos, DVD Labels

THE C5280 LABELS DVDs and yields high-quality photo prints.

PCW Test Center

THE HP PHOTOSMART C5280 shows how good design can tame an inherently complicated machine. This inkjet multifunction printer has a mountain of benefits and only a few limitations—all at a tidy list price of $150.

The control panel is one of the best I've seen: Most buttons are clearly labeled with real words as well as icons, and all are grouped by major function. It has a 2.4-inch, tiltable LCD, too. Nestled in a slot beneath the input tray is a special tray for CD/DVD printing: Snap in a specially coated disc, slide the tray into a feeder, and use Roxio's Express Labeler software to create the image on your PC.

In our printing tests, the Photosmart C5280 achieved only middling speeds but produced generally attractive prints. At default settings on plain paper, photos looked a bit grainy. Special paper and settings yielded smoother, more-subtly colored images. The C5280 produced scans and copies quickly, and they looked good overall.

The unit's costs per printed page (which I used HP's estimated cartridge yields to calculate) are reasonable: 8 cents per page of black text, and 24.1 cents per page for all three colors plus black.

The Photosmart C5280's mediocre speed and sparse connectivity options restrict it to a small or home office. Those users, however, will enjoy a highly capable, easy-to-use device that generates excellent photo output.

—Melissa Riofrio

80
VERY GOOD

Photosmart C5280 | HP
All-in-one offers useful features such as CD/DVD printing and great photo quality, but its speeds are a bit below average. List: $150
find.pcworld.com/58163

Go to find.pcworld.com/57987

Sprint GPS Phone Needs Direction

PCW Test Center

SPRINT'S KATANA II, with GPS option, resembles Motorola's sleek Razr. But this inexpensive Sanyo-manufactured cell phone ($100 with a two-year contract) was difficult to use as a navigation aid.

Petite and lightweight (3.3 ounces), the Katana II scores high on looks. Otherwise, however, it's about what you'd expect from an inexpensive flip phone. Voice quality was adequate; the VGA (640 by 480) camera took okay photos; and the battery lasted about 4 hours in our talk-time tests.

The inclusion of embedded GPS is unusual at this price, but to use it you must download Sprint's implementation of Telnav's GPS software and pay a subscription fee of $10 a month or $3 a day. I found the service often unpleasant to use.

Telnav downloads search results and routes them to your phone as needed, which eases power demands. Nevertheless, you frequently have to wait for data (on Sprint's sluggish 1xRTT Vision network) to finish downloading. You have to turn the speaker on manually to enable voice directions, too.

THE ATTRACTIVE SPRINT Katana II is affordable, but it provides lackluster GPS navigation.

In one case, the GPS technology took several minutes to figure out where I was in downtown San Francisco—and then provided meaningless directions. The GPS application wasn't always off track, but if you need reliable navigation help, get a more expensive and capable handset such as a Palm Treo or a Windows Mobile device that is outfitted with embedded or add-on GPS features.

—Yardena Arar

67
FAIR

Katana II | Sprint

Sprint's Katana II flip phone is affordable and cute, but the device's optional GPS service can be frustrating.

List: $100 (with two-year contract)

find.pcworld.com/58283

Control Dual PCs With One Keyboard

STARDOCK'S Multiplicity permits Windows Vista users to operate more than one computer at a time. This $30 utility works over your home network and enables you to control two PCs with one keyboard and mouse.

One PC acts as the primary machine on your network and controls a second system (the $50 Pro version lets you control up to six systems).

Mouse movement works the same as in a dual-monitor setup, with the pointer traveling between two displays as if they were one. But Multiplicity gives full mouse and keyboard control over two PCs. The machine-switching mode worked well, though the mouse sometimes lagged between the two screens for a few seconds.

The two systems share a clipboard—a handy tool for copying and pasting images or text between machines. Only the Pro version allows you to copy files and folders back and forth between computers, which is one of the program's best features.

—Don Reisinger

90
SUPERIOR

Multiplicity | Stardock
This solid tool allows you to efficiently control two systems from just one keyboard, but file and folder copying will cost you extra.
Street: $30
find.pcworld.com/58158

DOWNLOAD THIS

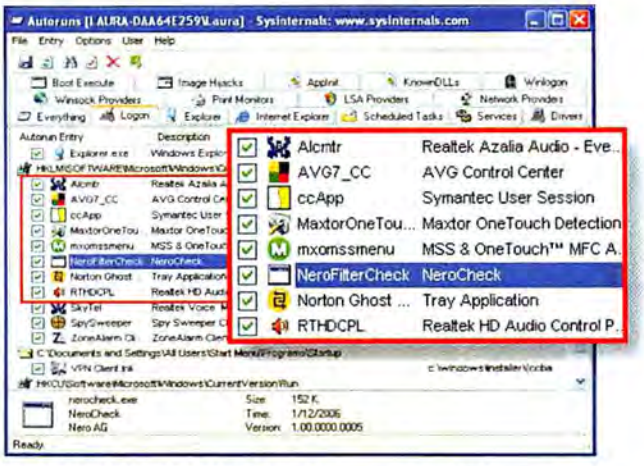
LAURA BLACKWELL

Startup and Firefox Tracking, and Chocolate Fun

EVEN IF YOUR PC runs smoothly, it shouldn't keep secrets from you. This month's downloads include a utility that shows what programs load when you start up your PC, a Firefox extension that helps you track your Web movements, and a straightforward game to challenge your brain instead of your PC's resources.

Suss Out Startup Freeloaders

The moment your PC boots up, it attracts a school of digital remoras—programs that attach themselves to your PC and start up automatically when it does. Msconfig, which is already on your system, lists each contributor to this free-meal frenzy of programs, but only in cryptic terms. The free Autoruns utility provides clear descriptions and a search function to help you make sense of this bewildering catalog and see how some hitchhiking apps slow startup.



AUTORUNS OFFERS DETAILS about programs that load at startup.

A program from Microsoft-owned Windows Sysinternals, Autoruns lets you view a list of all startup programs or look at subcategories such as Boot Execute, Drivers, and Scheduled Tasks. A little gumshoeing can help you identify unnecessary items and (in some cases) malware.

From each Autoruns entry, you can initiate a keyword search via Google or (if you have it) the system utility Process Explorer, which elaborates on entries found in Windows Task Manager. Disabling or deleting entries is temptingly easy, but you must research an item carefully before acting. Free, find.pcworld.com/58089.

Thumb Through the Web

Sifting through your browser history to return to a site is pointless if you can't recognize the URL. Firefox users have a new tool in ThumbStrips, an extension that shows pictures of Web pages you've recently visited. Once installed, this time-saving freebie from Intuit Innovation Lab sits at the bottom of your Firefox window, letting you scroll through thumbnails of the pages you've visited in your current session.

Each thumbnail identifies the site's name and how long ago you last visited it ("3 minutes ago," not "12:02 p.m."). The thumbnail shows the page exactly where you left it; clicking the thumbnail returns you there. You can filter by domain or temporarily stop recording your travels. You can also save or e-mail a ThumbStrips session. Free, find.pcworld.com/58090.

A Delicious Puzzle

For a sweet mental morsel, try Chocolate Castle, a demo that's part maze and part sliding-tile puzzle. You clear Easy, Medium, and Hard versions of four rooms by shifting and joining color-coded pieces of chocolate into four contiguous blocks; each of four characters can consume one chocolate block per room. The trick is to meld the pieces so that all of them get eaten. The complete version's 120 puzzles include such twists as slippery ice and exploding Turkish delight.

The Hard-level puzzles may make you grateful to the makers for providing Undo and Redo buttons. If you're stumped, you can generate text files that record incomplete games to your Clipboard in chesslike notation. From there you can e-mail them or post them to the free BBS maintained by the creator, Lexaloffle Games, to seek help (or conversation) from other players. Chocolate Castle's charmingly retro music and graphics help this sweet stuff preserve a tiny 235KB footprint. Free 12-puzzle demo, $20 for the complete game, find.pcworld.com/58091.

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12 Great Do-It-Yourself PC Projects

How to customize Vista, streamline your network, create an entertainment hub, and do much more—quickly and easily. »

BY JON L. JACOBI, RICHARD MOROCHOVE, SCOTT SPANBAUER, LINCOLN SPECTOR, MARK SULLIVAN, AND BECKY WARING

ILLUSTRATIONS BY MARK MATCHO

Turn a PC Into an HD Media Server

NETGEAR'S DIGITAL Entertainer HD offers an able alternative to Media Center.

PCs ARE GREAT at collecting and organizing media files, from digital camera photos to iTunes tracks to video downloads. But to get the most from your digital entertainment, you'll want to enjoy it on your living-room stereo system or big-screen HDTV. That's where media servers and player boxes come in: They provide the software and hardware interfaces you must have to access PC-based content directly from your TV screen.

Media Center Software

The first step in sharing content painlessly is getting the right software. Our top choice for the job is Microsoft's competent and easy-to-use Windows Media Center, an HD-capable app included in Windows Vista Home Premium and Ultimate, as well as in Media Center Edition versions of XP. It plays back most media file types, including HD video and Windows DRM–protected content downloaded from online stores. It also streams Internet radio and Web-based video, and works with many HDTV tuners so you can use your computer as a DVR.

WINDOWS MEDIA Center automatically organizes your media files.

Getting started with Media Center is simple. When you open it for the first time, it scours your hard drives for media files, arranges them into such categories as Music, Pictures & Videos, and TV & Movies, and then serves them up via a point-and-click interface. Depending on how many files you have, you can set up Windows Media Center in a matter of minutes just by clicking through a few screens. You don't need to do any organizing ahead of time, though you can designate which folders will be searched for media files, and for this reason you may want to segregate public content from private material. The program can also access network storage drives—if you're in the market to purchase such a drive, look for a UPnP-enabled or "media storage" drive to make that process easier.

The Jump to the Living Room

Now comes the harder part: making the PC-to-TV connection, especially for HD video. To bridge that gap, Microsoft has developed a class of products called Media Center Extenders. Video travels from PC to Extender over a high-bandwidth ethernet or Wi-Fi connection, and then it goes from the Extender to the TV via special HDMI, DVI, or HD component cables. Thus far, however, the only Vista-compatible Extender with HD outputs is the Xbox 360 game console ($300); more options are expected this fall.

To set up Media Center on the Xbox 360, go to www.xbox.com/pcsetup and select the download at the side of the page that corresponds to your Windows version. The Xbox 360 Universal Media Remote even has a dedicated Media Center button to make navigation easy. Be sure to hook up the Xbox 360 through the television's high-definition connectors for best effect.

Alternatives to Media Center

If you don't have Media Center already and don't want to upgrade to Vista, all is not lost. Companies such as Buffalo, D-Link, and Netgear offer their own HD-capable media player boxes. We tested the Netgear Digital Entertainer HD ($400), which has both HD component and HDMI ports, as well as wired and wireless network connections. The Netgear device has PC software that, like Media Center, finds all the media files on your hard drive and delivers them to your TV in navigable categories. In addition to handling unprotected video, music, and picture files, the Netgear can play both protected iTunes music and Windows DRM content, something no other HD media player can do.

Adding an HDTV Tuner

If you also want to use your computer as a DVR to record and pause live TV, you can add an HDTV tuner to either a Media Center PC or the Netgear box. We tried the Pinnacle PCTV HD Pro Stick, a USB 2.0 device reminiscent of a thumb drive that comes with a portable

PINNACLE'S PCTV HD Pro Stick brings live TV to Media Center.

PHOTOGRAPHS: ROBERT CARDIN

antenna for picking up local digital and analog broadcasting; you can use it with digital cable/satellite boxes for HD content, too—though you'll take a quality hit, since it will hook up to your set-top box via an analog, not digital, connection. After installing the drivers, you can work within Windows Media Center or the Netgear Digital Entertainer to set up the channels, program guide, and recording options for the tuner.

Finally, note that you will need plenty of disk space for high-definition recording: Best-quality HD MPEG-2 video runs about 10GB per hour. And HD video streaming may require speeds of up to 25 megabits per second, so make sure you have a fast connection such as wired ethernet, 802.11n Wi-Fi, or HomePlug AV powerline networking.

—Becky Waring »

Tweak Vista for Peak Computing Performance

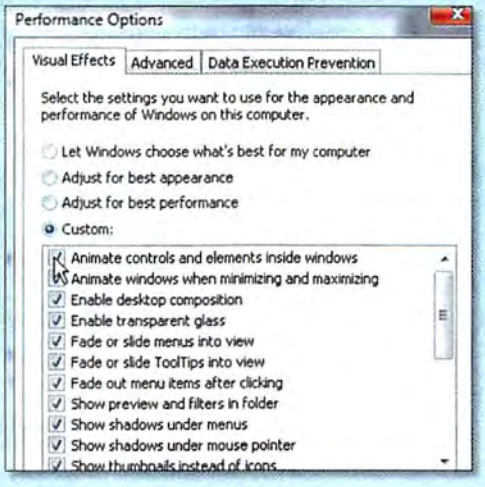
DOES WINDOWS VISTA annoy you with its slow performance? Sorry, that was a stupid question. Let's jump right in with a few simple and practical ways to improve Vista's overall speed.

Slim Down the User Interface

Regardless of the task at hand, Vista puts up a beautiful screen; but you wouldn't run a marathon while wearing a tuxedo. So get Vista out of its white tie and tails and into some jogging shorts.

Start by junking the Sidebar. Sure, its analog clock and RSS feed are nice, but perhaps they're not worth the CPU cycles they use. Right-click the Sidebar and select *Properties*. Uncheck *Start Sidebar when Windows starts*, and then click *OK*. The Sidebar will be gone with your next boot.

Next, turn off some or all of Vista's cool-looking but cycle-eating visual effects. Click *Start*, type **sysdm.cpl**, press **<Enter>**, and tell the User Account Control dialog box to *Continue*. In the System Properties dialog box, select the *Advanced* tab, and then click the *Settings* button in the Performance box. In the resulting dialog box's Visual Effects tab, uncheck whichever options you can live without, such as *Animate windows when minimizing and maximizing* (available with the Aero environment). Or if you prefer, you can leave the decision up to Windows; to establish this arrangement, simply select *Adjust for best performance*.



TURNING OFF SOME visual features gives you a less interesting, but faster, Vista.

Access Your Files and Folders Fast

Shaving a few seconds off the time necessary to load a file won't help much if you spend 3 minutes looking for it. Here are some ways to quickly reach the programs, files, and folders you need.

Look at the top-left corner of Windows Explorer or a File Open dialog box. The box located there, called Favorite Links, contains—you guessed it—Microsoft's favorite links. If you want to add a link to one of *your* favorite folders there, just drag the folder from the Folders box underneath into Favorite Links.

You can arrange the links however you like by dragging them up and down. You also have the option of removing one or more of them from the box by right-clicking the item and selecting *Remove Link*.

You can save some time in your file and folder search if you put everything in one cascading menu. By adding your desktop to the taskbar, you can make every folder on your computer and network easily accessible—along with all the shortcuts on your desktop that usually hide behind open program windows. Simply right-click a blank spot on the taskbar and then select *Toolbars•Desktop*.

On top of that, there's no need to go through any menus to load a program if you know that program's name. Just click *Start* or press your keyboard's **<Windows>** key, and start typing the application name. You don't even have to start at the beginning of the name; typing **Elements**, for example, will bring up Adobe Photoshop Elements. When the program name appears, press **<Enter>**.

Below the program name you will see a list of documents and (if you use Vista's Windows Mail program) e-mail messages containing that word. Those additional search results can be handy, but they slow down the search.

You can boost the speed of the Start Searches function by restricting where it looks for the string of characters you type. Right-click the *Start* button and select *Properties*. On the Start Menu tab, click *Customize*, then scroll down until you find the various Search options. The more options you leave checked there, the slower but more thorough your Start Searches will be.

Improve Your Hardware on the Cheap

Hardware tweaks help, too. Increasing the amount of RAM in your system will speed up your PC for a very reasonable price. Vista needs at least 1GB of RAM to perform adequately, but 2GB gives it real speed. See our video "How to Upgrade Your RAM" at find.pcworld.com/58237 for details and instructions specific to desktop systems.

If you have a notebook, where such upgrades aren't as standardized, check your vendor's Web site for configuration info.

—Lincoln Spector

Spruce Up Your Vacation Video

YOU CAN USE Windows Movie Maker, which comes with XP and Vista, to turn your home video into something truly enjoyable to watch. To access the program in either XP or Vista, click *Start•All Programs•Windows Movie Maker.*

Working With Clips

When you import your video file into Movie Maker, the program will split it into multiple clips. Select the ones you don't want, and press **<Delete>**. To split a clip in two, pause it at the desired point and click the *Split* icon below and to the right of the playback window. Then rename the remaining clips by selecting each and pressing **<F2>**.

Drag the clips down to the Storyboard at the bottom of Movie Maker's window, and arrange them in the proper order. You can always drag the clips around the storyboard to change the order.

MOVIE MAKER uses a multitrack timeline to help you build videos.

When you are done, click the *Play* icon near the top of the Storyboard section to watch the rough cut of your cinematic masterpiece.

Press **<Ctrl>-T** (or click on the *Show Timeline* button located just above the Storyboard) to change the storyboard into a timeline—a better tool for adding sound, trimming your clips, and generally making your edit presentable.

Fine-Tuning

To add dissolves and transitions between the video clips, click *View video transitions* in the left pane under Edit Movie and drag the transition of your choice to the appropriate spot on the timeline or storyboard.

You can import additional audio content, such as narration or background music, the same way you import video; afterward, drag the audio files into the timeline to run parallel with the video. If you elect to have both narration and music, you'll want to control the volume of each so the appropriate track is clearer. Right-click either audio line, select *Volume*, and adjust as you see fit.

When you're done, you can export your video to a .wmv file or place it online, among other things. If you have XP Media Center, Vista Home Premium, or Vista Ultimate, you can burn it to DVD.

—Lincoln Spector

Make Your PC a Private Recording Studio

MOST SYSTEMS MADE in the past few years have the horsepower to serve as a home recording studio, though a dual-core CPU, 1GB of RAM, and a 250GB hard drive will ensure glitch-free performance. Out of the box, however, they lack the inputs needed to record real instruments and voices, so you'll have to upgrade your audio interface.

RECORDING SOFTWARE shows sounds in graphic format for easy editing.

The interface: The audio interface takes in the sound of an instrument or microphone and translates it into zeros and ones for the computer. Your new interface can be either an internal PCI board (replacing the sound card that came with your PC) or an external USB 2.0/FireWire device. Internal PCI offers better performance (speed, not quality) but external units come close, and they also work with laptops and Macs. Interfaces from Digidesign, Edirol, Emu, Lexicon, M-Audio, and Tascam, costing $100 to $500, are all highly regarded. Whichever product you opt for, it should come with three-pin XLR microphone jacks and support 24-bit recording at 48, 96, or 192 kHz (get the highest you can).

The software: Chances are your interface will ship with an LE (light) version of Cakewalk's Sonar, Digidesign's ProTools, or Steinberg's Cubase—the heavy hitters in the home recording software market. The light version should be enough for most home users, but numerous upgrades to these products are available. Prices for upgrades can range well up into the thousands of dollars; such packages provide more control features, more tracks, and better sound. You can find thousands of third-party audio effects and MIDI-triggered virtual instruments (bass, guitar, drums, keyboards, and the like), too, which the PC can play to provide you with a virtual backup band.

Mics and monitors: For recording acoustic instruments and vocals, high-quality microphones are a must. The $100, low-impedance Shure SM-57/58 (for instruments) and a $200 to $400 large diaphragm condenser mic (for vocals) are good choices to start with. Last, but hardly least, a pair of decent studio monitors (speakers) from a popular brand such as Alesis or JBL will convey your sounds with accuracy, at prices starting at around $200.

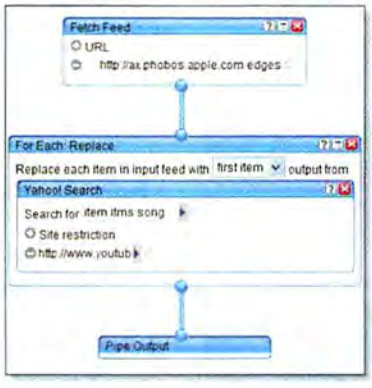
—Jon L. Jacobi

Make Your Own Web Mashup

A WEB MASHUP collects services and functions such as maps, search engines, RSS feeds, music, and images from two or more Web sites and combines them to produce a new and (ideally) uniquely useful application.

A classic example is www.housingmaps.com, which blends Craigslist's housing-for-rent listings and Google Maps to display the physical locations of housing that's available for rent.

Services from Amazon to Yahoo have made their features available for incorporation into new mashups via APIs (Application Programming Interfaces) at their Web sites. You can find and use everything from directory listings to video searches to GPS data to shopping carts. Unfortunately, combining this raw data into something new is extremely difficult for nonprogrammers. Luckily, software tools designed to simplify the process are just now beginning to crop up.



YAHOO'S PIPES tool lets you work with a flowchart-like design for building mashups.

Start With Yahoo's Pipes

One tool that's available now (several others are still in beta) to help nonprogrammers build mashups is Yahoo's Pipes. Even in Pipes, you're a lot better off if you have the mindset of a programmer, since building mashups from scratch there is somewhat challenging. But it still offers a fairly quick way to get your feet wet with mashups.

That's because at Pipes you'll find a ton of mashups that other people have already built and posted. Pipes allows you to open one of these mashups, clone it, and save it with no trouble at all. Beginning with an existing design, you can start tweaking it to make it your own.

We grabbed and cloned a popular and simple mashup called YouTunes (find.pcworld.com/58235), which finds YouTube videos for the top ten songs at iTunes. It accomplishes this by snagging a "Top Ten Songs" RSS feed from the iTunes store and then running a search at YouTube for all video titles that match the song titles listed there.

But you may not want to watch videos of the top ten songs; you may be more interested in, say, the videos for the top ten songs on the iTunes Alternative Charts. To customize this mashup accordingly, simply replace the existing iTunes RSS feed in the 'Fetch Feed' box (in Pipes' Edit view) with the "Alternative Top 10" RSS feed from the iTunes Store. You can get that feed (and many others) from the iTunes Store RSS Feed Generator (find.pcworld.com/58236). You then save your newly customized "pipe" and click the *Run Pipe* link at the top of the page. You'll see a nice, clean list of YouTube videos corresponding to the iTunes Alternative Top 10.

When you start to feel more comfortable with the concept, Pipes can walk you through the process of building a mashup from scratch. For more on using Pipes, see "Eight Great, Simple Ways to Hack the Web" on page 132.

Mashup Editors Coming Soon

Other tools to help nonprogrammers make cool mashups are in the works. Microsoft says that its alpha-stage Pop-Fly WYSIWYG mashup editor will work with any API written in JavaScript. Meanwhile, the Google Mashup Editor is being beta-tested by a small number of developers, and should be ready for action in the next few months.

—Jon L. Jacobi and Mark Sullivan »

Organize Your Photos

YOU CAN ELIMINATE the hassle of hunting for photos on your PC by doing some up-front work with tags, which let you assign multiple search keywords to photos. For instance, you could tag a photo from your Alaska vacation showing both of your kids with each child's name and "Alaska," and it will then turn up in a search for any one of those tags.

I'll explain how to organize your photos in Windows XP (which is actually pretty lame at the task) and in Vista.

To tag a single photo in XP, right-click it in Windows Explorer, select *Properties•Summary*, and type the tag name into the Keywords field. When entering more than one tag, separate them with semicolons. You can tag multiple photos at once, but doing so deletes any tags you've previously assigned to them.

In Vista, ignore Windows Explorer and click *Start•All Programs•Windows Photo Gallery*. This program lists all available tags in the left pane. To make a tag, click *Create a New Tag*, and then just drag the photos to the appropriate tags.

How do you find photos by their tags? In Windows XP, press **<F3>** to bring up the search panel (if necessary, click the *Back* button until the panel says 'What do you want to search for?' at the top). Check *Pictures and Photos*, click *Use advanced search options*, enter the tag names in the 'A word or phrase' field, and click *Search*. In Vista's Photo Gallery, simply select one or more tags to see only the qualifying photos.

—Lincoln Spector

Give Your Business a Professional Phone System

YOU NO LONGER have to purchase or lease expensive telecom equipment to give your business a professional telephone service complete with such features as an "automatic attendant" and hold music. You can set up your own small-business PBX (Private Branch Exchange) using Web-based services that are available at a fraction of the cost of old hardware-based PBXs.

MAILSTREET has vast call management options.

Get VoIP Plus PBX

MailStreet from Apptix (find.pcworld.com/58239) offers you a simple but powerful way to beef up your business's phone services. It uses Voice over Internet Protocol (VoIP) to route calls, so you need to have a reliable broadband Internet connection. You can keep your existing phone number, provided that it's located in the United States.

To start, you sign up for a MailStreet Voice account. A Business Plan ($40 per month per line) covers unlimited incoming and outgoing calls in the United States and Canada (other countries incur extra per-minute charges). The plan includes other popular services such as voice mail and call transfer. A Premium Plan ($50 per month per line) adds features like hold music and permits integration with Microsoft Outlook, so you can manage your voice mail in the same app as your e-mail.

Since standard phones won't work with the MailStreet service, you must either use a softphone (a software-based telephone with a PC headset) or purchase a MailStreet-supported IP telephone ($165 and up).

I used the softphone, which is fairly easy to set up. I simply downloaded the free X-Lite 3.0 Softphone app from CounterPath (www.counterpath.com) and then quickly configured it, following MailStreet Voice's instruction guide.

For optimum sound quality with a softphone, I recommend using a good USB headset with a microphone, which provides better (digital) sound than an analog headset and starts at about $20.

To set up the call management features of MailStreet Voice, log in to the MailStreet Web site. Sorting through the vast array of options there will take you some time. For example, you'll see 17 different rules options just for handling incoming calls, based on things like calling number and time of day.

Your everyday interface to MailStreet is Call Manager, an application that you download from the MailStreet site. With Call Manager you can set your status (in office, out of office, busy, or unavailable) and decide whether to take a call or send it to voice mail. You can also transfer calls, place them on hold, initiate conference calls, or hang up.

—Richard Morochove »

SETTING UP WIRELESS printing involves attaching a wireless print server to your printer (top diagram) and configuring its Wi-Fi connection.

Unwire Your Printer

MAKING YOUR PRINTER wireless means never having to worry about cables or Windows printer sharing. Best of all, you can add a Wi-Fi print server to the printer you already have.

For this project, we recommend using either the D-Link DPR-1260 ($100) or the Linksys WPSM54G ($120) print server. Both models support scanning and printing on multifunction machines; the D-Link has four USB ports and the Linksys one. To start, make sure print drivers are installed on all the networked PCs. Then plug your printer into the print server, connect the server to your router via ethernet, and power the devices up.

Next, set up the print server from your PC. The Linksys has a superb CD-based wizard that leads you through the entire process, from physical connections to Wi-Fi encryption setup. By contrast, the D-Link has a Web utility that requires you to click around to set up the Wi-Fi connection and add the printer to your computer. Once setup is done, you can disconnect ethernet and restart the server, which will now connect wirelessly.

Finally, set up additional systems by running the computer setup wizard on each of them. If you have any Mac or Linux machines on your network, use the print server's Web utilities to define its static IP address and enable IP printing.

—Becky Waring

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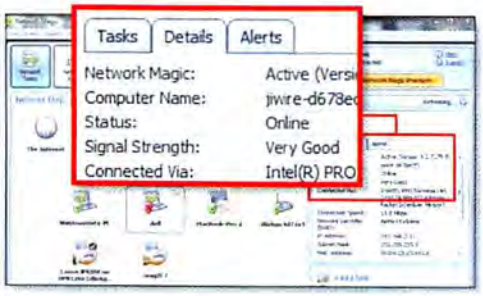
Use Pro Tools to Manage Your Small Network

AS THE DE facto system administrator for your home or small-office network, you're the person that everyone turns to when PCs contract a virus, can't print, can't connect to the Wi-Fi net, or undergo other daily crises. Dealing with setup problems is bad enough, but what if you're also the person responsible for overall security and maintenance of your network? Or a parent needing to protect your children on the Internet? Things can get real complicated, real fast.

Actual "sysadmins" have professional software tools to keep tabs on their networks, but most of these utilities are too geeky for the average home or small-office user. By employing one or two of the following tools, however, you can address all of the key networking issues that home and small-office users face: security, connection and sharing, parental control, and general maintenance.

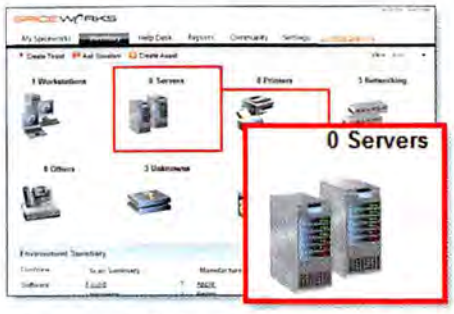
One-Click Easy

Network Magic Premium ($30 for three PCs, $40 for five PCs), a truly miraculous utility, is the only one you'll need for most home and small-office networks. After you install it on each PC, it handles thorny tasks such as printer and folder sharing, security and network-usage monitoring, and wireless-connection management, all with one-click ease.



NETWORK Magic's network map is more extensive than Vista's.

Parents and small-office overseers will appreciate the daily usage reports for each computer that show the amount of time spent using specific applications, the Internet Explorer browser history, and network traffic generated by time of day. Reports can't prevent inappropriate activity by kids or employees, such as excessive chat usage or visits to X-rated Web sites, but they can alert you that it's happening so you can take action.



SPICEWORKS catalogs all of your PCs and other network devices for free.

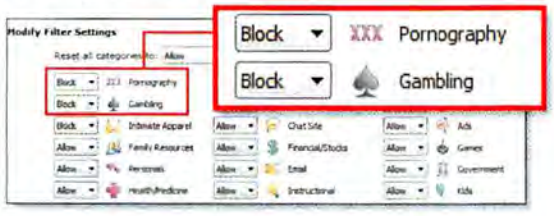
For anyone with a mix of old and new systems, Network Magic also takes away the pain of having to perform the same task five different ways. The utility supports PCs using everything from Windows 98 SE to Vista, with the exception of NT. A beta version is available for Macs.

Small-Business Step-Up

The free network and IT management tool Spiceworks is more professionally oriented than Network Magic, making it perfect for small businesses that need to simplify asset management, keep track of software licenses, and monitor employee network usage. You'll need to gain a little networking and Windows management expertise, but Spiceworks provides excellent help files and an active user forum to help you along.

After a quick installation on an administrator computer, Spiceworks crawls your network, identifying and classifying devices. Unlike Network Magic, it needs no installation on other computers. Instead, it uses Windows' built-in network management instrumentation (WMI) protocol to provide media access control (MAC) addresses, software version numbers, installed patches, antivirus upgrade dates, and other data. Spiceworks can inventory the contents of Mac and Linux machines, too.

Spiceworks' troubleshooting features include the ability to compare the configurations of two computers to find out why one is working and the other isn't. You can also perform DNS mapping to get a clear picture of the devices on your network. Myriad reports and alerts help you keep tabs on almost-full hard drives and other potential or actual problems. Finally, the program's e-mail-based Help Desk, where employees can enter support requests, is a lifesaver for part-time administrators.



NETNANNY CAN block anything from adult content to hate speech.

Activity Monitoring

While Network Magic and Spiceworks can alert you to suspicious activities, they can't prevent them from occurring in the first place. If you want to limit your employees' Internet activities or restrict your children from going to inappropriate chat rooms, you need a content-filtering utility. ContentWatch makes the NetNanny filtering tool for parents and the ContentProtect Professional tool for IT managers; both are extremely easy to install.

With either tool, you can block content in a broad list of categories; prevent access to chat programs, newsgroups, or peer-to-peer file-sharing services; limit usage by time of day or total time; and see all sites visited. Both products cost $40 per PC (with a three-seat minimum for ContentProtect) and work with Windows 2000, XP, and Vista.

—Becky Waring »

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Spyware Doctor V4.0 November 2006

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Run a 'Guest' OS on your PC

IT'S HARD TO find the perfect operating system for your PC. Windows isn't the safest OS, but it probably runs all of your programs and games. Linux is much less vulnerable to the Internet's threats, but it doesn't natively support Windows applications.

Fortunately, modern PCs are powerful enough to run more than one operating system at the same time. Virtualization software such as VMWare's VMWare Server (find.pcworld.com/58242) or Microsoft's Virtual PC 2007 (find.pcworld.com/58243), both of which are free, let you run guest operating systems in memory and disk spaces isolated from the host operating system. Not only does this arrangement allow you to benefit from the strengths of both operating systems, but you can also test risky features or programs on the guest OS while keeping your host system safe from harm.

VMWARE HELPS YOU install one of a number of popular guest operating systems in a virtual space on your PC.

Installing VMWare

I opted to install VMWare Server under Windows Vista and then create a virtual machine running Ubuntu Linux 7.04. If you do the same, once Ubuntu is installed and running in a virtual machine, you'll be able to use some of the thousands of available (and free) applications that run under Linux, as well as take advantage of the Ubuntu VM to browse the Web and use other Internet resources more safely. After finishing your test drive, you might even consider replacing Windows with Ubuntu as your system's main OS.

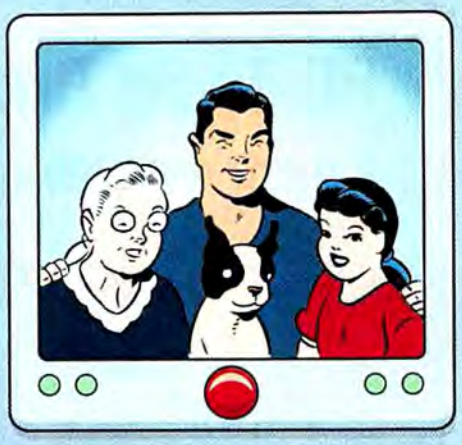
Officially, VMWare Server is supported only under Server versions of Windows. But it runs under any Windows OS that has Microsoft's Internet Information Server (IIS) installed, including Windows Vista—in fact, I performed the installation described below in Windows Vista Ultimate. Unlike Virtual PC 2007, VMWare also comes in a Linux version, which permits you to run dozens of Windows, Linux, and other OS versions from within a Linux host system.

Before downloading VMWare Server, click on the registration link on the same page and fill out the obligatory form to receive one or more serial numbers. Then download and install the software, and enter the serial numbers when prompted. Choose *Start•AllPrograms•VMWare•VMWare Server•VMWare Server Console* to launch the server, and click *OK* to create and run virtual machines on the local computer (VMWare can also run virtual machines stored on other computers on a network). Click *New Virtual Machine* and step through the wizard. If you're not sure how to answer when the wizard asks you how your virtual machine should connect to the network, stick with the default bridged networking option.

Load an OS

Next, insert the installation disc of the operating system you intend to load, select the virtual machine you just created in the VMWare console's Inventory list, and click *Start this virtual machine*. If your system has multiple DVD or CD drives, you may have to experiment by inserting the disc into different drives until you find the one that VMWare chose to use with your virtual machine. If the VM finds no boot media in its default drive, it halts with an error—just click the *Restart Guest* button on the console's toolbar after switching the disc to a different drive. Once the VM finds the disc and boots from it, you'll be able to install the guest OS normally.

—Scott Spanbauer »



Set Up Video Chats

THANKS TO THE Internet, increasing broadband speeds, and some cool new Web-based applications, setting up video chat with your family and friends near and far has never been easier. Not only that, it's practically free.

Getting started: You'll need a reasonably fast Internet connection, some software to facilitate the call, and a decent Webcam and microphone for each party involved. Some camcorders, digital cameras, and camera phones can also function as Webcams; to see whether a device you already own will do that, just consult the user manual.

Webcams: I tested three dedicated Webcams: Logitech's $29 QuickCam Chat and $99 QuickCam Pro for Notebooks, plus Creative's $129 Live Cam AF. All of them worked well, but the two high-end models come with a built-in USB microphone, a setup I strongly recommend for your not-so-tech-savvy chat buddies. Cheaper models usually have a separate analog microphone that plugs into the often-hard-to-locate PC audio input jack.

The software: After plugging in your Webcam, download the chat software and install it. I used Skype (www.skype.com), but AIM (find.pcworld.com/58244), Microsoft's Office Live Meeting (find.pcworld.com/58245), and Yahoo Messenger (messenger.yahoo.com) support video chat as well. Configuring Skype was as simple as selecting the video and audio sources, creating an account for each party, and clicking the green Call button.

—Jon L. Jacobi

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Share Your Files and Brain Power, the Web Way

A NEW WAVE of collaborative software has become available to help you connect and empower your social and employee groups. Though the genre is still in its adolescence, it's already showing signs of great things to come.

Microsoft Groove 2007

Microsoft's Office applications, with their revision-tracking features, have garnered legions of fans. Now the company offers Groove 2007 ($229), a collaboration component designed to help coworkers trade both their Office files and their ideas.

WEBEX IS KNOWN for online meetings, but it offers some other tricks, too.

Groove allows a group of users to share a "workspace" in which they exchange files, discuss ideas forum-style, chat, track project issues, and handle other tasks, all within a single, common interface. Unfortunately, Groove provides little real integration with the rest of the Office suite: Though it enables users to share files created by the other components (Word, Excel), it does not permit them to edit those files together in the workspace. Users still can go offline and make separate, simultaneous edits in Office documents, but the various drafts must be reconciled later through Office's "compare documents" function. Still, Groove is a decent one-stop desktop product for a business.

WebEx and Same-Page

Some business users might prefer a library-type system where documents are checked out and unavailable until they're returned, as you find in the online collaborative services at same-page.com and webex.com. Both Web sites are best known for their online meetings, where you can invite others to view your presentations, share your desktop windows, chat, and even pass control from participant to participant (or share control, via Same-Page). However, both services also offer forum-style discussions, a contact manager, polls, and other collaborative features. They are easy to understand and navigate, but like Groove they are a bit on the expensive side. WebEx Office costs $60 per month for five users; Same-Page eStudio 6 costs $50 for an unlimited number of users.

Low-Cost Options

You'll sacrifice a little sophistication, but for collaboration on a strict or nonexistent budget, you have a surprising number of cheap and free options to choose from. Free online applications like those found at docs.google.com, www.thinkfree.com, and www.zoho.com all allow multiple users to work on the same documents at the same time (for more, see last month's "Get to Your Data Anywhere and Anytime," find.pcworld.com/58241). Most of the apps require users to press <Enter> after making changes before other users see them and get access to the document to make their own edits. Zoho's beta Notebook application, however, allows multiple users to edit a file simultaneously.

The Google and Zoho apps also work well if you simply want an easy way to share a calendar or info about upcoming meetings, or to collaborate on a newsletter with members of your local sports league or garden club, for example.

Chat vs. Forums

When weaving the collaborative concept into your company or group's workflow, don't overlook chat, forums, and wikis.

Several free, stand-alone chat apps, including AIM, Microsoft Live Messenger, and Skype, let you network users through voice or videoconference calls so you can resolve problems immediately. Text chat has become a preferred method of support for the simple reason that the entire conversation is easy to reference in real time, as well as during future sessions. You can also embed text-only chat modules, such as Addon-Chat (www.addonchat.com), ParaChat (www.parachat.com), or X7 Chat (www.x7chat.com), directly into your Web site.

For slower-paced, more thoughtful communal discussion, you can always turn to a forum. Forums can help businesses talk through work issues, offer nonemergency support, garner feedback, and provide fertile ground for new ideas. They also can help social groups get in touch to discuss hobbies and other common interests.

FORUMS CAN PROVIDE a useful, if slower-paced, tool for group thinking and communicating.

Two big names in forum software are free: Phpbb (www.phbb.com) and Simple Machines Forum (www.simplemachines.org), which require a MySQL database (a free download, often provided by your Web host). Or you might try vBulletin or IP.Board, affordable options with their own database engines.

—Jon L. Jacobi

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Electronic Neighborhood Watch

DOING YOUR PART TO TAKE A BITE OUT OF ELECTRONIC CRIME

DESPITE FBI ESTIMATES THAT CYBERCRIME cost US organizations $67 billion in 2005, the true impact of cybercrime in America is unknown, because many of these crimes are never detected or reported, according to a government watchdog agency.

In a recently issued report to Congress, the Government Accountability Office reviews a host of challenges, ranging from phishing assaults on the common citizen to terrorist use of cybercrime to generate funds for operations.

The good news is that a vast array of government agencies are pursuing or attempting to thwart the bad guys. The bad news is that lack of reporting makes it impossible to gauge the extent and the true cost of electronic assaults.

The Secret Service will have trained approximately 770 agents in its Electronic Crimes Special Agent Program by the end of this year, while the FBI is moving to establish cyber matters as one of five specific career paths for new and veteran agents. Responsibility for addressing cybercrime at the federal level has been given to the Departments of Justice, Homeland Security, and Defense, as well as the Federal Trade Commission. At the state and local level, agencies are sharing information and helping to facilitate cybercrime prosecutions.

But the GAO notes that businesses may not want to report electronic crime for fear that publicity will bring further ramifications, ranging from tipping off other criminal elements to disclosing a potential weakness and inviting negative impact in financial markets and damage to reputation and brand. Nevertheless, it says, growing partnerships between public and private organizations may increase the trust level across these divides to improve the quality and quantity of shared information.

But what can your organization do to stem the growing challenges and economic costs of cybercrime?

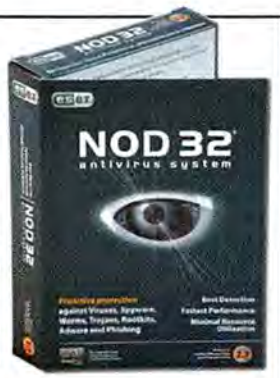
"All good security products will create logs," says Randy Abrams, director of technical education for ESET, an antivirus software company. "Detection of malicious software is critical to awareness of intrusion, and can prevent problems to begin with."

In addition to providing a record of incursions to investigators, security logs can provide evidence for human resources departments that may be required to discipline users who persist in violating organizational security policies.

Abrams says some organizations do a very good job monitoring logs for suspicious or unauthorized activity, but other companies "don't even know they can do it."

Awareness and education are critical elements in raising the barriers to cybercrime. As the GAO notes, criminals prey on people's ignorance and susceptibility. Sweeping cybercrime under the rug may only exacerbate the problem. Too many users today are too easily led astray by ruses that open the door to electronic marauders.

ESET: Swift and Effective



A unified threat engine simplifies the management task of keeping up with malware outbreaks. NOD32 provides an array of integrated anti-rootkit, antivirus and anti-spyware tools, and the Remote Administrator makes it easy to monitor activities and compliance.

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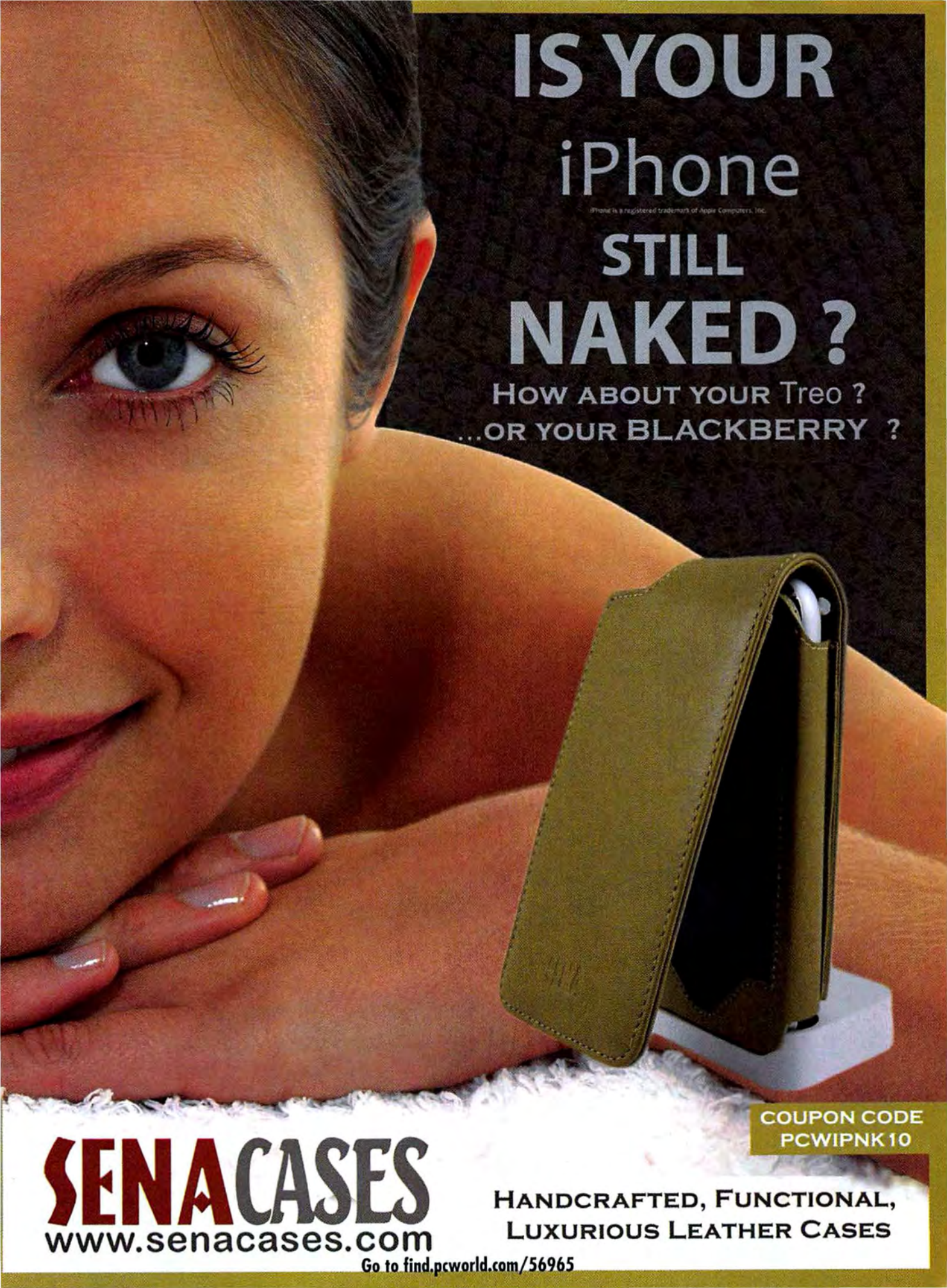
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BY RYAN NARAINE
MALWARE TESTING BY AV-TEST.ORG
ILLUSTRATIONS BY BRIAN STAUFFER

Die, Spyware, Die!

Think Microsoft's free Windows Defender will save you from attacks? In our tests it couldn't do the job. We put it and five other antispyware programs through rigorous lab testing to find the best tool for your PC.

PCW Test Center

IN THE BEGINNING, antivirus software fought viruses and worms, and antispyware software fought spyware and adware. That clean distinction has largely disappeared. The decline of the macro virus and the e-mail worm sent antivirus companies looking for something else to fight, and the complexity of spyware makes it a formidable foe. (See "The Italian Job," on page 104, for an example of how sneaky spyware can get.) As we discussed in our recent antivirus roundup, "Virus Stoppers" (find.pcworld.com/58273), several antivirus products are effective at fighting Trojan horses »

and backdoor programs—typically classified as spyware—as well as adware. So the question arises: Are specialized antispyware tools particularly effective at fighting today's threats?

To find out, we looked at six well-known programs. We tested five—Grisoft's AVG Anti-Spyware 7.5, Microsoft's Windows Defender 1.1, PC Tools' Spyware Doctor 5.0, Safer Networking's Spybot Search & Destroy 1.4, and Webroot's Spy Sweeper 5.5—on Windows Vista systems. The sixth program, Lavasoft Ad-Aware 2007 Plus, wasn't available in a Vista version during our testing period, so we evaluated its performance on a Windows XP SP2 PC; for this reason, its results are not directly comparable with those for the other apps.

German research company AV-Test.org conducted the malware portion of our tests, bombarding the applications with samples of current adware and spyware. AV-Test.org gauged the products' ability to recognize about 110,000 inactive adware, spyware, and rootkit samples. An inactive sample is like an application you've downloaded and haven't yet installed. You'll want your antispyware product to recognize it—based on a match to a signature database of known threats—before the sample unpacks itself and activates in various areas of your PC. To learn how the tools would react in such a case, AV-Test also measured each product's ability to recognize the behavior of and subsequently clean up 20 active pieces of adware and spyware. Since each threat can break down into more than 100 components, disinfection can be a tough job. We looked for the programs to clean up major file and Registry changes. We also looked at the programs' behavior-based capabilities for detecting and blocking changes to key areas of an infected system without having to recognize anything about a specific

SPYWARE Doctor's big buttons and clean design let you easily set real-time protection.

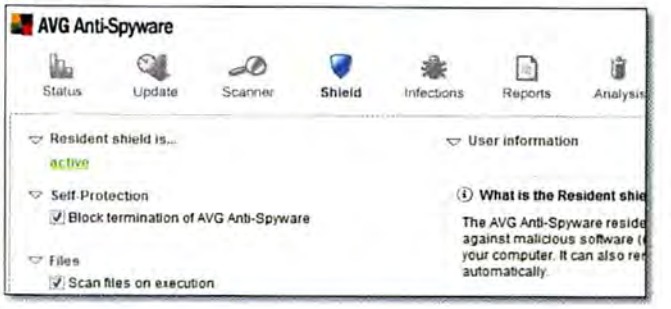
Spyware Doctor Wins; Free Programs Show Weaknesses

	SECURITY SOFTWARE	PCW Rating	Performance score	Adware: Inactive samples detected	Adware: Active samples detected	Adware: Active samples disinfected	Spyware: Inactive samples detected	Spyware: Active samples detected	Spyware: Active samples disinfected	Rootkits: Inactive rootkits detected
1	BEST BUY PC Tools Spyware Doctor 5.0 $30 ($30 renewal price) find.pcworld.com/58198	95 SUPERIOR	Superior	81%	100%	90%	38%	90%	70%	89%
2	Grisoft AVG Anti-Spyware 7.5 $30 ($20 renewal price) find.pcworld.com/58197	81 VERY GOOD	Superior	69%	100%	30%	80%	90%	50%	100%
3	Webroot SpySweeper 5.5 $30 ($30 renewal price) find.pcworld.com/58199	76 GOOD	Good	26%	100%	25%	10%	70%	15%	44%
4	Microsoft Windows Defender 1.1 Free find.pcworld.com/58200	72 GOOD	Good	48%	100%	55%	5%	0%	0%	0%
5	Safer Networking Spybot Search & Destroy 1.4 Free find.pcworld.com/58201	59 POOR	Poor	2%	70%	5%	0.4%	60%	10%	0%

CHART NOTES: Tests were conducted at default settings except for speed tests, which, when run at default and best settings, produced the same results. Inactive samples include adware, banking-related

invader. Spyware writers are continually releasing new threats, and security companies typically take some time to release signatures to catch those threats. An antispyware product's behavior-based detection protects the user during this critical window. We also tested for false positives and for speed; and we evaluated each software's design, price, and ease of use.

THOUGH IT IS well designed and easy to use, AVG Anti-Spyware had a high rate of false positives.



The results: PC Tools' Spyware Doctor 5.0 outperformed its Vista competitors. Grisoft's AVG Anti-Spyware 7.5 and Webroot's Spy Sweeper 5.5 finished some distance behind. Neither Spybot Search & Destroy nor Windows Defender adequately protects against today's threats. And on Windows XP, Lavasoft Ad-Aware, in several performance areas, did not impress us.

Spyware Doctor 5.0

BEST BUY

In tests performed by AV-Test.org, Spyware Doctor did an excellent job identifying and uprooting adware. Its results with spyware were less impressive but still solid and better than the rest. Spyware Doctor detected 81 percent of inactive adware samples and 100 percent of active adware samples, and it successfully removed almost all of the active adware samples. When it came to other intruders, however, Spyware Doctor spotted only 27 percent of our inactive banking-related spyware and 43 percent of password-stealing spyware. It detected all of our active spyware samples except the password-stealing Trojan horse PSW.Maran, and successfully cleaned up 70 percent of those infestations.

Spyware Doctor held up well in behavior-based detection tests, too, detecting additions to HKCU and HKLM 'Run' Registry keys and preventing adware and spyware programs from changing Internet Explorer search and start pages. On the other hand, it didn't detect changes to the Hosts file, which spyware can use to redirect you to a malicious Web site.

The settings on this otherwise well-designed program could use a little tweaking. By default, Spyware Doctor does not turn on antirootkit protection; this default is intended to »

	Behavior-based tests[1]						Speed	
	Detected additions to HKCU 'Run' keys	Detected additions to HKLM 'Run' keys	Detected changes to Startup folder	Detected changes to default IE search page	Detected changes to default IE home page	Detected changes to Hosts file	Hard-drive scan time[1]	Comments
	Yes	Yes	Yes	Yes	Yes	No	380 seconds	Spyware Doctor offers the best spyware and adware protection and is the only program here that provides specific protection against phishing Web sites.
	Yes	No	Yes	No	No	No	496 seconds	The program's superior adware and spyware detection is marred by weak behavior-based detection and a high false-positive rate.
	Yes	Yes	Yes	Yes	Yes	Yes	132 seconds	Our former Best Buy is well designed and provides good behavior-based detection, but disinfection of adware and spyware was not as solid.
	Yes	Yes	Yes	Yes	Yes	Yes	320 seconds	This free application did okay with adware and it offers solid behavior-based protection, but it can't detect some types of spyware at all.
	Yes	Yes	No	Yes	Yes	Yes	588 seconds	Despite strong real-time protection, this free old favorite can't recognize and clean up many of today's threats.

spyware, and password stealers. Prices and ratings are as of 8/8/07. FOOTNOTE: [1]Tests determined whether software could detect changes to key areas of the system.

speed up scanning and to minimize false positives. (Spyware Doctor found eight of the nine inactive rootkit samples.) We also didn't like its habit of flagging ad-tracking cookies as "infections"; the overzealous Doctor diagnosed 387 "infections" that turned out to be cookies from Google, the *New York Times*' Web site, and other reputable sites.

PC Tools provides around-the-clock toll-free telephone support for U.S. customers. For an extra $10, Spyware Doctor offers antivirus protection, which we did not test for this story.

Despite some room for improvement in its interface and its spyware disinfection, we recommend Spyware Doctor if you are looking for comprehensive adware and spyware protection and you don't mind paying $30 for it.

AVG Anti-Spyware 7.5

Grisoft, well known for the AVG Anti-Virus (find.pcworld.com/58275) software, purchased Ewido Networks in 2006 and reworked its antispyware technology into AVG Anti-Spyware. The sleek-looking program recognized, on average, the largest percentage of threats. Unfortunately, it suffers from poor behavior-based protection and a high false-positive rate.

During tests performed by AV-Test.org, AVG Anti-Spyware did well in uncovering known adware and spyware. The utility detected 19 of 20 active samples (ones installed on the test PC)—missing only the Banbra Trojan horse, which attempts to collect online banking credentials. The AVG package was also by far the best at recognizing our large stable of inactive adware, keyloggers, bank-related spyware programs, and rootkits—a testament to the breadth of its signature database.

But when AVG didn't recognize the threat, its behavior-based detection failed to flag suspicious additions to HKLM 'Run' keys, changes to the default Internet Explorer start and search pages, and alterations of our test system's Hosts file. As a result, the software may allow unknown threats to tamper with key areas of your PC. AVG Anti-Spyware was the only product we tested to produce false positives, as well.

AVG deactivated 50 percent of the spyware files and Registry entries we introduced—the second-best showing among the five Vista-tested programs. Unfortunately, it successfully cleaned only 30 percent of adware files and Registry entries.

AVG Anti-Spyware is easy to use, with self-explanatory icons at the top of the main interface. On the downside, it lacks antiphishing protection to keep you from going to fraudulent financial sites looking for personal information, and it has no POP3, IMAP, and SMTP scanning to block e-mail–borne spyware threats. Also, you can't set a system restore point in case you accidentally delete critical files during a disinfection routine.

If you opt for AVG Anti-Spyware, consider purchasing it »

The Italian Job

IF YOU NEED evidence that the spyware threat has expanded beyond Web snooping and pop-up ads, check out the complicated story behind The Italian Job.

Though the name refers to a heist film (and its remake), "The Italian Job" in this case was a cyberattack that targeted Italian Web sites, combining hacked Web servers, drive-by browser exploits, password-stealing spyware programs, and stealthy rootkits. Researchers at Trend Micro discovered this blended attack in July when thousands of Italian-language Web sites were hacked and booby-trapped.

By the time law enforcement authorities hooked up with Web site owners to help investigate the rigged sites, the attack's keystroke-logging software had uploaded a multitude of user names and passwords to hacker-controlled servers.

"They were just casting the net as wide as possible, mostly looking for user names and passwords for online games and banking sites," says Trend Micro researcher Paul Ferguson. Traditional signature-based antivirus and antispyware protections didn't provide much help until after the malicious Web sites were discovered, according to Ferguson.

Researchers (including Ferguson) traced the attacks to an exploit-generating kit called MPack that is available as a software product on the Internet. Originally sold on Russian underground sites, this do-it-yourself attack tool is used primarily to seed hijacked Web sites through a maze of browser redirects and drive-by downloads.

Ferguson says that MPack also comes with a rootkit component that hides deep inside an attacked operating system, away from inquisitive eyes of security scanners.

Antivirus veteran Roger Thompson, who keeps track of malicious Web activity for Exploit Prevention Labs, believes that today's sophisticated malware threats demand a stronger response than an antispyware application that merely looks at client/server communications for signs of usage-tracking activity.

"When you depend on signatures, you're always playing catch-up. The bad guys are timing their attacks carefully, tweaking their code ever so slightly to stay ahead of antivirus and antispyware software," he says.

As the threats continue to evolve, security companies struggle to keep pace—and none have to move faster than developers of antispyware applications.

—Ryan Naraine

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through a third-party U.S. distributor (such as Walling Data Systems) that offers phone support. Grisoft's own customer support is limited to e-mail communications. In the end, AVG Anti-Spyware is a solid program with the strongest signature database, but it falls short in behavior-based protection against unknown threats.

SHIELDS IN Spy Sweeper block changes to Internet Explorer and other parts of your PC.

Spy Sweeper 5.5

In our October 2006 antispyware roundup (find.pcworld.com/58307), we named Webroot Spy Sweeper 5.0 Beta our Best Buy. Things have changed for the worse with version 5.5. The software demonstrates excellent behavior-based detection capabilities, but we were disappointed at how the program struggled to remove adware and spyware from the test PC.

When AV-Test.org presented Spy Sweeper with 20 active adware and spyware samples, the program detected 85 percent of their files and Registry entries. When tested on inactive adware and spyware, however, the program spotted only 26 percent of adware, just over 14 percent of password-stealing spyware, and less than 2 percent of banking keyloggers. The program did poorly at disinfection, too, cleaning up only 25 percent of adware files and Registry entries and 15 percent of spyware files and Registry entries.

Still, Spyware Sweeper excels in behavior-based detection. It successfully flagged additions to 'Run' keys (HKCU and HKLM) and to the Startup folder plus changes to default Internet Explorer start and search pages and the Hosts file.

Spy Sweeper provides one-click access to its system scan, which, in our tests at default settings, completed in less than half the time of the next-fastest competitor. Webroot doesn't set up scheduled scans by default but says that it may add a setup wizard to the installation process. The company offers 10 hours of free phone support each weekday. It also provides antivirus protection, which we didn't test, for $10 extra.

Annoyingly, the software asked us what to do during installation of four popular browser toolbars (AOL, Das Ortliche, Google, and Quero); the other five programs in our roundup deduced that the toolbars were legitimate. Unfortunately, this program just doesn't perform as well as it used to.

Windows Defender 1.1

Microsoft's free Windows Defender ships standard with Windows Vista and is available as a free download for Windows XP SP2. If it had presented itself strictly as an antiadware program, we'd be less hard on it, but Defender's Web site asserts that the software provides "Spyware protection for free," yet in that respect the software fails.

Windows Defender did detect all ten of the active adware threats it was exposed to. It detected less than 50 percent of inactive adware samples—a middle-of-the-road result. In disinfection tests, the program successfully removed 55 percent of adware files and Registry entries, failing to excise PremiumSearch (which messes with Internet Explorer's home page and favorites) and Starware (which creates an IE search bar).

But with regard to spyware, the story is entirely different. In our tests the program neither detected nor disinfected the ten active spyware threats we introduced. It detected only 7 percent of the inactive password stealers we threw at it.

Windows Defender did excel in behavior-based protection. It detected all additions to the 'Run' keys (HKCU and HKLM) and the startup folder, as well as all changes to the Internet Explorer search and start pages and the Hosts file.

WINDOWS Defender is free, but it isn't designed to guard against certain types of spyware.

Windows Defender is easy to configure. It requires little user interaction beyond the option of choosing a low, medium, or high level of security, and it was the only stand-alone antispyware program of the six tested here that by default has a regularly scheduled scan. In Vista, it is the only antispyware tool that integrates with Internet Explorer 7 Protected Mode to permit scanning of downloaded files before they are saved or executed.

One warning: Telephone support for the program is expensive. After two free calls, you must pay $35 per request.

Windows Defender works well against adware and offers solid behavior-based protection, but if a piece of malicious spyware slips past Defender's first line of defense, you'll need something else to clean up the mess.

Spybot Search & Destroy 1.4

Safer Networking's Spybot Search & Destroy is credited as the first antispyware program, supplying free real-time protection to a loyal user base. But our recent tests show that the program no longer provides good spyware protection.

Spybot passed all of our false-positive tests, correctly »

Record EVERYTHING Your Kids and Employees Do on the Internet

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Advanced surveillance snapshot recording allows you to see not only what your children and employees do, but the EXACT order in which they do it, step-by-step. Viewing the screen snapshot playback is like watching a surveillance tape of their online and PC activity.

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SPYBOT IS A free, popular program, but it no longer offers enough protection.

detecting legitimate toolbars and 6285 other sample files. Its Resident Teatimer feature provides solid behavior-based protection, too. It correctly detected additions to the HKCU and HKLM 'Run' keys, and alterations of the default Internet Explorer home and search pages and the Hosts file. (It did not detect additions to the Startup folder.)

However, Spybot detected less than 2 percent of inactive adware and spyware threats, indicating that its signature database of threats is insufficient. In response to threats actively installed on the PC, it ignored three of ten active adware threats and four of ten active spyware threats. Finally, it disinfected a paltry 8 percent of active threats.

Spybot is easy to install and use, but its interface—with its multitude of check boxes and line items—is geared toward relatively tech-savvy folks. Such users will appreciate that Spybot lists Browser Helper Objects (BHOs) and ActiveX controls installed on your PC and that it can securely delete files. They won't be pleased, however, with the lack of automatic software updates; users have to acquire those manually.

Safer Networking does not offer telephone support, but we were impressed with the quality of Web-based support on the company's forums, where dedicated fans answer questions on everything from false positives to the complexities in the software's feature set.

For many years this freeware program was the antispyware standard, but, regrettably, it is no longer competitive.

Ryan Naraine is a freelance technology journalist who specializes in Internet and computer security issues.

For longer reviews of the six antispyware programs reviewed in this story, as well as for more testing information, go online to find.pcworld.com/58303. ●

Lavasoft Ad-Aware 2007 Plus

LAVASOFT'S AD-AWARE 2007 Plus is the paid version of the popular scanner Ad-Aware 2007 Free. Despite the app's name, Lavasoft says that the program combats spyware as well as adware. For the $27 price, you get automatic updates, scheduled scans, and real-time protection missing from the free product—however, in our tests Ad-Aware Plus failed to meet basic performance expectations.

At the time we evaluated it, Ad-Aware 2007 Plus was not available for Windows Vista, so we tested it on a Windows XP machine. The scheduled release date for Lavasoft's Vista version is August 31.

77
GOOD

Ad-Aware 2007 Plus | Lavasoft
With scheduled scans and real-time protection, Ad-Aware 2007 Plus outperforms its free counterpart, but better antispyware is available.
List: $27
find.pcworld.com/58306

In tests performed by AV-Test.org, Ad-Aware failed to detect (let alone disinfect) nine of our ten active spyware samples. While it uncovered all ten active adware samples, it disinfected just 35 percent of their files and Registry entries.

Presented with a massive batch of 110,380 inactive adware and spyware samples, the program's on-demand scanner managed to detect less than 2 percent of them. And Ad-Aware 2007 Plus doesn't provide protection against rootkits, either.

The program's behavior-based blocking of system changes was significantly better than its signature-based scanning. It halted additions to the Registry's HKCU and HKLM 'Run' keys, and it detected changes to the Internet Explorer home and search pages. But it failed to detect changes to the Hosts file and additions to the Startup folder.

AD-AWARE IS a better tool for blocking threats than cleaning them.

Ad-Aware is easy to navigate, and its TrackSweep feature erases browser surfing history from Internet Explorer, Mozilla Firefox, and Opera. Unfortunately, the software's two-pronged design creates needless complications. You have to configure the Ad-Watch component, which handles real-time monitoring and proactive protection, separately from the rest of the program. Also, the Sweden-based company does not offer telephone support to users in the United States.

Ad-Aware Plus is a definite step up from the freeware version, but its lackluster performance would send us searching elsewhere for antispyware protection.

—Ryan Naraine

The Next Generation Notebooks

Special Feature

IN THIS ISSUE:

Built to Win
Gaming Notebooks

Future Proof Computing

ASUS R2E:
The New Mobile Office

From Concept to Reality
The Making of the
ASUS Lamborghini VX2

ASUS U3: Find Your Way

ASUS' U3S isn't just attractive, it's breathtaking.
It's not just light, it's an effortless 3.85 lbs. with battery.
And it's not just innovative, its genuine leather surfaces, GPS functionality, and power-size ratio represent fundamental leaps in notebook evolution.

- Intel® Core™2 Duo T7500 2.20 GHz
- Genuine Windows Vista™ Business
- 13.3" Color Shine widescreen display (1280 x 800 WXGA)
- NVIDIA G8400M G 128 MB
- 160 GB hard drive, 1.5 GB DDR2 memory
- 1.3 megapixel webcam, Bluetooth V2.0+EDR, WLAN 802.11 A/B/G/N, fingerprint authentication and TPM, built-in GPS, piano paint finish and elegant steel frame, leather palm rest, switch between powerful graphics and power saving, 3.85 lbs., 12.4" x 9.5" x 0.87~1.3", carrying bag and bluetooth mouse

U3S-A1W (white) U3S-A1B (black): **$1,699**

intel Centrino Duo Core™2 Duo inside™

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Gaming & Entertainment

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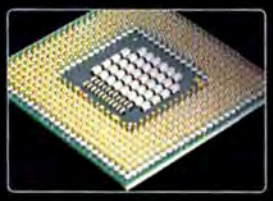
On the Go

ASUS recommends Windows Vista™ Ultimate



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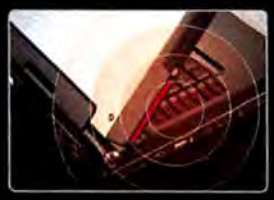

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HD content:	4.5 Hrs / 9 Hrs
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Store 6 times the data of a DVD with the latest in optical drive technology. Blu-ray drives allow up to 9 hours of high definition content, or 50 GB of data from a dual layer Blu-ray disc.

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PC WORLD Best BUY G2P-7R009C August 2007

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-- PC World awarded **ASUS G2P** **Desktop Replacement Best Buy**

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- NVIDIA GeForce 8600M GT 256 MB
- 200 GB hard drive 7200 RPM, 2 GB DDR2 memory + 1 GB Turbo Memory
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- WLAN 802.11 A/G/N, 1.3 megapixel webcam, Bluetooth V2.0+EDR, gaming backpack and gaming mouse, Super Multi DVD/RW dual layer with LightScribe, HDMI connection

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Built to Win

Powerful technology, exclusive features, and aggressive styling
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Featuring robust specs, a striking design and swift portability, the 15.4" (1680x1050) G1S is a lean, mean, green machine. Only a system built from the ground up for gamers could be this much fun. Thinking bigger? Our metalic silver G2S boasts a gorgeous 17" (1920x1200) dual lamp screen, Dolby Digital live sound, and a Blu-ray option, making it a superb multimedia desktop replacement. Both ASUS G series notebooks have won noteable awards in PC World (G2P, August 2007) and Laptop Magazine (G1S, August 2007) in addition to winning satisfied gamers worldwide.

5 *Highlighted Gaming Keyboard*

Furious multiplayer FPS games mean your nimble fingers must switch from movement (WASD) to chat mode (ASDF) in a flash. Quick reference highlights make for easy transitions. Don't get caught with your pants down!

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Why Alt-Tab out of your fullscreen game? Get your IM's, system info and more from the onboard OLED display.

7 *In-Mold Decoration*

This edgy suit of armor is ready for battle. In-Mold Decotration (IMD) protects your system from the bumps and scratches of intensive gaming and in-between LAN parties.

"Combining multimedia capabilities with strong gaming performance, the G1 is a powerful gaming laptop ready to take on the competition."

-- Computer Shopper selected **ASUS G1S** for **Top 3 Gaming Laptop**

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- Blu Ray disc drive

MSRP: $2,599

DGE

Boost 3D Graphics Performance

Dedicated graphics engines (DGE), offer best-in-class graphics and unprecedented performance for gaming. With support for DirectX10, you can enjoy the new standard for highly detailed, edge-of-your-seat games. Then sit back as DGE effortlessly decodes your favorite high definition movies. Prepare for the ultimate multimedia experience on a notebook.

Dedicated Graphics Engine

intel Centrino Duo Core™2 Duo inside™

Gaming & Entertainment

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On the Go

ASUS recommends Windows Vista™ Home Premium

F3 Plow Through Multimedia and Games with a Core2 Duo Processor & DGE

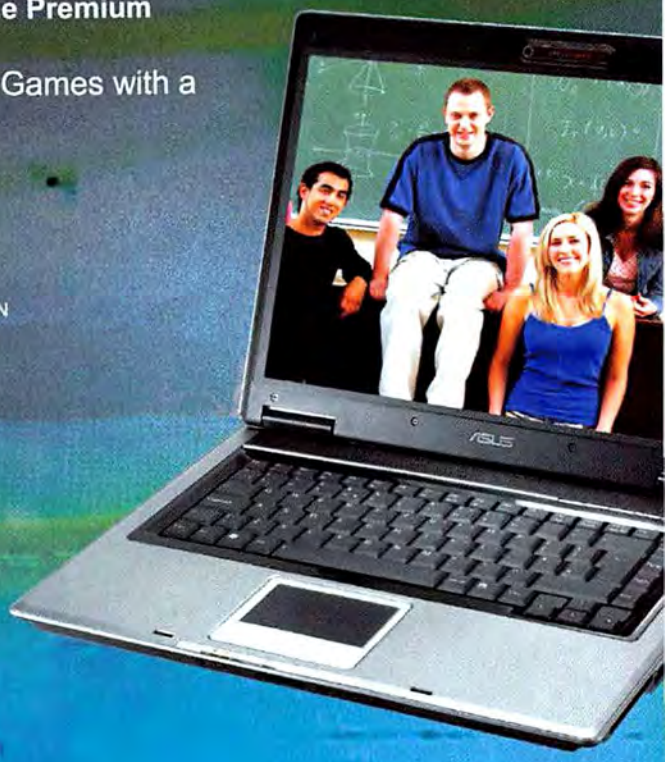
F3SA-A1
- Intel® Core™2 Duo T7500 2.20 GHz
- Genuine Windows Vista™ Home Premium
- 15.4" Color Shine widescreen display (1280 x 800 WXGA)
- ATI HD2600 512 MB
- 160 GB hard drive, 1 GB DDR2 memory + 1 GB Turbo Memory
- 1.3 megapixel webcam with 240° swivel, Super Multi DVD/RW, WLAN 802.11 A/B/G/N, Bluetooth V2.0+EDR, Li-ion 6 cell, 6.5 lbs.

MSRP: $1,299

Upgrade to a better processor and graphics, higher resolution, and more features.

F3SV-B3
- Intel® Core™2 Duo T7500 2.20 GHz
- 1440 x 900 WXGA+ display
- NVIDIA GeForce G8600M GS 256 MB
- 2 GB DDR2 memory + 1 GB Turbo Memory
- 1.3 megapixel webcam with 240° swivel, DVD/RW with Lightscribe, fingerprint authentication, WLAN 802.11 A/G/N

MSRP: $1,499



F5R Great Student Notebook with Brilliant Screen and ASUS Quality

You'll be surprised at what the attractive F5R can deliver for under $1,000. A beautifully enhanced, zero bright dot screen, a 1.3 megapixel webcam, and the best standard notebook warranty in the industry just begin to tell the story.

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- 15.4" 1280 x 800 widescreen display
- 120 GB hard drive, 1 GB DDR2 memory
- 1.3 megapixel webcam with 240° swivel, WLAN 802.11 B/G, Bluetooth V2.0+EDR, Super Multi DVD/RW dual layer

MSRP: $899

Future-Proof Computing

Ever purchased something and regretted it later? One of the biggest mistakes notebook buyers make is investing in a product that quickly becomes outdated -one that is not "future proof." Avoid this frustrating mistake! Think carefully about the following specifications on your next purchase.

Dual Core Processing: CPUs provide the horsepower your software demands. If your processor isn't future-proof, it creates a significant performance bottleneck, not to mention excess heat and short battery life. Core Duo processors (like the one in the ASUS F5R above) are sufficient for most applications. Core2 Duo processors (like the ones in the ASUS F8Sv and ASUS F3S) offer sufficient raw power long into the future.

Dedicated Graphics Engines: Plan to use your notebook for games and multimedia? Look for an NVIDIA or ATI DGE. That way you can enjoy all the eye candy from the latest DirectX 10 games! Don't forget that you'll need DGE to use Windows Vista™ Ultimate's flashy Aero effects. If you don't game, watch multimedia, and are perfectly happy with a more basic operating system, integrated graphics notebooks like the ASUS F5R can save you money.

Superior Connectivity: Look for an express card slot that can take a mobile broadband card in case you want wide area network connectivity. Additionally, Bluetooth v2.0+EDR is

F8S

Smart Design and Outstanding Performance for Work or Play

The F8 looks as sharp as an Armani suit, but it knows how to loosen it tie. It gives you all the power you need for the most demanding multitasking at the office, or the most thrilling DirectX 10 gaming and multimedia at home.

intel Centrino Duo Core™2 Duo inside™

F8SV-A1
- Intel® Core™2 Duo T7700 2.40 GHz
- Genuine Windows Vista™ Home Premium
- 14" Color Shine widescreen display (1440 x 900 WXGA+)
- NVIDIA G8600M GT 256 MB
- 160 GB hard drive, 2 GB DDR2 memory + 1 GB Turbo Memory
- 5.7 lbs., 13.6" x 9.8" x 1.5"
- WLAN 802.11 A/B/G/N, 1.3 megapixel webcam with 240° swivel, Bluetooth V2.0+EDR, Super Multi DVD/RW dual layer with LightScribe, fingerprint authentication, scratch resistant In-Mold Decoration (IMD)

MSRP: $1,599

DGE

◀ **In-Mold Decoration (IMD) Technology** encases elegant detailed designs under the notebook for a glossy and scratch resistant protective cover.

essential for sharing data with hand-held devices such as cell phones, and PDAs. Having at least 4 USB ports is desirable for connecting external storage devices, mice, mp3 players, and cameras.

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No matter what notebook you invest in, a good warranty is a must. ASUS' standard notebook warranty, ASUS 360, protects your notebook more completely, for a longer time and with more convenient service than any other warranty. Other brands charge hundreds for similar protection.

(see next panel for details).

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2 year global warranty – Double the length of most standard warranties.

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24/7 tech support* - We're there when you need us.

* Excludes holidays

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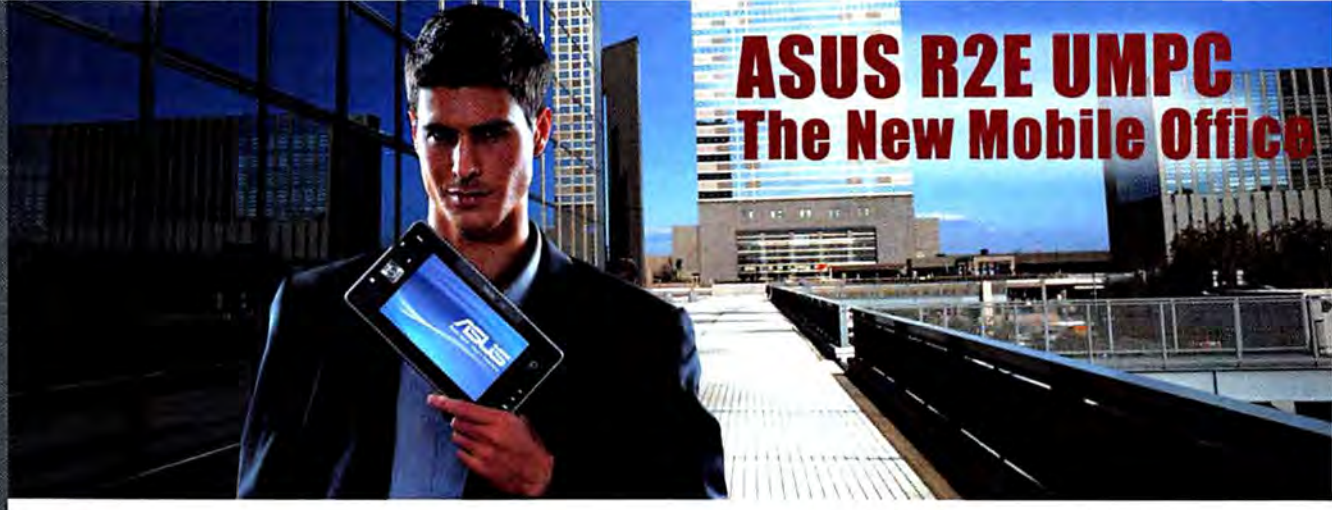

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The New Mobile Office

7:00 AM

Brian has a big presentation in New York this afternoon, but leaves home full of confidence, armed only with an ASUS R2E ultra-mobile PC.

8:00 AM

Waiting at the airport terminal, he checks his email and quickly takes care of some business. Then eats a breakfast sandwich while playing White Stripes MP3s.

8:30 AM

On the plane, Brian pulls up an Excel spreadsheet and does some quick calculations with new sales data to refine his presentation. He has enough battery to watch Spider-Man, and play suddoku. He's in the middle seat – good thing his ASUS R2E has stylus input!

10:30 AM

The Big Apple. Brian rents a car and uses his ASUS R2E's GPS to pinpoint the conference location.

11:00 AM

At the presentation, Brian earns style points by whipping out the R2E and swiping his thumb on the fingerprint reader to login. He wows the crowd by plugging the projector to the VGA output on the R2E, running the presentation directly off of his UMPC. The presentation's a big success!

12:30 PM

With business taken care of, Brian decides to treat himself. He checks Zagat's online for local recommendations.

2:00 PM

Lunch was magnificent! Before catching his flight back, Brian pulls over to capture a breathtaking picture of the Statue of Liberty – on his ASUS R2E.

4:30 PM

At the airport, Brian checks in with his office and video chats with his assistant.

8:00 PM

Back home, Brian synchs his new business contacts and photos to his PC with Bluetooth. Not a bad day's work!

The ASUS R2E Ultra-Mobile PC is powered by Intel® Centrino Duo Processor featuring Intel® ULV Pentium M Processor 723 1.00 GHz, Genuine Windows Vista™ Home Premium, 7" display (800 x 480 WVGA), 60 GB hard drive, 1 GB DDR2 memory, 1.83 lbs, 5" x 5.6" x 0.7", built-in webcam, GPS and map, handwritten input support, fingerprint authentication, WLAN 802.11 B/G, Bluetooth V2.0+EDR, (optional) USB keyboard, (optional) external DVD/RW, (optional) car charger

MSRP: $1,099

Handwriting Convenience

Using a keyboard/mouse/trackpad is challenging in situations where you have to stand. Stylus input allows you to easily jot down notes and ideas while standing up, making it especially useful for drawing charts and diagrams.

Stylus Input

ASUS R1E

Core2 Duo Tablet with Handwriting Convenience

Take notes or express your ideas with the convenience of using a pen. The ASUS R1E lets you do it all on a 13.3" screen with all the room you need.

R1E-A2

- Intel® Core™2 Duo T7250 2.00 GHz
- Genuine Windows Vista™ Business
- 13.3" Color Shine widescreen display (1280 x 800 WXGA)
- 120 GB hard drive, 1 GB DDR2 memory
- Convertible screen, handwritten input support, WLAN 802.11 A/B/G, Bluetooth V2.0+EDR, 8x Super Multi DVD/RW dual layer, fingerprint authentication & TPM, hot swappable module bay, 4.2 lbs., 12.5" x 9.1" x 1.4"

MSRP: $1,699

R1E-B1

- Intel® Core™2 Duo T7700 2.40 GHz
- 160 GB hard drive, 2 GB DDR2 memory
- 8x Super Multi DVD/RW dual layer with Lightscribe

MSRP: $1,899

ASUS recommends Windows Vista™ Business

ASUS W7S

"...combines good looks with an excellent screen, powerful components, and plenty of creature comforts, all for a reasonable $1,699."

- Jamie Bsales, Laptop Magazine October issue

At 4.3 lbs., the W7S is so thin, light, and attractive that you'll want to take it everywhere you go. NVIDIA 8400M G makes seamless video playback and 3D gaming a reality, and an integrated 1.3 megapixel webcam helps you stay close to those who matter.

W7S-B1W (white) W7S-B1B (black):
- Intel® Core™2 Duo T7500 2.20 GHz
- Genuine Windows Vista™ Business
- 13.3" Color Shine widescreen display (1280 x 800 WXGA)
- NVIDIA® G8400M G 128 MB
- 120 GB hard drive, 1 GB DDR2 memory
- 4.3 lbs., 12.3" x 8.8" x 1.2~1.4"
- 1.3 megapixel webcam, Bluetooth V2.0+EDR, Super Multi DVD/RW dual layer with LightScribe, WLAN 802.11 A/B/G/N

DGE

PRICE DROP! $1,449

Gaming & Entertainment | All Around Value | On the Go

Faster connectivity.

The latest Draft N wireless allows connection speeds up to 50 times faster than the previous generation.

Wireless LAN

Expandability without wires.

Bluetooth V2.0+EDR (Enhanced Data Rate) transfers three times faster than standard Bluetooth for better connectivity and synchronization between digital devices.

Bluetooth V2.0+EDR

Work longer. Play longer.

Power4Gear extends battery life 20%-30% by intelligently regulating power use. Four useful settings include Quiet Office, Entertainment, High Performance, and Power Saving.

Power4 Gear+

See you. See me.

Built-in webcams let you experience on the go video communication without wires. Have face-to-face conversations with business associates and family members over the Internet -- for free!

High-Resolution Webcam

From Concept to Reality

The Making of the ASUS-Lamborghini VX2

ASUS®
Rock Solid · Heart Touching

A Shared no-compromise Philosophy

The ASUS-Lamborghini project begins by understanding the core values of both companies. The Lamborghini Spirit embodies a no-compromise design in the art of car-making, with each element stressing perfection in sporty aesthetics. The ASUS approach emphasizes no-compromise quality, enthusiasm for the best technology, and deliberate, pragmatic design.

The Form

The disciplined movements of Tai Chi martial arts were studied as a springboard for understanding the relationships between power and shapes, speed and gesture, sleekness and simplicity, and aggression through refinement. The Tai chi sculptures of Ju Ming effectively translate these relationships into tangible form - various edges, folds, and spatial interactions found in the sculptures are also present in Lamborghini vehicles.

The Material

Glossy polish. Gleaming metal. Hand-stitched leather. ASUS prides itself with using emotive (often daring) materials in its products. Bold selections are made to accentuate the VX2's uniquely sporty details.

The Drawing Board

Driven by philosophy, form and material, The ASUS Industrial Design team outputs its dreams on paper. Drawing upon broad experiences in notebook craftsmanship, dozens of concept sketches are scrutinized and revised. Only one will carry the VX2 name.

The Experience

A complete design considers an entire solution for user interaction. From the second you boot its redesigned interface, to the moment your fingers seal its custom notebook bag, the ASUS-Lamborghini delivers an exhilarating ride.

Our Passion

You will find the same dedication to quality and passion for design in all ASUS products. Many of our notebook computers earn the top design awards in the industry, such as Reddot, and iF.

reddot design award winner 2005

Find ASUS Notebooks here:

See all the designs at **usa.asus.com/pcworld** for a chance to win an ASUS-Lamborghini VX2!

Agear Notebooks www.agearnotebooks.com	CDW www.cdw.com	GenTech Computers www.gentechpc.com	MilestonePC www.milestonepc.com	PC Club www.pcclub.com	Star Tech Inc. www.stipc.com
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BTO Tech www.btotech.com	Data Vision www.datavis.com	Lu Computers www.lucomputers.com	NewEgg www.newegg.com	Portable One www.portableone.com	Xotic PC www.xoticpc.com
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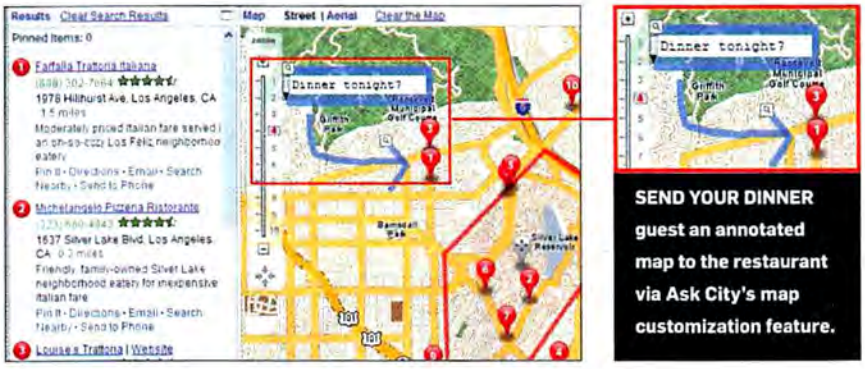
Kings of the Road

BY STEVE BASS

At the Web's best mapping sites, driving directions are just the beginning.»

SURE, GETTING FROM point A to point B is still a big reason for using one of the Internet's many mapping sites, but these days there's a lot more to Web maps than just directions. I looked at the five biggest names in online maps—Ask City, Google Maps, MapQuest, Microsoft Live Search Maps, and Yahoo Maps—and found that annotation and other tools gave Microsoft Live and Ask City a slight edge over Yahoo Maps, and a substantial advantage over Google Maps and MapQuest. (See our comparison chart below.) I also tried a slew of location-based services; my favorites are on page 120. And don't miss our guide to the top map mashups at find.pcworld.com/58260.



SEND YOUR DINNER guest an annotated map to the restaurant via Ask City's map customization feature.

Ask City

There are enough drawing tools on this site to keep you busy for hours gussying up your maps. You can add text notes or draw segmented lines, squares, circles, and polygons, in any of ten colors. It's easy to undo individual additions or to clear the map completely.

One great Ask City feature is that it lets you add a stickpin to any location and fill it with an image and notes. You can save snapshots of up to ten maps (including all your gaudy annotations). Click *Permalink* to save a link to the map, or send others the link via e-mail.

Options in the Search panel enable you to look for a local business, movie theater, concert, or other event, or generate maps and directions. In late July I searched for "Harry Potter" and "Pasadena," and Ask City's middle Results panel listed ten local theaters playing the movie, each pinned onto a map in the right-hand panel. The three windows let you dynamically view changes on custom maps. In the Results panel, for example, clicking the name of a business—say, a restaurant or hotel—usually brings up a Citysearch review.

Once you search for a specific type of business ("manicures," for example), Ask City supplies a list of businesses in the area, with the neighborhood highlighted on the map. Way cool.

Chart a Course for the Best Mapping Sites

TRAFFIC REPORTS, 3D views, and the ability to add notes are among the new features that help take the bumps out of your travels.

	SERVICE	PCW Rating	Shortest travel time and shortest distance	Live traffic reports	Add waypoints to routes	Satellite views	3D views	Save routes	Annotations/ pushpins	Send to cell phone
1	Microsoft Live Search maps.live.com	95 SUPERIOR	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
2	Ask City askcity.com	93 SUPERIOR	No	No	Yes	Yes	No	Yes	Yes	No
3	Yahoo Maps maps.yahoo.com	89 VERY GOOD	No	Yes	Yes	Yes	No	Yes	No	Yes
4	Google maps.google.com	83 VERY GOOD	No	Yes	Yes	Yes	No	No	Yes	Yes
5	MapQuest www.mapquest.com	80 VERY GOOD	Yes	No	No	No	No	Yes	No	Yes

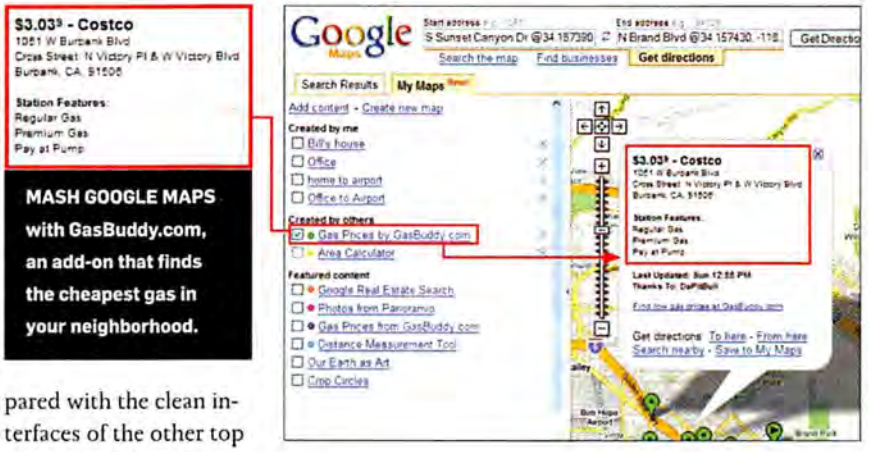
Another appealing Ask City feature: Click any of the written directions in your route to have that area appear on the map, along with a second, smaller inset map corresponding to the specific route section. You can add up to ten stops to the map at a time.

If you'll be walking, click the *Walking* tab on a plotted route to see directions optimized for traveling by shank's mare. I was even able to create and save a walking tour in Paris, in case I ever travel there again. Right-click your map to add the location, or snap to the closest address, and stick in a location pin.

The service's directions and map panels have minimize and maximize icons for resizing the contents; however, on conventional 4:3 monitors, you might need to scroll to the right to see them.

Google Maps

When I think of mapping sites, I think Google. So it's too bad that the service's interface is so cluttered, especially compared with the clean interfaces of the other top mapping sites I visited.



One of the best things about Google Maps is that it lets you dynamically change the route of a trip: Start a route with a mouse click, choose the start and end locations, and then just drag a section of the route and drop it elsewhere on the map. In a flash, the directions on the map change—as do the written directions. That's a great feature for rerouting if you should discover a backup on your route (and you will, trust me) by clicking the *Traffic* button.

Right-click the route to add more yellow pushpin stops, or add stops via the written directions in the Search Results panel; or you can drag and drop written instructions to rearrange the route.

Google Maps also lets you create your own mashup by adding content from hundreds of sources. For instance, the My Maps feature can now display elevation contour lines or gas prices (the latter via the Gas Buddy plug-in).

You can save up to 100 map locations, but doing so requires that you log into a Google account (click *Sign in* to start creating one). To make your maps easier to retrieve, use Google's My Maps tab. Another option is to create a link for sending maps via e-mail. However, the only data you can send to a cell phone is a business location.

Unfortunately, Google Maps' annotation tools are paltry compared with those of Ask City and Live Search Maps. Google does let you add placemarks and include .rtf, .html, and other files; you can draw segment lines and shapes, but you can't draw circles, and you can't embed text directly on the map.

Even worse, I spent way more time figuring out the service's controls than I did actually creating and annotating my maps. Google Maps simply isn't as easy to use as Live Search Maps or Yahoo Maps. After much struggling, I discovered that the annotation tools were available only if I chose *Create new map* under the My Maps tab.

I was also bewildered by the right-click options, which changed depending on the map view. For instance, a "clear map" button to start over was available in a business search, but not in the map's own search feature.

MapQuest

If you're looking for an easy-to-use mapping service that's not all fancy-shmancy, AOL's MapQuest may be for you. The site focuses primarily on routing and directions, though you can zoom in on specific map locations. To get directions, enter an address or intersection as the starting location. Ditto for the destination. (Click the *Maps* icon if you just want to explore a map.) You can exclude seasonally closed roads.

MapQuest's step-by-step directions feature expandable maps highlighting each turn or other instruction; click *Open* or *Close* at the top of the map to expand the directions.

Clicking the route's starting point or endpoint brings up the helpful 'Zoom to Street Level' link; you have the option of switching to a hybrid satellite view, too.

One nice MapQuest feature is the »

Ads	Comments
Unobtrusive	Though neighborhoods aren't labeled on the maps at this feature-packed site, they appear after you conduct a search for businesses of a specific type.
None	To see a satellite view only, you have to disable 'Labels.' Right-click a map to snap to the closest address; the ability to save map snapshots makes retrieval easy.
Annoying	If you have a Yahoo account, the maps pick up your saved locations automatically; driving directions are available for 34 European countries.
Unobtrusive	Neighborhoods are labeled on the maps, but they aren't highlighted; the mapping site's send-to-phone capability works with most phone service carriers.
Annoying	You can expand maps at each driving step, avoid highways and tolls, and reverse your route with one click; driving directions are available for 12 European countries.

ability to reorder your route by dragging and dropping the written locations to a new spot on the list. It seems silly, though, that MapQuest doesn't let you save a multistop route.

To arrange for maps on the go, use the *Send to Cell* option, which dispatches a text link that you click on your mobile phone to open the map and directions in the phone's browser.

The flashing, twirling ads on MapQuest are annoying; they'll eventually stop—until your cursor touches the ad.

USE MAPQUEST'S *SEND to Cell* option to send the maps and driving directions you generate on that site to your cell phone with a single click.

Microsoft Live Search Maps

I didn't think anything would get me off Google Maps, but after using Live Search Maps just once, I was hooked. It's packed with features that make it more like a full-blown application than simply a mapping service. My favorite: the roll-up Scratch pad, which makes saving trips, routes, and maps a breeze (get to it by clicking *Collections•Open*).

Of course, in order to save your Scratch pad, you first have to sign in with a free MSN or Hotmail account.

You can use the Scratch pad to draw a path or trail, and a pop-up shows the distance in yards and in miles. The service lets you create a rectangle, square, or other straight-line area, with the color fill or border width of your choice. (One missing feature is the ability to add text directly onto the map.)

Live Search Maps makes it easy to save annotations as a collection (to do this, click *Properties•Save*). You can share »

Mapping and Location Services for Your Cell Phone

YOU'RE OUT AND about and need some quick information, or you simply want to find out where you are or whether your buddies are close by. Grab your cell phone and try one of these free and low-cost services.

Tell Me All About It

Call Tellme (800/555-8355, or text 83556) and say "weather," "sports," "news," "taxi," "airlines," or "driving directions." You'll see a map, directions, or search request results on your cell phone (you'll need to download a small application first). The service works with AT&T and Sprint phones. Note: Tellme was acquired by Microsoft earlier this year.

TRACK YOUR HIKING, jogging, or bicycling route on Trimble Outdoors.

Keep Track of Yourself

Trimble Outdoors has a trio of subscription-based tools that use your cell phone to show you exactly where you are and where you have been. In real time, its AllSport GPS (find.pcworld.com/57968) records your walk, jog, or bike ride; you can see your route immediately on your cell's screen and keep a record on the service's site (find.pcworld.com/57967). It works with most Garmin and other popular GPS devices (plug-in required). If you're into geocaching, where you try to find hidden treasures or do other tasks using a GPS, you'll get a kick out of Trimble's Geocache Navigator service (find.pcworld.com/57969). Trimble Outdoors also gives you a way to plan routes and trips with street, satellite, and topological maps. The cost for all three is $7 per month (find.pcworld.com/57970).

Get a Jott Jolt

If you have a reminder (or bright column idea) to send to yourself, or a message that you need to get to a friend or a bunch of buddies, use Jott. Call 877-568-8486 and record a voice message up to 30 seconds long that the service transcribes into text and sends as a text alert to the e-mail addresses or mobile phones of your choice. Jott even saves the messages for future reference. You can also import your Web mail address book.

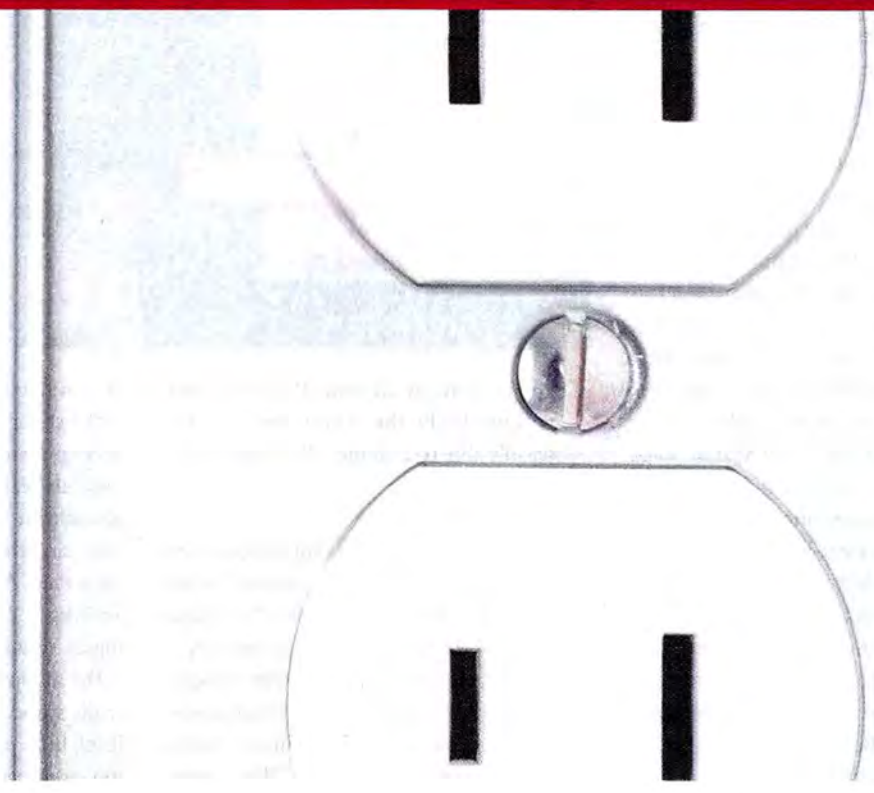
Don't Dodge Me

If you want to locate your pals, or let them find you, sign up for the Dodgeball service (www.dodgeball.com), and use your cell phone to let them know where you are and to find out where they are. Available in over 22 cities, Dodgeball lets you broadcast your location by texting your street address or other information about your locale to 36343, along with a text message—and maybe a snapshot of you and Paris. In no time, you'll be surrounded by friends, and maybe a hundred paparazzi.

Find Out Where to Go

Nature calls, even in the big city. So when you're running all around town, you may need to know where you can go on the go. MizPee has the answer, providing the location of clean, dependable lavatories. Use your phone's browser to access the beta service at www.mizpee.com, or (easier) text your city and state to 415/350-2290.

ZyXEL



Here is the Next

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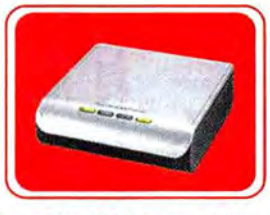
HomePlug AV Wireless Router
NBG318S



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HomePlug AV Access Point
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HomePlug AV 4-Port Switch
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your map via e-mail, or pop it onto the Windows Clipboard for subsequent pasting into an application.

Right-click to zoom to a street or regional level, or to add a pushpin with notes that include a URL and a link to an image. That same right-click lets you start planning a route by adding a 'Drive from' (or 'Drive to') pushpin, and then finishing the route in the written Driving destination panel. (Or you can simply add a pushpin to both *Drive from* and *Drive to* on a map, and click *Get directions*.)

Unlike Ask City, Live Search Maps doesn't let you force the pushpin to connect to a specific address. But when you're at a street-level view, you can spot and select the location you want (the Las Vegas Hilton, say), which is adequate for most routing needs.

The service's live traffic icons include one that identifies planned events, such as a trade show or baseball game. Two nice touches: The Navigation tool rolls out of the way; and as in Yahoo Maps, a handy minimap aids in navigation.

Live Search Maps shows the typical road, aerial, and hybrid map views, but much more stunning are the Virtual Earth 3D views. Still, as with the 3D images on Google Maps, the novelty wears off surprisingly quickly: After about a dozen 3D views, I found myself using Live Search Maps just to perform straightforward mapping and routing.

By the way, if you want to use Virtual Earth, you'll need to download an ActiveX program—which, to my dismay, attempted to change my browser's home page to Live Search. Microsoft's mapping service also offers you a Location finder, which is a small application that tries to identify your exact current location based either on the Wi-Fi hotspot you're using or on your IP address. But without Wi-Fi, the "Locate me" feature wasn't able to find me when I tested it.

EASILY SAVE, COPY, and paste driving or walking directions via the Scratch pad on Microsoft Live Search.

Yahoo Maps

This mapping service is smart about creating a route, but it's not perfect. For example, Yahoo Maps couldn't find "Museum of Natural History, Los Angeles" when I entered it into the 'Get a Map' and 'Get Driving Directions' fields, yet it popped up immediately in the 'Find a Business on the Map' field. The service found New York's Times Square in all three search spots immediately, and it located several street addresses. However, it drove me nuts that the site couldn't find matches for a location I had previously searched for and saved.

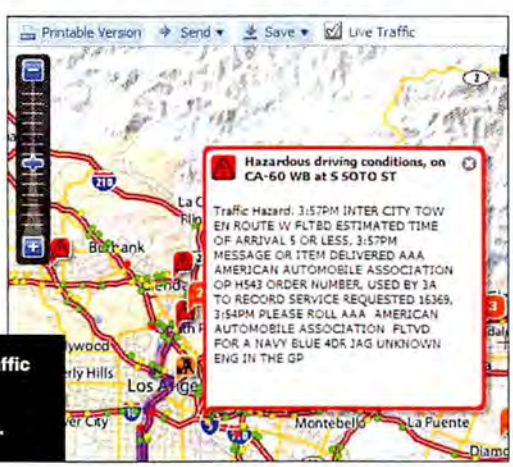
When you create a route and hover over any portion of the text directions, the route segment is highlighted on the map (although I would have preferred that it change color rather than simply acquiring a highlight). Clicking the chevron symbol on any written direction will cause its small map portion (which is also individually printable) to unfold.

The service's routing results were accurate, and I liked the nearly instantaneous real-time traffic icons; it was also nice to see road closures displayed. You can send the map and instructions via e-mail. Also, street addresses appear as links in Yahoo Mail messages, leading to Yahoo Maps.

The mapping details on Yahoo Maps really shine. For instance, at the street level, little purple "P" icons signify parking structures. If you look carefully, you will see the details of freeway on- and off-ramps. And you may notice that some maps have color-coded neighborhoods (which, unfortunately, you can't use as a search criterion).

Yahoo Maps is loaded with tools that help you use the site more efficiently. For instance, as you hover over the tool that lets you zoom in and out of a map view, little markers for street, city, state, and country appear. If you're browsing a map and want directions to a particular spot, right-click and choose *Drive from here...* or *Drive to here...*. Another nice touch: The minimap insert (which rolls up when not needed) is superimposed on the larger map and makes navigating much more pleasurable.

There's no 3D mapping, but Yahoo Maps provides enough texture on its satellite and hybrid maps to let you discern mountains and hills, and get a sense of other terrain. Yahoo Maps also figured out that not everyone is on a fast connection, so for dial-up users it offers another site that has almost all of the same features, but isn't as bandwidth-hungry (find.pcworld.com/57965). ●



BEFORE YOU HEAD out, check for traffic tie-ups that may be on your route by entering it in the Yahoo Maps service.

When Losing Files Is *Not* An Option

R-Studio from R-Tools gives major boost to data recovery and business continuity

The R-Studio Vista-ready business continuity solution continues to improve. Now **R-Studio** from R-Tools, the industry leader in high-performance data recovery solutions, includes HFS and HFS+ file systems support, UFS/BigEndian support, GPT partition layout schema support and Apple partition map support.

Another recent enhancement is a universal hexadecimal editor to inspect and edit file system structures. These can include NTFS and FAT boot sectors, MFT file record, MBR, LDM structures and others. This advanced tool is particularly helpful for specialists working in lower-level data processing, IT security, data recovery and computer forensics. R-Studio is an ideal file recovery solution for IT specialists and advanced users who need to recover or undelete lost data on a local computer or server only.

PC WORLD ADVANTAGE MARKETING

R-Tools also recently launched an enhanced version of **R-Wipe & Clean,** which automatically keeps applications free and clear of harmful clutter. R-Wipe & Clean now supports Windows Vista and removes useless or unwanted data from more than 200 third-party applications, including Microsoft Office 2007.

Other business continuity solutions in the R-Tools lineup include **R-Drive Image 4.0,** which enables users to totally, quickly and confidently restore their systems after a major crash, attack or hardware failure. R-Drive Image 4.0 is flexible in that imaged files can be stored in a variety of places and on various removable media such as CD-R(W)/DVD, Zip disks, Jazz disks and so on. The utility is accurate in that image files contain exact byte-by-byte copies of a hard drive, partition or logical disk.

Other superb utilities and solutions from R-Tools include:

- **R-Mail for Outlook** and **R-Mail for Outlook Express**, which reconstruct inadvertently deleted email messages or damaged .pst and .dbx files
- **R-Word** and **R-Excel**, which recover damaged Word or Excel files that have been corrupted or attacked

To learn more about the latest release of R-Studio and the rest of the exceptional solutions from R-Tools designed to keep your business up and running efficiently, visit **www.r-tt.com**.

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Tell PC World about your experiences with PCs, cameras, printers, and other electronic devices to automatically enter your name in the drawing for a 1080p Toshiba LCD HDTV. The Web site explains the official rules and specifies how to participate in the drawing if you choose not to take the survey. You need to submit only one entry to qualify, and you can enter through October 15, 2007.

SURVEY DETAILS

NO PARTICULAR ANSWER will impact your chances of winning. We will not sell your personal data or share it with any third parties. The prize drawing is open to all legal U.S. and Canadian residents (except those in Quebec and Puerto Rico), age 18 or older. No purchase or survey participation is required to enter or win the prize drawing. Toshiba is a registered trademark of Toshiba Corporation or its corporate affiliates. Toshiba is not affiliated with PC World and does not sponsor this contest.

Steps to Building A Custom PC

Welcome to the *Do It Yourself: PC Builder & Buyer's Guide*. In this day and age of cookie-cutter everything, it's refreshing to realize that the stalwart, self-sufficient spirit of America lives on in the form of do-it-yourself PC builders. It is to them that we dedicate this guide, which was created to walk would-be builders through 14 steps designed to help them fashion their very own, very personal, PCs. Caveat: It is important for readers to understand that this guide in no way states that any or all of the technologies it describes are compatible with each other. We stress the importance of checking with individual vendors to find out if their products are compatible with any other products before making purchases.

STEP 1: The Case

Finding the best case for you depends on how long you intend to keep the PC and how much you want to expand it, which means there needs to be ample space for hard drives and adapter cards. Now that hard drives have dropped in size from 3.5 inches to 2.5 inches, there is a little more room for future drives. A nifty development is the availability of hot-swappable hard drives/bays that can be exchanged on-the-fly. Some of the seemingly little things to look out for include a retractable foot stand—as long as it doesn't prevent you from putting the case on its side—and room for additional fan units. Such room is at a premium in mini-tower cases, but is more available in mid-tower models. A quick tip: Make sure the case is free of dust. The Armor VA8003BWS nVIDIA certified case from Thermaltake Technology Co. Ltd. is a full-tower unit with support for 11 5.25-inch drive bays. It has a built-in 5.25-inch drive bay accessory box, a ventilation opening on the top and an oversized 25cm fan on the side panel.

$169 find.pcworld.com/58249

Thermaltake Armor with 25cm fan nVIDIA certified chassis (VA8003BWS).

850W TruePower Quattro.

STEP 2: The Power Supply

Before installing the power supply unit (PSU) on the case, make sure the PSU connectors are compatible with the motherboard, because not all motherboards are compatible with all connectors. When purchasing a PSU, it is also important to ensure that both it and the CPU are compatible with the motherboard, because they may have different ratings in terms of wattage and settings. There isn't usually much of a difference, but it's worth checking. For entry-level machines, 300 watts is common. It is important to install the motherboard before the PSU, as there is not a lot of space for the PSU and you don't want to bang the motherboard. Before powering up the computer for the first time, make sure all the necessary connectors for the motherboard, CPU and drives are attached securely. The TruePower Quattro PSU from Antec Inc. is available in 850- and 1,000-watt versions. It automatically adjusts for 100V to 240V power grids and is 80PLUS Certified. Its Active Power Factor Correction (PFC) also helps reduce electrical waste.

$249 www.antec.com

STEP 3: Optical Drive

Item number one: Make sure your optical drive has its own IDE controller. You may be able to save a little money by sharing the controller with CD-ROM or DVD drives, but it will slow down performance. This approach also accommodates future expansion to a second optical drive. Another tip to consider: When routing unwieldy IDE ribbon cables to the DVD drive, your task can be made easier by using rounded cables instead. This is especially helpful in cramped situations, where you may break something by trying to cram cables into prohibitively small spaces. Location-wise, install the optical drive in the topmost bay if possible, because that avoids clearance issues in relation to RAM slots. Generally speaking, motherboard manufacturers have gotten pretty good at providing space for optical and other drives. Not that long ago it was all but impossible to insert your hand to swap out memory. The HP 1040i 20X DVD Writer with LightScribe feature allows you to create beautiful labels and burn them directly to your LightScribe disc. Just burn your data, flip the disc, and burn your label. It is easy!

$79.99 www.hp.com

HP's 20X Multiformat Writer offers high speed recording and LightScribe direct disc labeling technology.

Intel® Core™2 Quad processor Q6600.

STEP 4: The CPU

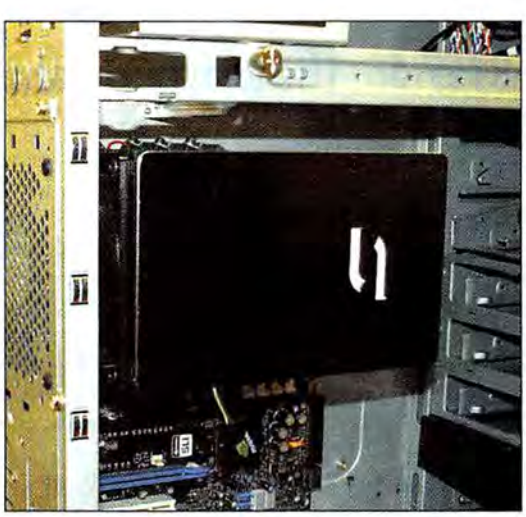
This is the step that really brings your system to life. Review the manual and installation instructions for both the Intel boxed processor and the motherboard supporting your selected processor. Start by opening the motherboard socket and removing the protective cover. Next, remove the protective cover from the boxed processor. Hold the processor along the edges with your thumb and index finger, being careful not to touch the bottom of the processor. Align processor notches with motherboard socket notches. Lower the processor straight down without tilting or sliding the processor in the socket. Now close the socket and engage the socket lever. With the motherboard installed in the chassis, place the Intel fan heatsink (included with the Intel boxed processor) onto the motherboard. Align the fasteners through the motherboard holes, pushing down until you hear a click, ensuring all four fasteners are securely attached. The Intel Core 2 Quad processor Q6600 blows through processor-intensive tasks in the most demanding multitasking environments and makes the most of highly threaded games and applications.

www.Intel.com/go/boxed

STEP 5: The Cooler

CPUs usually come with their own little cooling engine, but the newer processors run so hot that your best bet is to attach a separate device to draw heat out of the case. A thermal compound or paste should be used to help transfer the heat between the cooling device and the processor. Keep in mind, a fine hand is required because just the right amount of compound must be applied—add too much or too little and you will upset the heat transfer, which may lead to persistent shutdowns. Generally, a BB-sized amount of goop is just right. Some vendors, like CoolIT Systems Inc., will pre-apply this compound for you. CoolIT's new Freezone Elite combines facets of air cooling with proprietary MTEC liquid chilling. Their purpose-designed internal components remove heat from individual components and out of the case in a factory sealed and closed-loop system, which makes for an extremely high-performance cooling solution that is easy to install.

www.coolitsystems.com/fe.htm

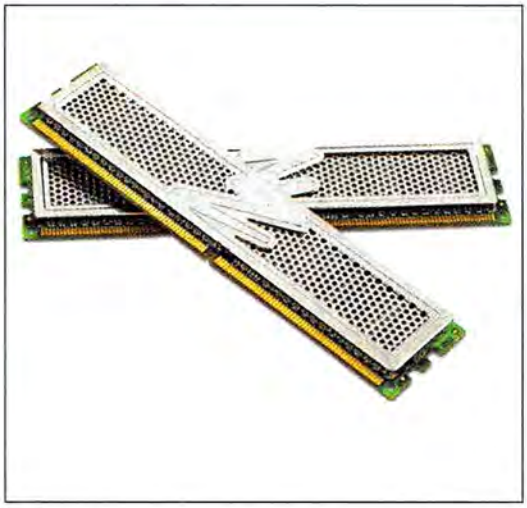


The new Freezone Elite. Easily installed, maintenance free, high performance liquid cooling.

STEP 6: RAM

Match this critical component up with the right motherboard and off you go. This may require making a choice to install the RAM in pairs or individually. Installing pairs usually leads to the best performance. Depending on the motherboard, if you're looking to keep your PC over an extended period, or upgrading, you will want to make sure there are additional sockets; otherwise you may have to pull out the old memory. For example, a lot of the newer, inexpensive motherboards only have two or four sockets, so if a gig of memory is installed in the form of two 512MB memory sticks, the sticks would have to be pulled out, at which point they would be useless. Read the manual to make sure you are using the right slots, and make sure that before you insert the memory you remove any components that may obstruct or interfere with carefully seating the sticks. The OCZ PC2-6400 Platinum Revision 2 from OCZ Technology Inc. turns out 4-4-4 timings and offers lower latencies than standard 800MHz DDR2 memory. It also features a lifetime warranty and toll-free technical support. www.ocztechnology.com.

$125 available at www.newegg.com



OCZ Platinum memory is exclusively developed for high-end systems and is backed by a lifetime warranty.

1TB Hard Drive from Hitachi Global Storage Technologies.

STEP 7: The Hard Drive

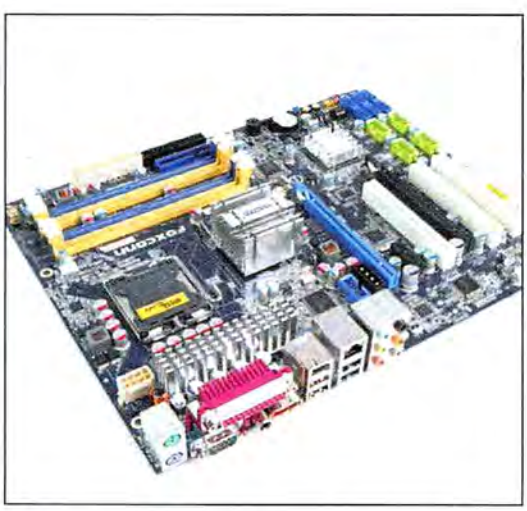
You usually want to put the hard drive off the primary controller and keep it separate from the optical drives. Depending on whether you are going with IDE or SATA drives, make sure there is enough space between them. For example, since SATA drives run a bit warmer than IDE drives, it is wise to keep them reasonably separated. Tip: If you are installing SATA drives, be sure to have an extra SATA cable, as not all drives ship with them. It may seem obvious, but if you are replacing a hard drive, first back up any data you want to save. Oh, did we mention the importance of powering down the computer from the OS before you get started? The Hitachi Global Storage Technologies 3.5-inch, 7200 RPM Deskstar 7K1000 hard drive features a 3Gb/s SATA interface and large 32MB data buffer—key requirements for high-performance PCs. The Deskstar 7K1000 hard drive comes in capacities of 750GB and 1TB.

www.hitachigst.com

STEP 8: The Motherboard

Beware the hazards of motherboard installation, for they are plentiful. For starters, read the user's guide before doing anything because you will be dealing with a lot of jumpers that can be easily misinterpreted and end up burning something out. Then there is the issue of installing the I/O shield, which is a devilish—and dangerous—device. The problem here is sharp edges, and as a noble geek once intoned, "I donate blood in almost every machine that I build." As a matter of convenience, look for motherboards that integrate capabilities such as video and audio right on the system board; it will make your life a lot easier unless you are a mega video or audio user. That way you don't have to reconfigure everything, plus you can save slots for FireWire cards or whatever else tickles your fancy. And remember, for neatness and better airflow, bind and store those loose cables in the side panel behind the motherboard. The P35A-S motherboard from Foxconn features the Intel Core 2 Extreme/Core 2 Quad/Core 2 Duo Support, 1333/1066/800MHz FSB and Dual Channel DDR2 1066/800/667MHz memory, 8 gig max. It is also Windows Vista Premium Certified.

$110 www.foxconnchannel.com/product/Motherboards/



Multi-colored connectors on the Foxconn P35A-S motherboard make installation a breeze.

STEP 9: GPU

The graphics card is the kind of thing some people like to splurge on. They simply need their own dedicated graphics engines with the most advanced features. With XFX graphics cards, those features include active or passive cooling, HDCP support and HDMI output. There are positive aspects to both heatsink (passive) cooling and fansink (active) cooling for graphics cards. The main benefit of a heatsink is that it's silent, and the ideal choice for a home theater PC system. There is no fan running and it does a great job of keeping the graphics chip cool. In the unique XFX 8600 GT Fatallty Series, specially designed aluminum fins and piping disperse the heat away. A fansink provides better temperature consistency, especially in smaller computer cases, where the fan will promote air circulation and additional ventilation. Other important features available on select XFX models include HDCP support for digitally protected media and HDMI outputs to connect to home theater components.

$149.99-$179.99 **www.xfxforce.com**

XFX graphic cards are available with active or passive cooling, HDCP support and HDMI output.

Bionic Hearing: Auzen X-Fi Prelude revitalizes audio, transforms music and reveals your enemies.

STEP 10: Sound Card

In case you hadn't heard, audio matters. Your music is digital, your games have a 3-D soundscape, and who doesn't download the occasional movie? Maybe you voice edit for podcasts or record your own garage band. The right soundcard will make—or break—your system. Here's what to look for: First, do you have an available slot of the type required by the card? Second, will the card communicate with your computer? The three leading sound card standards are SoundBlaster, General MIDI and Microsoft Windows. Third, does the card support 3-D audio technologies? For movie surround sound, think Dolby Digital Live and DTS Interactive. For effects and 3-D audio in games, think Creative's EAX 5.0. Finally, does the software allow you to customize your audio? The Auzen X-Fi Prelude 7.1 from Auzentech Inc. uses a PCI slot, supports EAX 5.0, has exceptional recording and expandability capabilities, and boasts a full suite of drivers customized by Creative for Auzentech. Support for Dolby Digital Live real-time encoding for Vista scheduled for Q4 of this year.

$199 **www.auzentech.com/site/products/x-fi_prelude.php**

STEP 11: Connecting Cables

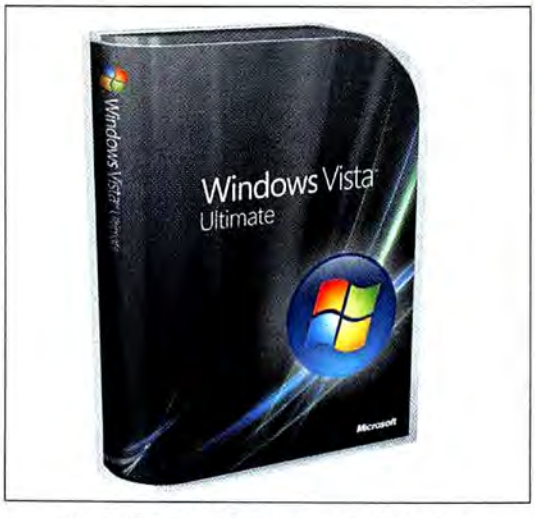
Data cables and front panel connectors are not the sexiest technology tools out there, but they are the lifeblood—or at least the arteries—of any PC, whether it is built at home or bought from a retail outlet. Typically, the case's power, reset, hard disk activity light and power indicator LED all connect to the motherboard's front panel headers. Your manual will tell you which header is positive and which is negative. Making these connections is no simple matter, and it is strongly suggested that you closely read the diagram for placement of the front panel power and LED connectors. When comparing the connectors with the diagram, it's easy to get confused and not orient the diagram correctly, which is in the same direction as the pinheader on the motherboard.

STEP 12: UPS Systems

Depending on their need to protect data, PC users are typically looking for anywhere between 2 to 30 minutes of battery support in case of a power outage. However, in some areas plagued by frequent outages, users may want several hours of battery backup power. Normally, recreational users such as game players and Internet surfers require the least backup, while home businesses need more. There are several useful features associated with these external systems. Typically, home business desktop PC users will look for UPS systems that have both UPS-supported outlets and some surge-suppression-only outlets for items that don't require battery support. These systems also frequently offer some level of data line protection for services such as DSL. In addition, some models include Ethernet line suppression jacks. The SMART 1000LCD Digital UPS from Tripp Lite offers voltage regulation, surge suppression and long-lasting battery support for personal workstations, home entertainment systems and media centers.

www.tripplite.com/digitalups

Tripp Lite's Digital UPS System shows input voltage, battery capacity, power status & more.



Windows Vista Ultimate - the only choice for your ultimate PC!

STEP 13: OS & Drivers

Windows Vista® Ultimate is the most complete edition of Windows Vista, with the power, security and mobility features you need for work, and the entertainment features you need for fun. It has everything in Windows Vista Home Premium, such as Windows® Media Center, Windows Movie Maker with high-definition support and Windows DVD Maker, plus all of the features in Windows Vista Business, like advanced system backup, Windows Tablet and Touch Technology, Windows Mobility Center and new security and data protection features. Keeping in mind the increased need for security, Windows Vista Ultimate helps automatically safeguard your PC against pop-ups, slow performance and security threats caused by spyware and other unwanted software. Taking it up a level, Windows BitLocker Drive Encryption enables you to encrypt your data on your hard drive so only you have access to your most confidential and valuable information—even if your PC is lost, stolen or decommissioned. Take your PC to a whole new level—Windows Vista Ultimate delivers it all!

windowsvista.com/ultimate

STEP 14: Monitor

Hot tip: You might want to make some choices on these key technologies before installing the OS, because you can't install the OS without them. And there are many choices to consider. Some of the newer USB keyboards with multifunction buttons can be a challenge when implementing certain operating systems. These busybodies have a button to open the browser, while all the function keys have dual or triple purposes. As a result—at least in one instance—you can't get past the OS vendor's 12-page license agreement. Push F8, and nothing happens. Fortunately, there is an elegant solution to this problem: Use a keyboard that doesn't have all those extra buttons. On the monitor side, you want to make sure that the graphics adapter has the right connectors. Windows is pretty good about recognizing monitors and has the courtesy (temerity?) to install its own driver. The AG Neovo E-W22 and E-W19 LCD monitors share such features as widescreen format and 3ms response times, while the E-W22 offers WSXGA+1680x1050 resolution. Other common features include built-in speakers, HDCP to display HP-format video and optical glass protection.

www.neovo-usa.com

Best LCD monitor for PC! AG NEOVO E-W19, E-W22.

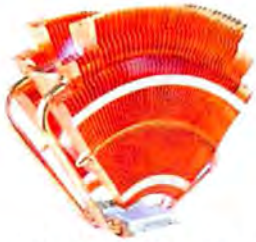
THERMALTAKE TOUGHPOWER 1200W W0133RU

Thermaltake Toughpower

The 1st 1200W power supply in the world, achieved more than 87% of efficiency rating, runs on a 14CM ultra silent fan and modular cable management.

Fry's Outpost.com newegg.com MICRO CENTER

THERMALTAKE V1 CPU COOLER CL-P0401



Thermaltake V1 CPU cooler

Four uniquely designed individual heatpipes for advance heat tranfer throughout the fins plus 11CM high air flow fan to keep the V1 cool more!

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Blue Lite is On!

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HP DVD1040I 20X MULTIFORMAT DVD WRITER

lightScribe

HP dvd1040i 20X Multiformat DVD Writer

The world's first 20X DVD Writer with LightScribe direct disc labeling technology. LightScribe allows you to create disc labels without pens, printers, or sticky labels. Visit LightScribe Label gallery for downloadable design.

www.lightscribe.com/go/now or **www.hp.com**

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M-Audio AV 30 Reference Speaker

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amazon.com **WWW.M-AUDIO.COM** BEST BUY

HITACHI DESKSTAR 7K1000

Hitachi Deskstar 7K1000

The Hitachi Deskstar 7K1000 hard drive is built for high-performance PCs and gaming machines. The 3.5-inch SATA drive features a 32MB data buffer and 1TB of capacity for movies, music and more.

www.hitachigst.com

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Windows Vista Ultimate

Windows Vista® Ultimate - the power, security, and mobility features that you need for work plus the entertainment features that you want for fun. It's the best choice for your ultimate PC!

www.windowsvista.com/ultimate

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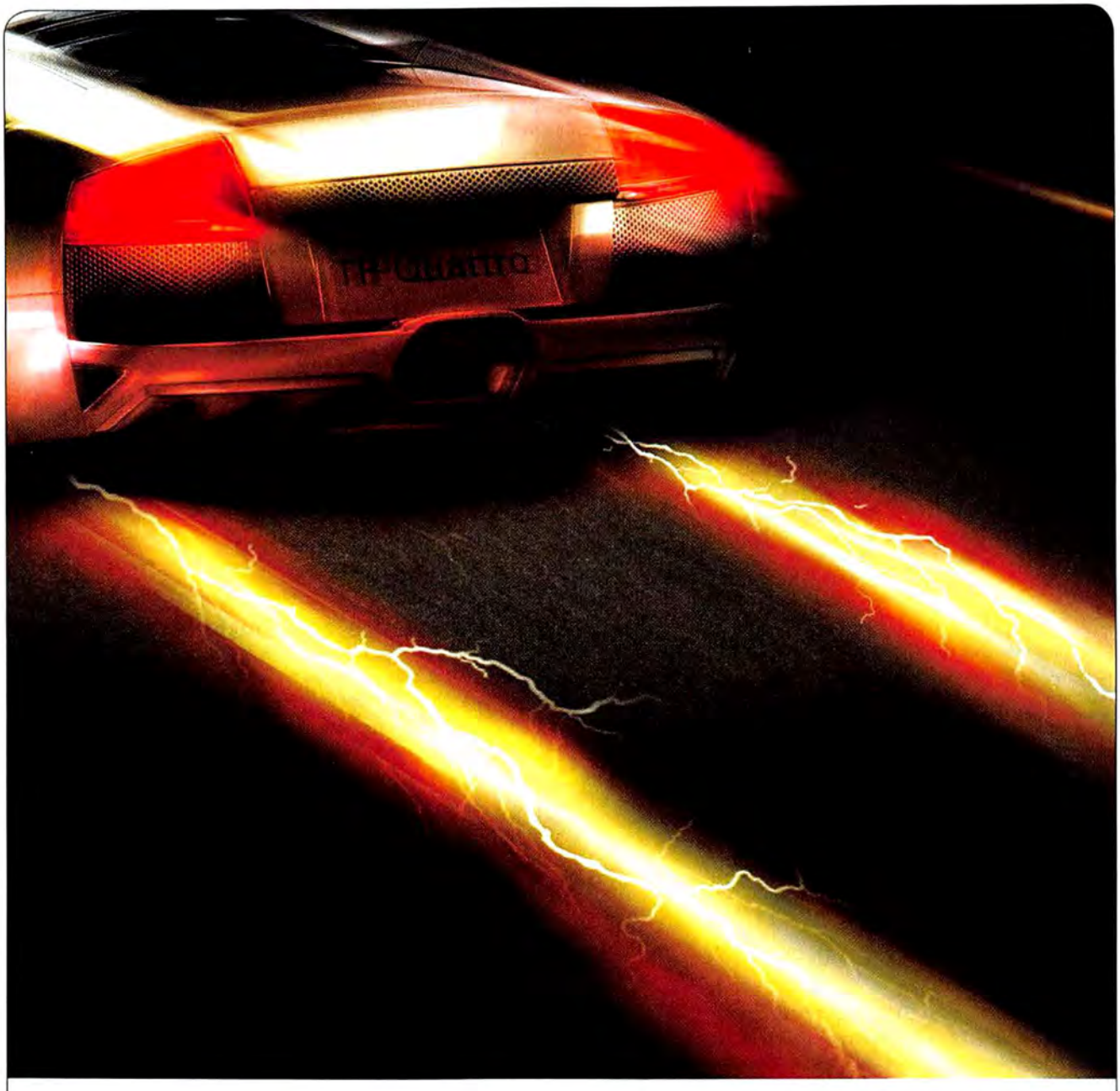
ZALMAN

CNPS9700NT CPU Cooler

The Zalman CNPS9700 CPU Cooler is a high end cooler that provides superior cooling solution, while maintaining Zalman's renowned reputation for ultra quiet fan operation.

WWW.ZALMANUSA.COM



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MENTION CODE: PCWORLD

Here's How

Eight Great, Simple Ways to Hack the Web

BY SCOTT SPANBAUER

New services make it easy to customize the best of the Web's content to your heart's delight, or to meet the needs of your business.

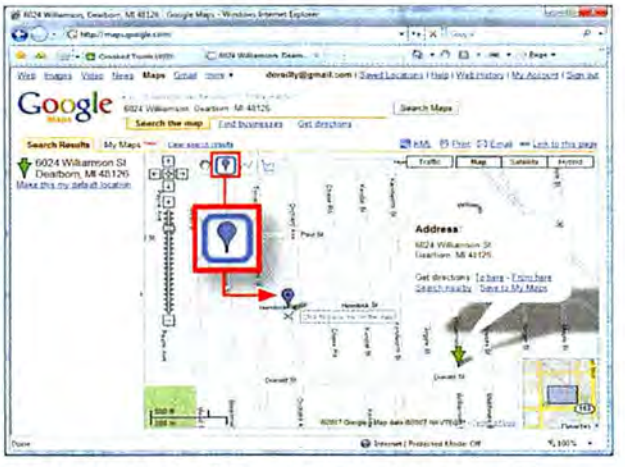
YOU MAY NOT feel the urge to microblog your every thought using Twitter (www.twitter.com), and not every news story that tops the list at Digg.com adds value to your life. Fortunately, there are enough great Web innovations to please everybody. Free services from Google and other companies large and small mix and mash nicely, allowing you to get your business organized, share and synchronize calendars, or create special-purpose maps. You don't even have to know what an API is (I'll tell you anyway) or how to write JavaScript or XML (though you may want to learn). Naturally, Google isn't the only game on the new Web—our favorite mashable services let you create custom news feeds, widgets, and other tools for applications, limited only by your imagination.

Mark Your Map With Google My Maps...

In just minutes you can add maps to your Web site that highlight all of your company's locations, or create a map that shows your favorite roadside diners and cheap gas stations. Google Maps' application programming interface (API) allows anyone to link text and images to any Google Maps location, but you can do the same thing without writing code or knowing anything about the API. Visit Google Maps (maps.google.com), select the *My Maps* tab, and click *Create new map*. Navigate to the spot you want to annotate (zoom in if necessary), and click the blue "placemark" button to add a marker (see the image above); drag the marker to set its location. Right-click the marker to change its title or enter a description. To insert a photo, choose *Rich text*, click the *Insert Image* icon on the far right, paste the image's URL into the dialog box, and click *Save*. Choose *Link to this page* at the right of the Google Maps page to copy your map's URL for sharing via e-mail.

...Then Mash It Up With Other Content

Not content to limit your creativity to map markers, Google also lets you easily merge a select number of other people's Google Map mashups—in the form of widget-like maplets—with your custom maps. To add a maplet, click one of the content items listed below your personal maps, such as GasBuddy.com's database of local gas prices, or Panoramio's collection of geolocated photos. Or click *Add content* to choose one of the dozens of other maplets available (see the screen at the top of the next page). By combining maplets with placemarks, you can create and share a map of your favorite locations along a particular route, annotate each with your own photos and text, and include other people's photos too, as well as the cheapest gas along the way, for example. Or you might build a map of your burg that plots your most frequently visited destinations along various transit and bike routes. As Google adds more maplets, this feature will only become more useful.



CUSTOMIZE GOOGLE MAPS by adding descriptive place markers—complete with relevant images—in the locations of your choice.

Create an RSS Feed

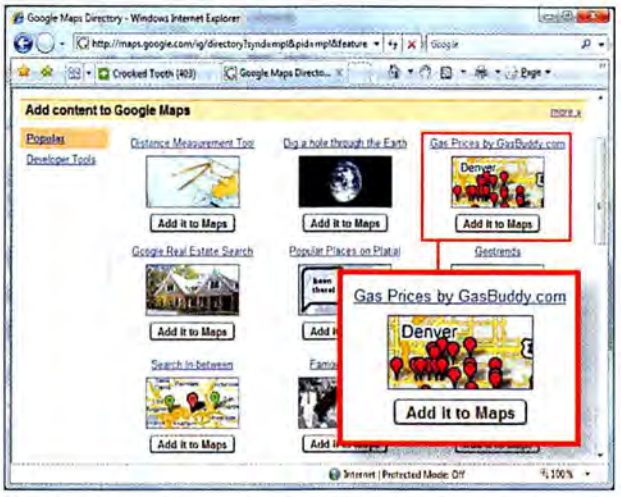
Really Simple Syndication, or RSS, is a great way to get your Web content read. Because nearly all browsers, e-mail programs, Web portals, and search engines support RSS, you can push your site's offerings to readers who are interested in the subjects you cover. An RSS feed is a text file that lists your site's title and individual articles, along with the URLs. For simple sites, you could create this file by hand using a text editor and the RSS 2.0 specification (find.pcworld.com/57939). The RSS Board's Web site provides an RSS playground where you can plug in feed values and

variables to test your feed.

However, it's much easier to use one of the many automatic RSS feed generators that "scrape" your site's HTML tags for likely feed items and generate an XML file. Of the dozens of such services (most of which are free), start with FeedYes (feedyes.com), which not only scrapes sites for feed content automatically but also helps you construct feeds manually. Once your feed is done, check it for errors at feedvalidator.org or use the RSS Board's validator (find.pcworld.com/57940). When it's ready, submit it for syndication with FeedBurner's free service (www.feedburner.com). And while you're at the FeedBurner site, consider letting the Google-owned service monetize your feed via Google's AdSense program.

Filter Feeds Through Yahoo's Pipes

News feeds help you stay current, but they're time-consuming to read. If you're looking for a needle in the RSS haystack, Yahoo's powerful and free Pipes construction set (pipes.yahoo.com) enables you to pour feeds through dozens of prefabricated logic modules that search, modify, or analyze them and then pump the result through other modules and services to output the fine-tuned result. Popular pipes cough up the YouTube videos of the top ten songs on iTunes, deliver Flickr photos related to stories in the *New York Times*, and display the favorite photos of your Flickr contacts.



ADD LOCATIONS OF stations with cheap gas prices, or other premade maplets, to your custom Google maps with just a few mouse clicks.

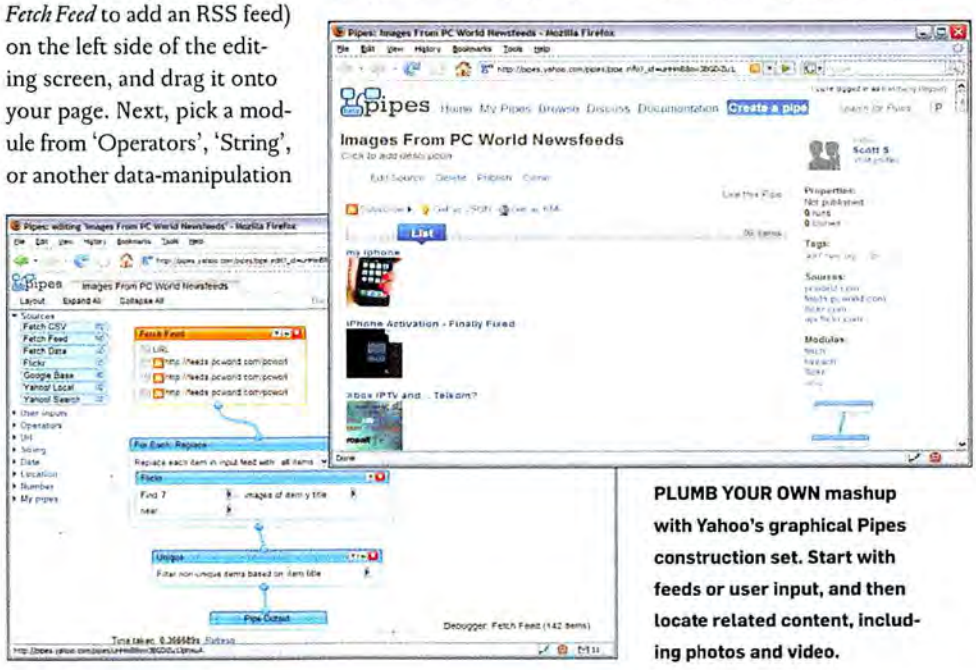
Building your own feed is a drag-and-drop affair. Click the *Documentation* link on the home page to reach a tutorial, online help, and sample pipes that show you how to mix and match modules.

To build a pipe, use your Yahoo ID to sign in at the Pipes home page, and click *Create a pipe* to open the Pipes editor. Select a module from the 'User inputs' or 'Sources' categories (such as *Fetch Feed* to add an RSS feed) on the left side of the editing screen, and drag it onto your page. Next, pick a module from 'Operators', 'String', or another data-manipulation category and drag it onto the page. Enter the necessary filtering information. Next, drag from the "port" on the bottom of the box to connect the output of the first module to the input of the second, and the output of the second to the input of the Pipe Output module at the bottom of the page.

When you're done, click *Save*, and then *Run Pipe* to use your finished pipe. Finally, click *Publish* to share your pipe with the world. Depending on which modules you connected, your pipe might actually do something useful, such as find feeds on an arcane subject, though fine-tuning the output can be a lengthy process. By connecting several PCWorld.com news feeds to the 'For Each: Replace' module (which contains the Flickr source module), I built a pipe that illustrates what many of the products reported on look like, along with some occasionally unexpected results. I even managed to filter out duplicate images by introducing the 'Unique' module (see the screens below). The really ingenious pipes are much more complex, however.

Hitch Your Domain to Google Apps

Owning and operating a Web domain—not to mention setting up the e-mail »



PLUMB YOUR OWN mashup with Yahoo's graphical Pipes construction set. Start with feeds or user input, and then locate related content, including photos and video.

TIRED OF WHITE? Customize your favorite Web sites, such as Google's blinding white page, using the Stylish Firefox extension.

servers, user accounts, and hosting—used to be a pricey affair. Not any longer. If you already own a domain through another registrar, you can use it with Google Apps, which allows you to configure Gmail as the mail server for your domain, as well as to set up subdomains for use with other services, such as Google Docs & Spreadsheets, Calendar, and Page Creator. Browse to www.google.com/a/, click *Get Started*, choose *Sign Up* under Standard Edition, and either enter your existing domain name or purchase an available one for $10 a year through the registrar GoDaddy. Google Apps will then prompt you to create an administrator account for the new domain—and that's it. You'll see your Google Apps Dashboard page, where you create additional user accounts (up to 200) for your coworkers, family members, or other domain denizens, and configure chat, calendar sharing, and document settings, among other options. It doesn't provide everything you need to get your organization online, but it is an excellent (and free) foundation for your group's Web activities.

Sync Your Local Calendar With Google's

Where would I be without my online calendar? My whole life is in there. Unfortunately, I'm often not in front of my computer when an appointment alarm goes off. That's why Google Calendar and its SMS notifications are handy. I also like having my calendar available online so that family and collaborators can check my availability. If you work the same way, you can keep your local and Web calendars synchronized by using one of two tools. If you use Mozilla Thunderbird and its Lightning calendar extension, Provider for Google Calendar lets you create a new calendar in Lightning/Thunderbird that syncs with an existing Google Calendar (find.pcworld.com/57945). Outlook users should try Calgoo Software's $25-per-year Calgoo Apps (find.pcworld.com/57946), which not only allow you to synchronize your Outlook and Google calendars and contacts but also give you access to your Google Calendar offline.

Pimp Your Facebook

Facebook is a handy, general-purpose place to connect with coworkers, neighbors, and friends, but its bio, photo, and messaging features are bare-bones. Fortunately, the service's applications feature allows you to install widget-like programs into your profile that ramp up your ability to link with other Facebookers, and even stay productive while hobnobbing. To browse Facebook's gallery of more than 1500 applications, click *Applications*, and then *Browse More Applications*. Select *For Facebook* at the right to see a more manageable list of categories, and skip the more frivolous ones. Some of my favorites include My Flickr, which displays your Flickr photos; Zoho Online Office, a link to your free Zoho office-suite account; and the My Company's Hiring widget from LinkedIn.

Get Stylish

Bored with the look of your favorite sites? If you use Mozilla's Firefox, you can spice things up, or chill them out, by installing the Stylish extension and downloading predesigned styles for individual sites and the browser itself. To install the extension, choose *Tools•Add-ons•Get extensions*. Search for Stylish at the Firefox Add-ons site. When you find it, click its link, and then the big, green *Install Now* button. Stylish will run the next time you launch Firefox, but it won't do anything until you download and install styles from userstyles.org. You can turn Google's bright white background a cool dark blue (see the picture above), improve Wikipedia's readability, or change the look of Facebook, Gmail, YouTube, and other sites. You'll also find Stylish styles that alter the interfaces of Firefox and Thunderbird.

TOP HACK

Make Your Own Widget

NOTHING SUBSTITUTES FOR programming expertise when it comes to crafting the handy mini-programs that run on your iGoogle page or through Yahoo's Widgets. You'll find excellent XML and JavaScript tutorials online, and in print at your local bookstore. Making a simple Google gadget, however, takes no programming skills at all. Log in to iGoogle and click *Create your own gadget* at the bottom of the page. Pick one of the seven (as we went to press) gadget templates, and click its *Get started* link. After customizing it with online content, text, and other options, click *Create Gadget*. Google adds the gadget to your iGoogle page and offers options for sharing it. The WyaWorks Widget Creator service (www.wyaworks.com) lets you create and share a database widget (think contacts or customer service) that works with iGoogle, Netvibes, and Pageflakes. Yahoo Widget builders can get help with XML widget coding via Harry Whitfield's Widget Maker (find.pcworld.com/57947).

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Fix Mom's PC From Your Home or Office

MY FAMILY, SCATTERED to the four winds, has a dangerous habit of blindly clicking through software installs and downloading all kinds of junk from the Internet. That's why I hear "The PC is acting funny" a lot. Not long ago an effective fix had to wait until my next visit, but now I can repair the damage anytime from my home or office using the free UltraVNC remote control software (find.pcworld.com/58191).

You can install and use UltraVNC in several different ways; in my experience, it's easiest for the person I'm helping if I run the remote viewer on my machine, and then send a simple applet to them via an e-mail attachment that they click to automate the link to my system.

To set up UltraVNC on your PC, install the application and select *Run UltraVNC Viewer (Listen Mode)* on the program's Start menu. If you have a router, you may have to open a port (the UltraVNC's default is 5500) to redirect traffic to your local computer. The method for doing this varies from router to router, so check your device's documentation or the vendor Web site.

Locate Your IP Address

Next, customize the UltraVNC SC (for "single-click") server, which initiates the connection. Go to find.pcworld.com/58193 to download custom.zip (look for the link about a third of the way down). Open the zipped file on your PC, and double-click *helpdesk.txt* to open that file. Replace both IP addresses (192.168.1.102) under the [HOST] headings with the address assigned to you by your ISP. Leave everything but those four numbers unchanged. If you're routerless, visit www.whatismyipaddress.com and note the number shown there.

Most home IP addresses change from log-on to log-on (this arrangement is called dynamic IP addressing). If you need to create a static IP address, visit the free DynDNS service at find.pcworld.com/58194. You must run the service's utility to update its redirect table every time your local IP address changes. Without DynDNS, you'd have to re-edit and recompile the helpdesk.txt file every time you reloaded your Net connection.

Send Them a Panic Button

Save the helpdesk.txt file back to the custom.zip archive. Next, browse to find.pcworld.com/58195, enter **foo** in the Userid field and **foobar** as the password, and click *Browse* to navigate to and select the custom.zip file. Click *Upload*, and in about 5 seconds you'll be told to download the custom.exe file that the remote user must click to connect to your machine. E-mail the custom.exe file (or whatever you rename it) to your family members, or post it on your Web site for them to download. When they follow the simple installation instructions that accompany it, you will see a dialog box on your screen informing you of an incoming connection. Accept it, and their Windows desktop appears in a window on your screen, ready for you to control. UltraVNC is free—but consider donating to help fund enhancements.

—Jon L. Jacobi

ANSWER LINE

How can I install Service Pack 2 on my old Windows XP CD?

Stuart Jordan, via e-mail

YOU NEED TO combine SP2 with your XP system CD to create a new hybrid disc with everything on it—a procedure called "slipstreaming."

Why bother? Well, if your Windows CD is a significantly earlier version than your current installation, you're asking for trouble: Your repair and reinstall options are limited, and you can't create a bootable CD from an original XP CD (go to find.pcworld.com/58219 for information on creating a boot CD using the free BartPE utility).

If your PC came with XP but without a system CD, you might be able to use the i386 folder on your hard drive as a virtual system CD. If your hard drive has more than one i386 folder, look in your C: drive's root folder or inside the C:\Windows folder. It will contain the files expand.exe, regedit.exe, and winnt32.exe.

You'll also need the single-file version of the Windows XP Service Pack 2 update, which you can download at find.pcworld.com/53104.

And you'll need a program to do the streaming. I recommend AutoStreamer (find.pcworld.com/58220); it's free, easy to use, and fast. AutoStreamer's wizard asks whether you want to use a Windows CD or a "share" (your i386 folder). Point it to your Service Pack 2 file, and it will create an image of your new CD with both your original Windows CD and SP2 as an .iso file. Burn a CD from that .iso file with Nero Burning, Easy Media Creator, or another disc-authoring program, such as the free ISO Recorder (find.pcworld.com/58221).

—Lincoln Spector

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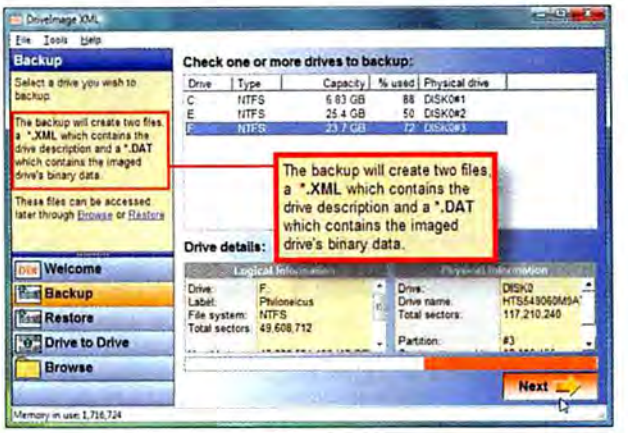
Go to find.pcworld.com/57729

Give Home Premium Vista Ultimate Features

THE NUMEROUS AND confusing differences among Vista versions have led many people to opt for Home Premium ($240, or $160 for an upgrade from XP) rather than the full-featured Ultimate ($399, or $260 for an upgrade). But you can give Home Premium many Ultimate features, often for free.

Make Image Backups

The backup program built into Vista Ultimate lets you make images that exactly duplicate a disk or partition, byte for byte. Through it you can easily restore a failed disk with the operating system, files, and settings running as they did before the crash. You can add this feature to Home Premium by shelling out $50 for Symantec's Norton Save & Restore (find.pcworld.com/58205) or Acronis's True Image (find.pcworld.com/58206); but as Steve Bass points out, you can obtain the Acronis product for only $29 through Gene Barlow's user group (find.pcworld.com/58207). If you have a Seagate or Maxtor hard drive, you can download free versions of DiscWizard (find.pcworld.com/58208) and MaxBlast (find.pcworld.com/58209)—imaging utilities that are based on Acronis True Image. An unpolished-but-free alternative is DriveImage XML from Runtime Software (find.pcworld.com/58210).



THE FREE DRIVEIMAGE XML utility lets you create image backups of drives and partitions, a feature missing from Vista Home Premium.

Shadow-Copy Files

Vista Ultimate's Shadow Copy automatically backs up different versions of the files you save, so you can easily revert to one of them. To get the same protection in Vista Home Premium, look no further than the freeware utility FileHamster from Mogware (find.pcworld.com/58211). Each time you save a file, FileHamster prompts you to add a comment to annotate that version and (optionally) to protect it from deletion.

Build a Virtual Machine

Through Virtual PC (downloadable at find.pcworld.com/58215), you can run other operating systems as if they were applications within Vista Ultimate. This is useful when you need a program that can't run in your current version of Windows, or when you want to browse safely.

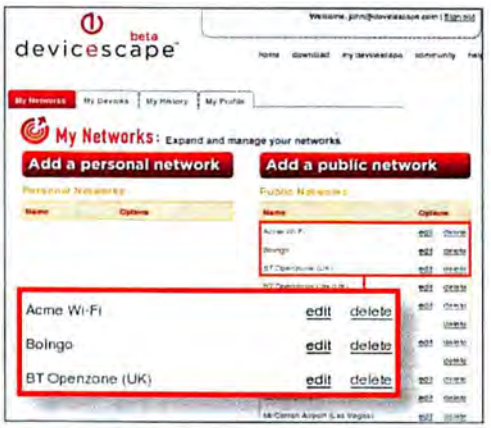
VMware's free VMware Player (find.pcworld.com/58217) brings this feature to Home Premium. After you download and install it, you must go back to the VMware site (find.pcworld.com//58218) to download one or more "virtual appliances" that run in VMware Player (many of which are free). For example, I downloaded "DSL," or Damn Small Linux, complete with desktop utilities.

—Scott Dunn

Wireless Tip: Automate Hotspot Log-Ins

IF YOU HAVE only a couple minutes in line at Starbucks, logging in to the wireless hotspot to check e-mail or make a quick VoIP phone call may not be worth the trouble.

Now you can skip the preliminaries and get connected as soon as you move into hotspot range, just like at home or in the office. Visit Devicescape Software's site (www.devicescape.com), download the free software, and set up an account (see the image below). Add your paid and free hotspot log-in information to the account, and next time you visit a supported hotspot, you'll connect automatically.



LOG IN TO public Wi-Fi hotspots automatically by signing up for Devicescape's free log-in service.

Thus far, Devicescape works only with Windows XP and Vista, Mac OS X, Windows Mobile smart phones and PDAs, Nokia E and N series phones, Nokia N800 and N770 tablets, and the Linksys WIP300 IP phone. With Devicescape, even devices that lack browsers can connect at hotspots, which they previously could not do. Gadgets that Devicescape will support in the future—such as Skype phones, music players, and digital cameras—will have the software built in, eliminating the download and installation.

Among the paid hotspot networks supported are AT&T Wi-Fi, Boingo, FON, iPass, Surf-and-Sip, T-Mobile, and Wayport. These currently require monthly subscriptions to work with Devicescape, but the company expects to offer day-pass log-ins soon.

—Becky Waring

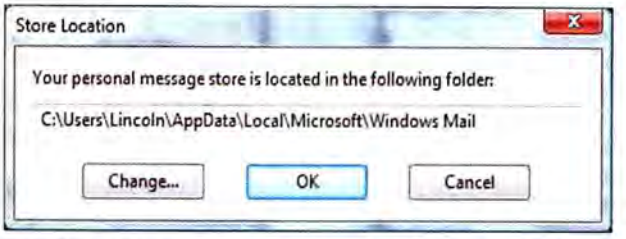
Get Rid of Ghost Messages in Windows Mail

PEOPLE USING VISTA'S Windows Mail program may run into a 'Message could not be displayed' error when they try to open a message in their inbox. What's worse, you may be prevented from moving or deleting some messages—and having phantom messages in your outbox could block other mail from getting out.

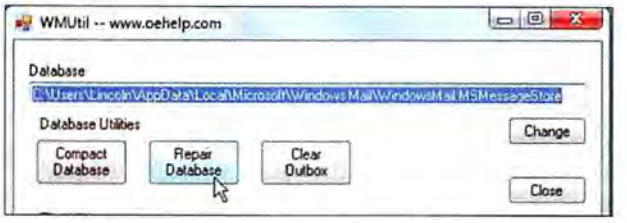
The easiest and safest fix works only in mail folders that you create yourself, not in the standard folders like Inbox and Outbox. Move all of the good messages out of the folder, right-click it with the ghost mail still inside, and select *Delete•Yes*. Instead of deleting the folder, this operation deletes one ghost message. Repeat the steps until all bad entries are gone.

Things get trickier if the ghost message lurks in Inbox, Outbox, or another folder whose Delete option is grayed out. First, back up your Windows Mail directory, which is probably located at C:\Users*yourlogon*\AppData\Local\Microsoft\Windows Mail. (To find the path to this directory in Windows Mail, select *Tools•Options•Advanced•Maintenance•Store folder*). Once you've found the directory, close Windows Mail (very important) and copy (not move—also important) that folder to another location.

After you've backed it all up, download, unzip, and launch the free utility WMUtil (find.pcworld.com/58223). Click *Repair Database•Clean Blank Files*. If you have ghost messages in Outbox, click *Clear Outbox*. Close WMUtil and reopen Windows Mail to see whether the fix worked.



PRIOR TO DELETING phantom messages from folders, find and back up the directory where Windows Mail stores your personal messages.



USE THE FREE WMUtil program's Clean Blank Files and Clear Outbox options before deleting and restoring your e-mail directory.

If it didn't, your next step is to delete your mail directory, but only after backing it up. In the original Windows Mail directory (not the backup), delete the file WindowsMail.MSMessageStore. Then go to Windows Mail's Backup\New subdirectory and delete WindowsMail.MSMessageStore again.

Relaunch Windows Mail and wait about an hour for it to place your messages in subfolders of a new Recovered Messages folder.

To be safe, close and relaunch Windows Mail before you drag your messages and folders back to their original location. You might have to do some significant reorganizing at this stage.

If this repair effort messed things up hopelessly, close Windows Mail, delete the original Windows Mail folder, and move the backup to the original location. Then you might want to consider migrating to an alternative mail program, such as the free Mozilla Thunderbird (find.pcworld.com/58225).

—Lincoln Spector

Create Instant Restore Points

IT'S A ROYAL pain to create a System Restore point in Windows (which you should do before you make changes to your PC's configuration): Choose *Start•All Programs•Accessories•System Tools•System Restore*, select *Create a restore point*, and follow the steps in the wizard to set a restore point. Fortunately, you can accomplish the same thing by double-clicking a simple Visual Basic script file that you create yourself.

To begin, click *Start•All Programs•Accessories•Notepad* to open Windows' text editor, and type the following lines:

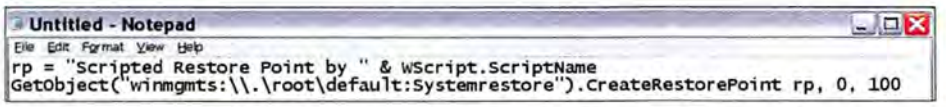
```
rp = "Scripted Restore Point by " & WScript.ScriptName
GetObject("winmgmts:\\.\root\default:Systemrestore").CreateRestorePoint rp, 0, 100
```

Save the file to a convenient location. Name it anything, but be sure to give it the .vbs extension so that Notepad doesn't add its default .txt extension.

In Vista, right-click the desktop (or the Start menu folder from which you'll launch the script), and then choose *New•Shortcut*. Type **wscript.exe**, followed by a space and the path to the new script. Click *Next*, type a name such as **Create Restore Point**, and click *Finish*.

Launch your new script in XP by double-clicking it. In Vista, you have to right-click your new shortcut and select *Run As Administrator*; click *Continue* if prompted to do so by User Account Control.

—Scott Dunn



SET A RESTORE point with a double-click by creating a shortcut containing this Visual Basic script.

Painless Backups to USB Drives

USB THUMB DRIVES make your daily backups cheap and easy to perform. Unfortunately, not all USB drives support automatic backups.

Devices that are labeled "USB Smart Drives" have the required U3 functions, and Lexar's PowerToGo drives have a self-contained operating system that lets you use files and programs on the drive from any USB-equipped PC without leaving any traces on the system when you remove the drive. Most of these drives come with trial or full versions of backup and syncing software, but you can download a free copy of SanDisk's CruzerSync for U3 (find.pcworld.com/57785; follow the download instructions) or try Migo Software's $30 Migo Personal for U3 (free trial at find.pcworld.com/57786).

Select the folders and files that you want to back up by clicking the box next to the folder in the outline tree. Both CruzerSync and Migo back up and sync your Microsoft Outlook and Outlook Express messages and address books, so you can access them on any computer.

You can set any of these programs to create images of and/or sync specified folders automatically when you insert the drive into a USB port. Some Smart Drives also perform automatic backups at set times if the device remains in the USB port.

—Michael S. Lasky

ANSWER LINE

Is it true that you should keep your driver's license number private? Can hackers use that information to steal your identity?

Glenn Huestis, via e-mail

I REMEMBER WHEN people commonly had their driver's license number printed on their checks as a convenience. Those days are long gone: It's no longer safe to share that number.

The chart below lists various private numbers and other data that you should be wary about providing to strangers—on the Web or anywhere else. Revealing such details can put both your identity and your money at risk. Never put this information in an e-mail or instant message, never reveal it over the phone (unless both you and the person on the other end are using cell or landline phones—not VoIP), and never enter it in a form located on an unsecured Web site (look for "https://" to the left of the address to confirm that the page is secure).

Even on a secure site, you should be wary of sharing any of this information. Does the site need the info and have a right to it? Don't enter it at a site that you reached by clicking an e-mail link (for that matter, never click e-mail links; instead, go to the site by typing its correct URL into the address bar and pressing **<Enter>**).

—Lincoln Spector

Almost Never Provide Your...	
Driver's license	Though your state's Department of Motor Vehicles site may require you to enter this information, no other site should.
Social Security number	You can't check your credit rating at the sites of Experian, Equifax, and TransUnion without giving this information. No other site (except that of the Social Security Administration itself) should require it.
Very Infrequently Provide Your...	
Bank account number	Your bank will probably require this number when it sets up your online banking, as will any credit-card accounts you set up with automatic payments from the bank account. After that, no other sites should ask for or need this information.
Passwords	Only a site you're logging in to should ask for a password. Don't share one with any other site. Also, use a different password for each site, and avoid using real words in your passwords. If the resulting smorgasbord of passwords becomes confusing, use a password manager such as Password Safe (find.pcworld.com/58229).
Somewhat More Often (but Cautiously) Provide Your...	
Credit card number	You can't shop online without it, but be careful with sites that you don't know by reputation. If your bank offers temporary or virtual credit card numbers, use them (browse to find.pcworld.com/58269 for more on disposable card numbers). Or keep a separate credit card account for purchases at sites you're not comfortable with.
Mother's maiden name	This information could be used, along with other data, to steal your identity, so be careful. Some Web sites ask for this name to confirm release of your password if you forget it, but we recommend that you use other information, such as your high school or your pet's name, for this purpose, when the site allows you to do so.
Home address	As with credit card numbers, you can't entirely avoid sharing your home address when you're making a purchase, but do so only when necessary; identity thieves find this information quite useful.
Date of birth	If bad guys get hold of this one, you can't change it (no matter how much you might want to). Many sites that ask for your birthdate do so only for marketing purposes, so fudge away. Others ask for it in order to verify your age.

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STEP-BY-STEP

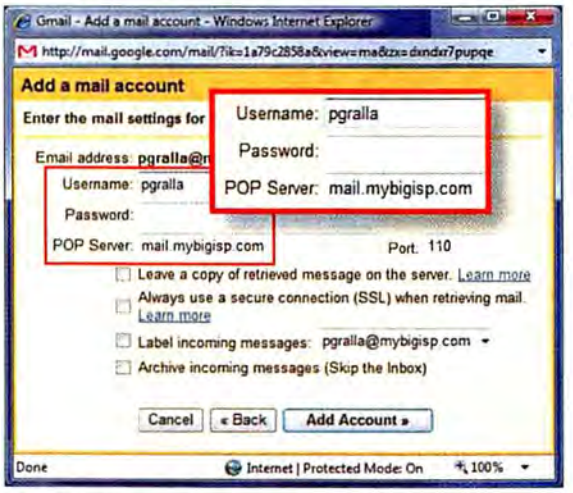
E-Mail Tip: Use Gmail as a Universal Inbox

Combine Gmail and POP3 accounts to use either address interchangeably.

THESE DAYS MOST people have more than one e-mail account. If one of yours is a Gmail account, you can use it as your primary inbox, checking all of your POP3 accounts in your Gmail browser window. Note that you will be able to check other POP3 accounts only; you won't be able to check Windows Live Hotmail, Yahoo Mail, or any other Web mail accounts. And since not all POP3 servers work with Gmail, you may want to consult your ISP on this matter beforehand.

To get started, open your Gmail account and click *Settings•Accounts*. In the 'Get mail from other accounts' section, click *Add another mail account*. Enter the e-mail address of the account you want to add, and click *Next Step*.

Enter your user name, password, and POP server (see the picture below). If you want to continue to access the account through a mail client or through the ISP's own Web interface, in addition to picking up and sending mail in your Gmail account, check *Leave a copy of retrieved message on the server*. This allows you to read the mail in Gmail, but the mail will remain on the ISP's server so that you can download it with your standard mail program or read it through the account's own Web interface. On the other hand, if you plan on accessing the mail for the address only through your Gmail account, leave the box unchecked.



ADD YOUR POP3 account to your Gmail inbox by entering the log-in and server information to this Gmail dialog box.

Next, check *Always use a secure connection (SSL) when retrieving mail* to keep mail snoops at bay. In some instances, a POP3 account may not work with an SSL connection; if that is the case for yours, you will have to leave this box unchecked.

If you want all of your incoming messages from the account to carry a label—such as the name of the account—select *Label incoming messages*. In Gmail, a label works much as a folder does: You can view all mail that carries the same label by clicking the label. Gmail automatically creates a label for the address of the new account. You can select a different label or create a new one by choosing the appropriate entry from the drop-down list. Another option is to have messages bypass your inbox and go straight to your Gmail archive—a good choice if you want to use Gmail primarily for searching through mail. When you've made all your selections, click *Add Account*.

You can compose mail in Gmail and have it appear to the recipient as if it were from the account you just added. When a message appears asking whether you want to create a custom From address, click *Yes* and follow the instructions.

Gmail will check your account, and any mail sent to either address will appear in your Gmail inbox. To stop Gmail from checking the mail, click *Settings•Accounts* and choose *delete* next to the account.

—Preston Gralla

How to Solve Some Bluetooth Pairing Woes

Bluetooth wireless connections are reliable and convenient—once you get them working, that is. Invariably, pairing two Bluetooth devices will require a little troubleshooting. As with any wireless technology, security is a concern, which is why Bluetooth mice, keyboards, headphones, GPS antennas, and other devices require a security pairing code. Though some Bluetooth devices discover a connection without this code, and others let you select your own PIN, typically the access code for your device lies buried somewhere in the manual that accompanied it. If you can't find this code and don't have the four-digit number handy, try inserting one of the two most frequently used default codes: **0000** or **1234**.

—Michael S. Lasky

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STEVE BASS'S HASSLE-FREE PC

A Trouble-Free PC Is Just Four Short Steps Away

Use a safety OS, download security updates, keep your drivers fresh, and—please—back up!

I'VE BEEN FIXING Windows annoyances for more years than I care to remember. Now I'm going to fess up: Dumb, in-a-hurry, and just plain careless users—like me—often bring PC problems upon ourselves. Here's the good news: Four simple tricks can help keep your PC humming despite all your inadvertent efforts to destroy it.

Go Virtual

I try many more free utilities and oddball programs than I should. (I may complain that it's a tough way to earn a living, but I love doing it.) Unfortunately, many of these paragons of the coding art put the kibosh on my system. So I use Microsoft's free Virtual PC 2007 (find.pcworld.com/57927) to run another session of Windows within Windows. The internal session is where I try out programs I'm not sure are keepers.

This second version of Windows (called a virtual machine) loads and looks like any other app; imagine a window with Windows in it. It looks, acts, and crashes (of course) just like Windows. But if something gets hosed in your virtual session, you can just delete and reinstall Virtual PC (it's a file). Getting around the licensing limit of one version of XP on a single PC is easy: I simply uninstall and then reinstall Virtual PC just before its 30-day activation deadline.

Batten the Hatches

A PC armed with the most recent updates for Windows and for your applications is less likely to suffer security breaches and related problems. I use Secunia Software Inspector (find.pcworld.com/57928), a free Web service that scans my PC and examines dozens of programs—including Windows and other Microsoft apps—for updates. It then reports on installed or missing updates, and lets me know where to get them. (Secunia offers a software version of its own for download; see "Free Security Tool Flags Old or Unpatched Apps" on page 56.)

EVEN ON A brand new system, the free Secunia Software Inspector online service found three programs that were in need of updating.

Quick tip: If you have $25 to spare, try TouchStone Software's Driver Agent service (www.driveragent.com). It finds driver updates for your display, system board, and other hardware.

Catch the Backup Habit

I know you've heard this, but the smartest thing you can do is back up every day. Don't roll your eyes. It's not *that* big a deal, and I have a few easy ways you can do it.

The strategy that works for me is to start with a full-image backup, do an incremental backup every day (as well as following any major product installation), and create a new full-image backup once a week.

I use Acronis's $50 True Image (find.pcworld.com/57929) to back up my system's hard drive onto a 400GB Seagate Barracuda internal SATA drive ($112; find.pcworld.com/57937) that slides into a $26 Addonics Snap-In SATA Mobile Rack (find.pcworld.com/57936). Backing up to and restoring from an internal drive is considerably faster than doing the same things with an external USB drive.

Once my full-image backup is in place, I click *Operations• Schedule_Task* to set a time to automatically back up just the files that change afterward. Unless I create lots of big files in a 24-hour period, the incremental backup doesn't take long.

Since I'm a belt-and-suspenders kind of guy, I also do weekly backups to an external USB drive that I store at a neighbor's (go to find.pcworld.com/57933 for the details). Hard-drive expert Jon L. Jacobi prefers to back up all of the PCs on his LAN to a NAS box (find.pcworld.com/57934).●

READER QUESTION

I HAVE 82 $NtUninstall folders in my C:Windows folder. If my system is operating properly and I don't want to uninstall any Windows updates, is it safe to delete these folders?
Brad Loomis, Morro Bay, California

There's a neat way to remove the unnecessary ones. For instructions on manually removing the folders individually, see find.pcworld.com/57931. My method is safer and easier: Grab XP_Remove_Hotfix_Backup (find.pcworld.com/57932), a free tool from Doug Knox. It's the surest way to delete the folders and their Registry entries while retaining essential hotfixes that you may someday need again. For $5, you get a version that lets you selectively remove hotfixes.

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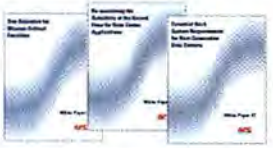

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STEPHEN MANES

'Enough Storage?' Ain't No Such Thing!

That was true when Microsoft told us 640KB of RAM was plenty. And it's just as true today.

"WITH MORE THAN 2,500 megabytes of free storage, you never need to throw messages away," says a Gmail help page. "You never know when you might need to see a message again. So why delete it?"

Well, here's a reason: My personal allotment of that free storage (now officially up to 2877MB) filled to the brim the other day. I discovered this circumstance only when friends and colleagues began phoning to ask why their messages to me were bouncing back to their inboxes.

It's true that, as the target of PR geniuses who think my technology beat includes electric can openers shaped like Homer Simpson, I get plenty of mail. But so do lots of people. In other words, as so often happens in the world of storage, enough isn't enough. And free lunches that at first seem wonderful have a way of souring, bringing to mind that old adage about getting what you pay for.

When I opened my Gmail account at the beginning of 2006, it appeared perfect for what I had in mind, which was to have a simple way of reading e-mail on my Treo phone. The idea seemed genius threefold: I'd avoid wasting the phone's precious storage space, I'd get Gmail's potent spam protection, and I could pull up any message fast when I was on the road.

It took me just 5 minutes to set things up so incoming mail would forward to Gmail from my ISP's server. When I was out and about and forgot which hotel my next meeting was in, I simply logged on to Gmail from the phone's Web browser and searched for a quick answer. Spam? Minimized. Maintenance? Nonexistent. And the mobile version of Gmail didn't even display any ads with the messages.

Everything went swimmingly for months. And then my inbox filled up, forcing me to make some room.

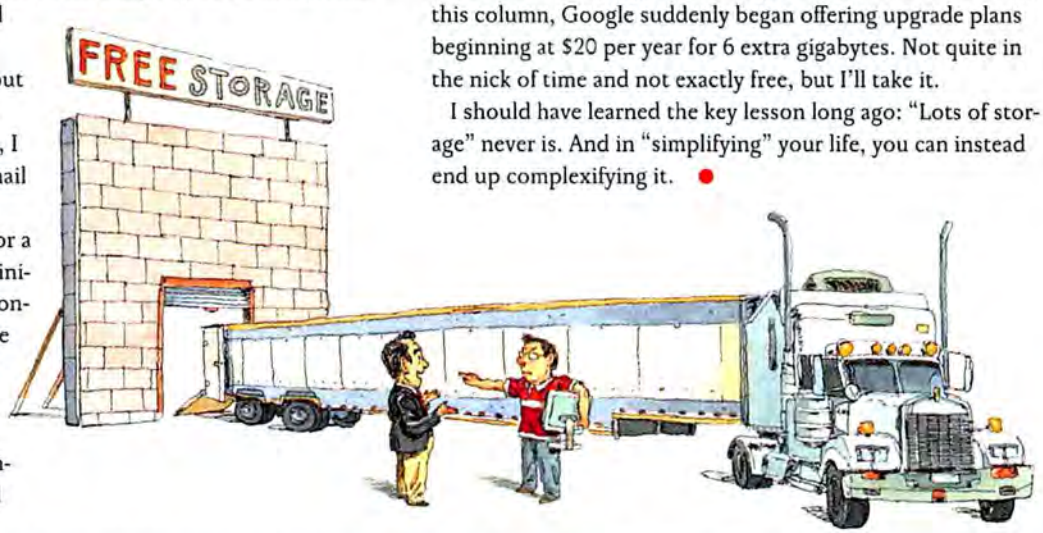
First I whacked spam. Gmail holds 30 days' worth in your Spam folder—in my case maybe 9000 messages—unless you purge the junk manually. Since I couldn't tell Gmail to automatically dump spam at a faster pace, I had to play janitor.

Google periodically increases your storage total, but clearly the junk would come faster than the extra bytes, so I had to jettison some genuine mail to avoid repeated overflow. The easiest way would be to sort the mail by size to whack big image files from flacks who thought I'd be interested in a press release with a 20MB smiling head shot of their client's new stockroom clerk attached.

But unlike all desktop e-mail clients and some Web ones, Gmail doesn't let you sort your messages—just search them. I had to page through the inbox, find correspondents whose messages could safely disappear, search for their names, and then delete what turned up, hoping the search didn't inadvertently snag stuff I really wanted to keep. Gmail's limitations forced me to violate the pristine integrity of the keep-everything model that I endorse and that Google rightly promotes—but doesn't quite permit.

Faced with all this, I considered a switch to Yahoo Mail's "unlimited" storage, but feared that the vague "anti-abuse controls" mentioned on its site might someday take the "un-" out. Besides, all that mail already in Gmail made a powerful argument for staying put. Then I got lucky: As I was finishing this column, Google suddenly began offering upgrade plans beginning at $20 per year for 6 extra gigabytes. Not quite in the nick of time and not exactly free, but I'll take it.

I should have learned the key lesson long ago: "Lots of storage" never is. And in "simplifying" your life, you can instead end up complexifying it. ●



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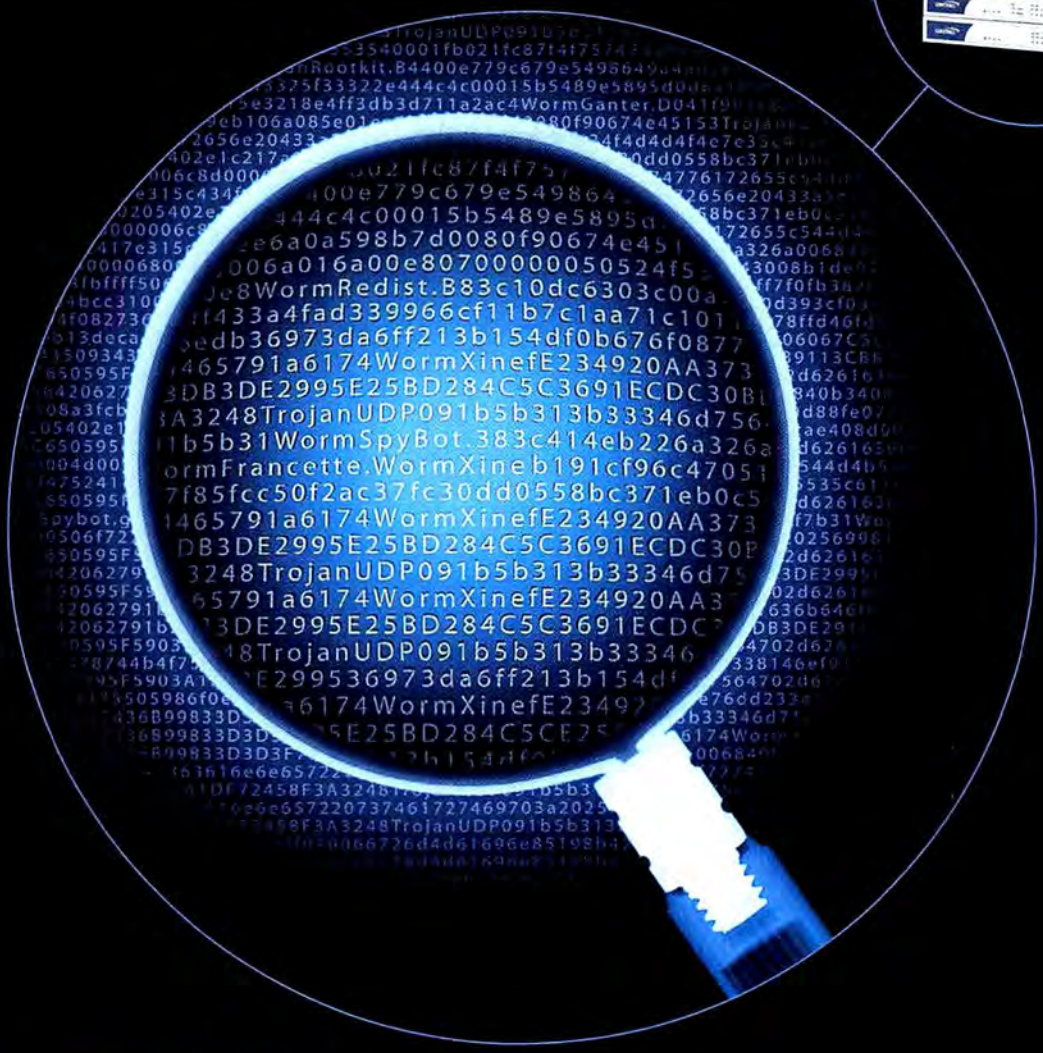

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