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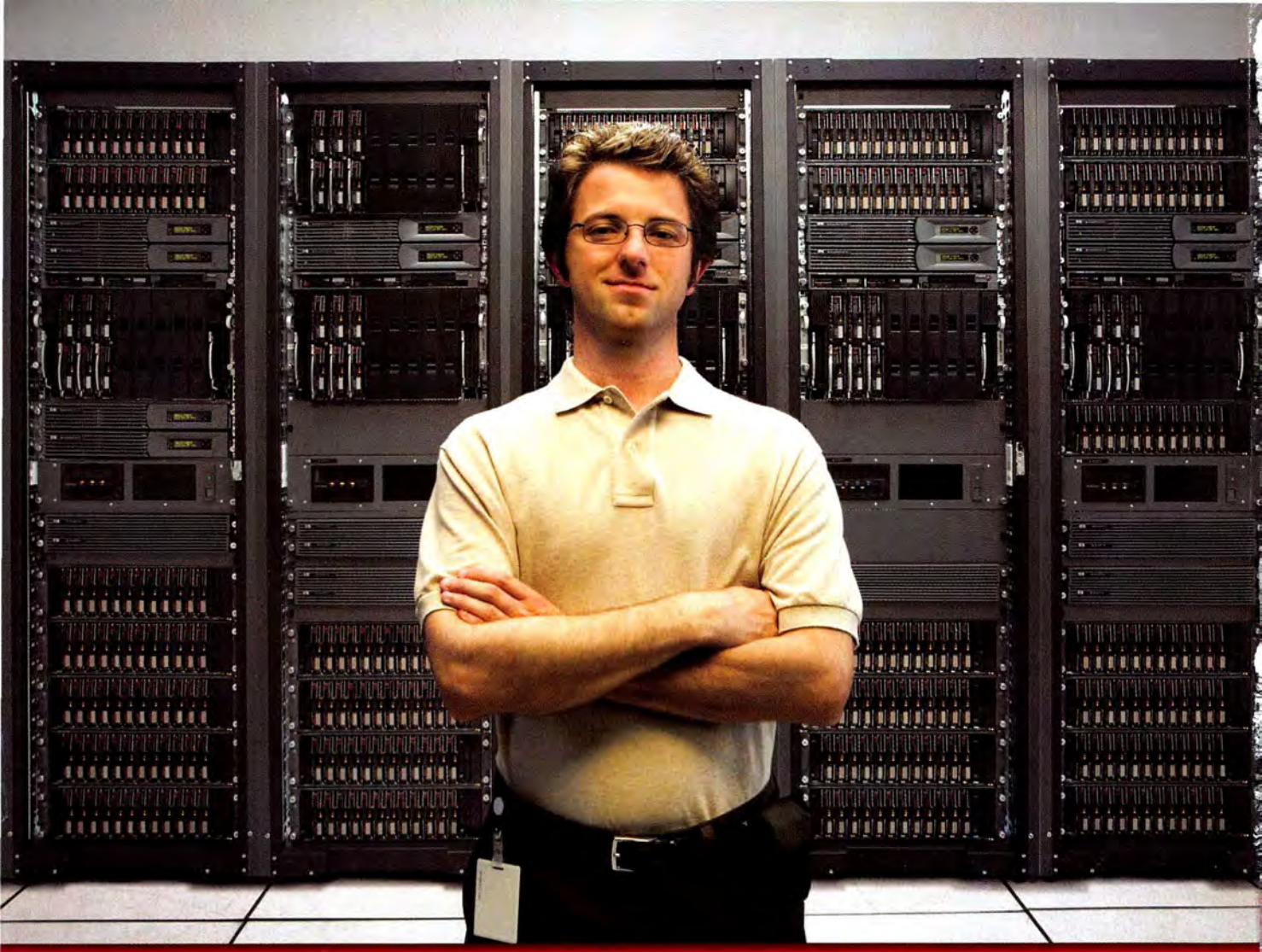
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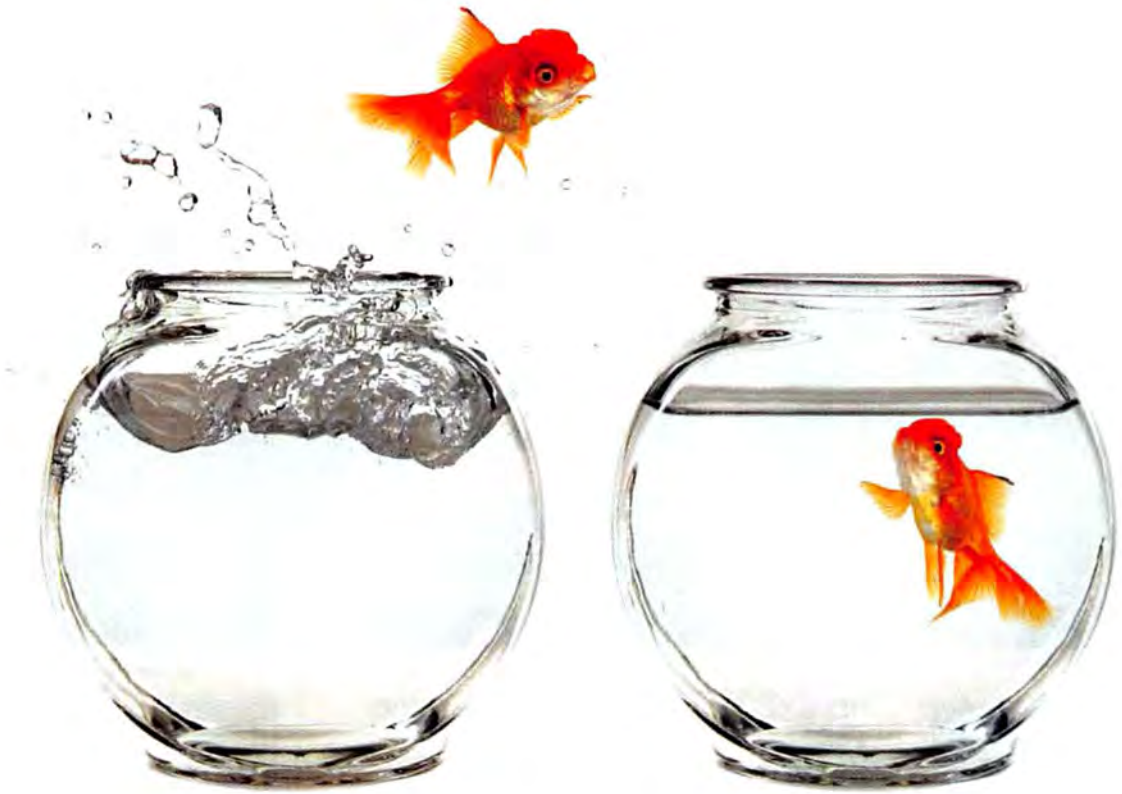


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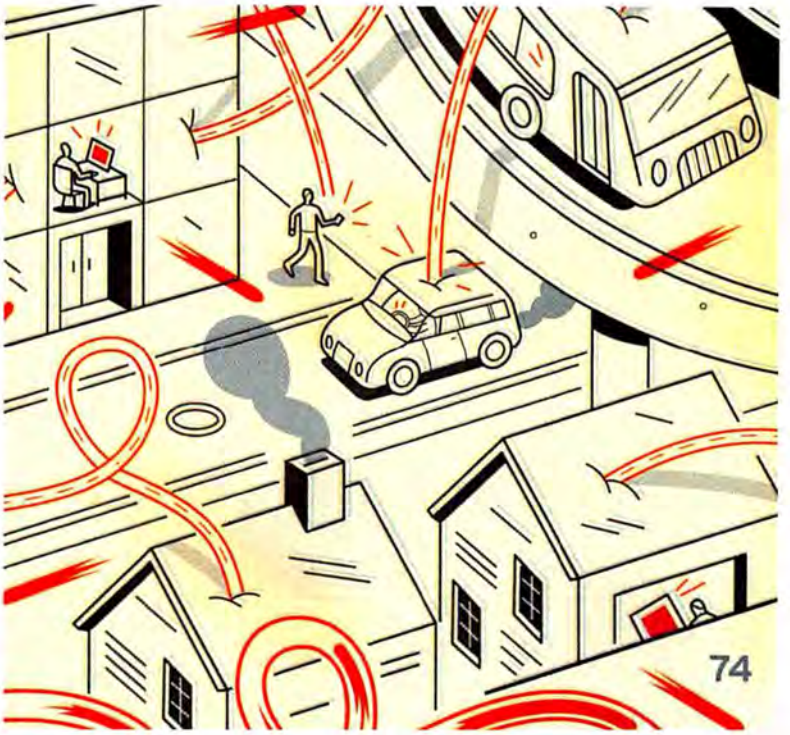
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FEATURES

INTERNET SERVICE PROVIDERS

74 Broadband Expands

Happy with your ISP? More than 6400 readers rated the quality of their cable or DSL service. See which companies came out on top, and learn what you can do to improve your Net experience.

DIGITAL ENTERTAINMENT

92 Entertainment Everywhere

Streaming media players (also known as digital media receivers) let you move multimedia files throughout your home over a wireless or ethernet network. We rank seven devices on their setup, interface, and audio and video quality.

PC MYTHS

115 Technology Truth or Fiction

Using third-party inks voids a printer's warranty. Typing a site's URL protects you from phishers. Macs don't contract malware. Are these claims true? We look at a dozen pieces of received wisdom and separate fact from old geeks' tale.

Cover photo-illustration by Marc Simon.







DEPARTMENTS

15 **Techlog**
31 **Letters**
41 **Consumer Watch**
47 **Hassle-Free PC**
49 **Gadget Freak**
51 **Bugs and Fixes**
142 **Full Disclosure**

NEWS & TRENDS

18 **Is Google Too Big?**
Its expanding array of services may put the privacy of millions of users at risk.
22 **Vista Won't Stop Net Criminals**
Hackers will get around its defenses.
24 **New Services Tame Your Voice Mail**
Voice mail may become less of a pain.
26 **Microsoft's Multitouch Table PC**
Surface has a "natural user interface."
28 **Plugged In**

REVIEWS & RANKINGS

52 **Point-and-Shoot Digital Cameras**
Five models priced at $130 or less.
58 **Top 10 Laptops**
62 **Operating System**
Ubuntu Linux 7.04
64 **High-Definition Camcorders**
66 **Top 10 Inkjet Multifunction Printers**

See page 52 for a full list of products reviewed.

HERE'S HOW

120 **Hardware Tips**
Overclock your PC for extra speed.
124 **Windows Tips**
Optimize Windows' virtual memory.
126 **Internet Tips**
Customize a Web portal of your own.
128 **Answer Line**
Protect your data with restore points.
130 **HDTV Tips**
Fine-tune the settings on your HDTV.

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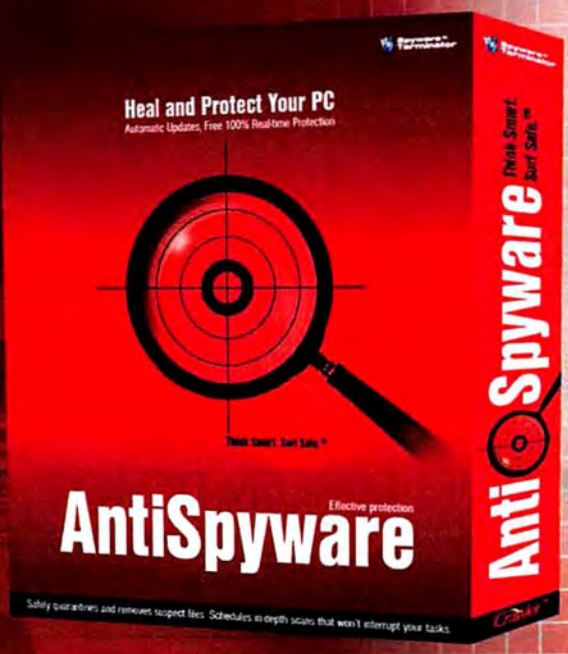
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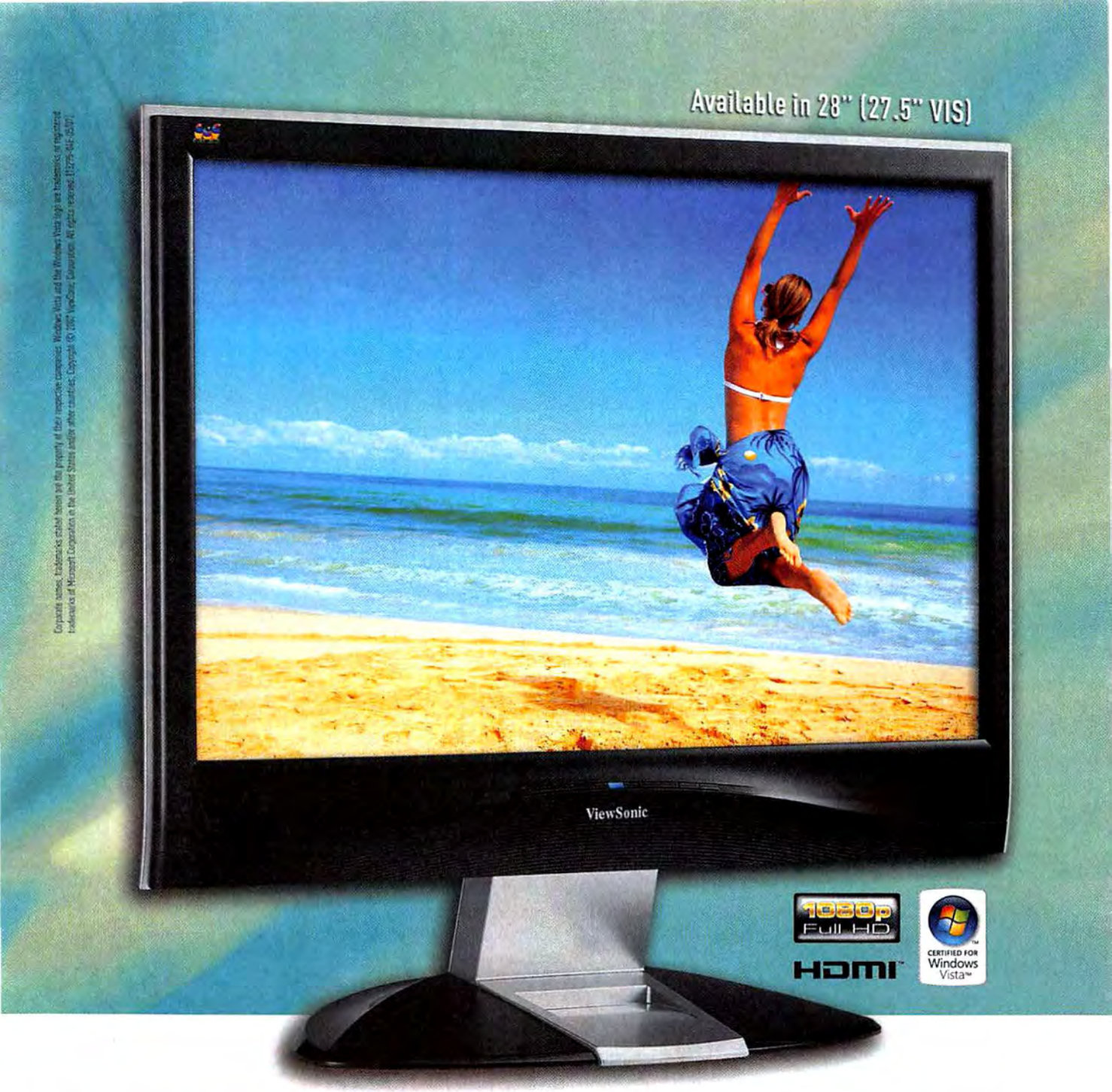
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TECHLOG

HARRY McCRACKEN

The Second Golden Age of Software

Today's coolest apps live online. And some even work when you're disconnected.

IF YOU CAN judge a technological epoch by old issues of *PC World*—and I like to think you can—the early 1990s were a pulse-pounding time for desktop software. Rifling through the vintage copies on my bookshelf, I'm struck by how many articles spotlight productivity apps. We did a breathless cover story on 1-2-3 for Windows (which we called "The World's Easiest Upgrade"), for instance. Ditto for Excel 4.0 ("The First Smart Spreadsheet") and Quattro Pro ("The Ultimate 3-D Spreadsheet").

Then software got predictable. Microsoft Office blew away whole categories where competition once thrived. Major applications went through so many upgrades that they eventually added all the features you wanted—and then larded themselves up with ones you didn't. Also, at bottom, many programs remained beasts of the disconnected era that predated the Web.

In 2007, though, software is back, bristling with a creativity and competitiveness reminiscent of the old days. I'm happily gorging on innovative apps that have one thing in common: They are really services that live on the Net, not programs that sit on my hard drive. (Actually, they have another thing in common: They're all free.)

The obvious virtue of Web services is how they let you get to their tools and to your documents from any PC. But the best of them bring fresh thinking to every aspect of productivity.

Lately, for instance, I've been wrangling projects in Remember the Milk (www.rmilk.com), a task manager with a near-perfect balance of simplicity and power. Its Tags are much more efficient than Outlook's clunky Categories; the whole service is available in a mobile version that works on my Treo, no syncing required.

RTM isn't the only Web app capable of doing smart things that old-line desktop rivals can't. The photo editor known as Picnik (www.picnik.com), for example, is nowhere near as fancy as Adobe's Photoshop Elements 5.0. But it can talk to the Flickr photo-sharing site seamlessly, letting you store photos in Flickr and tweak them in Picnik. And a third app, Zoho Notebook (notebook.zoho.com), outdoes Microsoft OneNote with better features for sharing and publishing brainstorms.



THREE INNOVATIVE WEB applications: (top) Remember the Milk, a task manager; (center) Picnik, a photo editor; and Zoho Notebook, an online collaboration program.

Until recently, though, even the best Web services had a doozy of an Achilles' heel: They depended on the Net to function. That put them completely out of commission if you were on a plane—or if your connection or that of the service purveyor was on the fritz.

Which is why several companies are developing technologies that let providers make online services function offline. As I write this, Google's Gears browser add-on is a week old, and the clever Australians at Remember the Milk have already used it to let you manage tasks when you're disconnected. Yanking out my ethernet cable and confirming that RTM still worked was a huge "aha!" moment.

Oh, and consider this: The RTM team consists of two people (and, the service's site says, one stuffed monkey). I don't know how many programmers Microsoft has working on Outlook, but it's a heck of a lot more than that. And with Outlook 2007 only months old, it may be years before there's a big upgrade.

In other words, a couple of enterprising folks have built a better, faster-evolving solution than the world's largest software company has. That's still more evidence that this is an amazing time for software—and for those of us who depend on it to get stuff done at work, at home, and everywhere in between. ■

Harry McCracken is editor in chief of PC World. *Read his blog at blogs.pcworld.com/techlog.*

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NEWS & TRENDS

EDITED BY EDWARD N. ALBRO

INSIDE

20 THE MANY BRANCHES OF GOOGLE'S KINGDOM
22 HOW INTERNET THIEVES WILL ATTACK VISTA
24 NEW SERVICES HELP YOU MANAGE VOICE MAIL
26 MICROSOFT'S MULTITOUCH SMART TABLE
28 PLUGGED IN: AMD BETS ON THE PHENOM

Is Google Too Big?

WITH ITS EMPIRE EXPANDING, THE SEARCH GIANT CAN HAVE AN UNPRECEDENTED BREADTH OF KNOWLEDGE ABOUT YOU. CAN WE TRUST IT WITH SO MUCH DATA? BY SCOTT SPANBAUER

FROM SEARCH TO e-mail, from calendars to spreadsheets and text documents, more and more of what PC users read and create flows through one firm: Google.

Google's pending purchase of online advertising giant DoubleClick (the deal awaited Federal Trade Commission approval as we went to press) will give it access to yet more information: the Web browsing histories collected by millions of DoubleClick cookies. Combine that data with what Google already knows through its homegrown services—Google Apps, Gmail, Google Calendar, Google Maps, Google Desktop, and many others—and the company has the potential to know more about you than any one entity ever has. (See the chart, "What Google Knows About You," on page 20.) The question is, can you trust Google with all that information about you? And even if you trust Google, what about other groups that may try to access all that information—government agencies, hackers, and rival businesses, to name a few? Privacy and security experts say that the risk is significant, even if Google sticks to its famous "Don't Be Evil" motto.



According to Harvard Business School assistant professor and researcher Ben Edelman, companies face many risks when they use online software services such as Google's, namely loss of privacy, lack of physical data security, and lack of control over data retention. Who can access your Google-hosted data, and when, and under what circumstances? Google itself has full access to your files, which are unencrypted. In fact, searching and indexing stored data are essential if Google is to continue serving its contextual advertising.

DOUBLECLICK DEAL

SHOULD GOOGLE RECEIVE approval for its acquisition of DoubleClick, it could become the single largest custodian of Internet user search and browsing histories, with few legal restrictions on using that data or sharing it with third

ILLUSTRATION: JOE ZEFF

parties. The Electronic Privacy Information Center filed a complaint with the FTC, which must approve the deal, asking it to investigate the ability of Google to record and profile the activities of Internet users, whether they are personally identifiable or not (find.pcworld.com/57487).

The FTC appears to be taking the matter seriously, requesting additional information from both Google and DoubleClick. The European Union's privacy agency and the New York State Consumer Protection Board are also concerned about the purchase's effect on browsing privacy.

A Google FAQ page, however, insists that the acquisition, far from endangering privacy, will improve it, and that the company remains committed to respecting users' privacy preferences (see the FAQ at find.pcworld.com/57485).

Another danger in switching to hosted services like Google Docs and Spreadsheets and Google Calendar is that of losing access to your data. What happens when the office DSL connection goes down? And how would you make last-minute changes to, say, a critical spreadsheet while you're flying coast-to-coast? The recent launch of Google Gears (find.pcworld.com/57479), which will let you use online apps from Google and other companies without an Internet connection, promises to overcome this limitation, but the service likely won't become widely available for several months. Until then, your data is off limits when you're offline.

"You're accepting dramatically increased [file management] complexity—maybe for good reason—in order to get the benefit of having Google engineers keep everything running for you," observes Edelman. He says that businesses need to consider not only the benefits of outsourcing server management but also the drawbacks of having to keep local versions of documents synchronized with the Google-hosted versions.

Despite the uncertainty of Google's plans for your personal data, the company itself is probably the least of your worries. Instead, warns Edelman, hackers or your business's competitors could try to infiltrate your Google accounts via forged documents or other illegal methods.

> 'You lose both factual and legal control over your documents if you use an online service like Google.'

WARRANT SEARCH

THE GOVERNMENT, TOO, might like to see what's in your Gmail inbox and your Docs and Spreadsheets files, including when you created, accessed, or deleted the data. Since you identify yourself whenever you sign in to your account, Google could use logs for the originating IP address of account activity, combined with ISP logs, to help confirm that it really was you who updated that spreadsheet or wrote that e-mail.

Google must comply with search warrants and subpoenas in civil or criminal cases that target your data, just as you would if you stored your data on your own servers. The difference, however, is that Google has no obligation to inform you that it has received such a warrant and has turned over your files to the authorities. "You lose both factual and legal control over your documents if you use an online service like Google," says former Department of Justice computer crime unit head Mark Rasch, current managing director of technology for forensic consulting firm FTI in Washington, D.C.

"Google Apps makes [the situation] even worse," Rasch adds, explaining: "This is not just communications, it's all my documents and spreadsheets that are subject to subpoena, search warrant, or civil discovery. The hard part is that Google is under no legal obligation to notify me, and in particular kinds of investigations, they're going to be prohibited from notifying me."

Being left in the dark about these types of searches can also result in serious liabilities should your files contain sensitive client data and communications. "Let's say I'm a lawyer, and I've got privileged information that I store using a Gmail account," Rasch continues. "The government seizes that Gmail account and reads my files. Under the law, I must assert the attorney-client privilege, or I have waived it," he explains.

In short, if Google chooses not to inform you of such ▶

IN BRIEF

Product Pipeline

A WINDOWS SAFARI: With Firefox, Opera, Internet Explorer, and IE skins such as Maxthon, it's not as if Windows users have been starved for browser options. Nevertheless, Steve Jobs announced at Apple's June Worldwide Developers Conference that Safari, OS X's native browser, will now be available for Windows systems. "Safari is the fastest browser on Windows," Jobs claimed, citing the results of Apple-conducted iBench speed tests. The public beta of Safari is available at find.pcworld.com/57521.



SMART PHONE'S PAL: Palm's Foleo, due this summer, is a small laptop that's tied to your cell phone. Running on Linux, it starts up and shuts down instantly, according to Palm CEO Jeff Hawkins. Using Bluetooth, the Foleo will piggyback on your smart phone's data connection. (It can also access Wi-Fi hotspots.) The device ($599 with a $100 rebate) won't run all your Windows apps, but it should offer a fuller interface for common cell phone tasks, such as answering e-mail, browsing the Web, and working with documents via Documents to Go.

searches, you have waived that privilege. Only strong encryption—a technology Google currently does not support—offers real privacy protection for documents kept online, according to Rasch.

Harvard's Edelman recommends using Google services just for specific business documents in which collaboration among geographically dispersed teams is unusually important. "I wouldn't move my whole business onto Google Apps," he counsels.

Google Apps and similar Web services certainly have appeal for many small and medium-size businesses. When San Francisco's SFBay Pediatrics, a midsize practice, went looking for an interoffice communications, scheduling, and calendaring system, CIO Andrew Johnson considered "a slew" of products, including Microsoft Exchange and other systems that he would have to install and maintain in-house. He selected Google Apps Premier Edition (the ad-free commercial version of Google Apps) because of Google's good reputation and his staff's familiarity with Gmail. Also, the Google services free the practice from setting up a significant IT structure. "We don't want to spend the time tracking down server issues, maintaining servers, and paying up-front costs," Johnson says.

So far, SFBay has had a positive experience with Google Apps, which it uses for such tools as a shared phone-call log that receptionists, nurses, and physicians can view and update. Though core features are still being rolled out, Johnson has configured SFBay's Google Apps account to comply with the privacy rules of the Department of Health and Human Services's Health Insurance Portability and Accountability (HIPAA) regulations. "We're taking it in little baby steps," Johnson adds.

> 'You've got to try to keep other people from doing evil with your magic. And that's a harder step to take.'

PRIVACY

WHAT GOOGLE KNOWS ABOUT YOU

RELYING ON GOOGLE'S free services can boost your productivity, but they may also put your privacy on the line, your business at risk, and your data out of reach.

SERVICE	Risks
Google Search	**Privacy:** Tying your search history to your browsing activities via the DoubleClick advertising network gives the company a much more detailed view of your online activities.
Gmail	**Privacy:** The routing information and content of your mail—including any attachments—reside unencrypted on Google servers. **Legal liability:** Loss of, or unauthorized access to, business correspondence increases your company's legal exposure.
Google Docs and Spreadsheets	**Privacy:** Your files are stored unencrypted on Google servers. **Legal liability:** A business could be found negligent if it loses, or allows unauthorized access to, business documents. **Loss of access:** Until applications supporting Google Gears arrive, you lose access to your files when your Internet connection fails.
Picasa Web Albums	**Privacy:** Photographs in albums designated "unlisted" can still be viewed by anyone who knows the URL. **Loss of access:** At present you have no option to view or back up your albums offline.
Google Calendar	**Privacy:** Your daily schedule and associated information reside unencrypted on Google servers. **Legal liability:** Loss of, or unauthorized access to, business information puts your company at risk. **Loss of access:** You can't open your calendar without an Internet link, although this will change with the arrival of the Google Gears browser extension.
Google Desktop	**Privacy:** If you neglect to lock the search function, anyone using your PC has access to your personal files. **Legal liability:** Copies of business documents may be stored on Google servers, making them susceptible to loss or unauthorized access.
Google Talk	**Privacy:** Instant-message logs can be archived and searched in Gmail.
Google Product Search	**Privacy:** A log of your product searches could be associated with your browsing history via the pending DoubleClick acquisition.

SECRET LIFE OF FILES

GOOGLE'S ONLINE TROVE of sensitive personal and business data is proving attractive to law enforcement agencies, a fact not lost on the company: Last year it successfully warded off a Department of Justice subpoena demanding millions of search queries. (This request, the company countered, was excessive and an invasion of user privacy.)

The search giant also recently announced that it would begin deleting IP address information—which can be used to identify users—from its logs after 18 months. However, these steps may not be enough to reassure the most security-conscious users of Google applications.

"Even if you trust the service to do the right thing with the data, which I tend to do in the case of Google," says Lauren Weinstein, cofounder of People for Internet Responsibility, "it doesn't mean that someone won't come along and make demands for access to that data that wouldn't occur if the data was on your own machine."

Weinstein worries that if companies such as Google don't take a stronger role in protecting user privacy, less-savvy groups, including legislators, judges, and federal government agencies, may feel obliged to step in with solutions that could hamper all online services. "Not being evil is good, but it's not good enough," Weinstein says.

"What you really need to do is not only not be evil, but you've got to try to keep other people from doing evil with your magic. And that's a harder step to take."

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SECURITY

Net Criminals Will Evade Vista's Defenses

THE NEW VERSION OF WINDOWS IS MORE SECURE, BUT IT WON'T END WEB ATTACKS.

WINDOWS VISTA PROMISES better security—and Microsoft has indeed built stronger protections into its newest OS. But the thriving throngs of online criminals already have plans to keep their malware alive and kicking.

Some malware can already do its nefarious work under Vista, owing partly to Microsoft's efforts to let legacy XP programs run on Vista. Vlad Gorelik, chief technology officer of Sana Security, says that out of a few hundred malware samples his company regularly works with on XP, about 30 percent ran under Vista without any modifications. Other nasties will need only minor changes, say security experts. Fake alerts asking to confirm Windows activation (as pictured) or seeking credit card or bank details, and other familiar social-engineering tricks, will become more sophisticated and more common so as to evade Vista's defenses. And you'll see more Web-based threats that can steal data passing through any browser.



A RECENT ATTACK used a convincing Windows Activation pop-up to trick users into giving sensitive data. Expect more of such tactics.

Vista does make it harder for malicious software to surreptitiously install itself on your computer. Where malware might be blocked by Vista's User Access Control, for instance, you can expect social engineering to play an ever greater role, say Gorelik and Joe Stewart, a senior security researcher with SecureWorks. UAC tries to limit malware's reach by denying it automatic permission to alter important system files. If a user or a program attempts to make such changes, a pop-up that requires the user to approve the action appears.

Problem is, malware writers know that if they can get a user to click 'OK' just once, they can circumvent UAC. Gorelik is surprised he hasn't yet seen attack programs that force a UAC prompt in order to run amok on your PC, counting on users' having become accustomed to brushing past the pop-ups.

Stewart agrees that UAC won't be much of a barrier, because people "have to make the right decision about what they're going to run every time. It just takes one thing to get through and disable UAC."

Worse, UAC allows only two options for installation—to block a program entirely or to give it free rein on your computer—which many experts consider a design flaw. So if hackers can trick you into performing the installation, either with a convincing pop-up or by burying their malware in screen savers or other normally benign downloads, for example, they can set up shop on your system—and UAC no longer matters.

BROWSER THREATS

SECURITY EXPERTS ALSO warn that you can expect to see more Web-based threats that work despite Vista's Protected Mode for Internet Explorer 7. Protected Mode is a smart approach that limits the ability of IE—or an exploit that takes over the browser—to expand into the rest of the operating system, even beyond the limitations that UAC imposes. But many Web-based attacks can work even in Protected Mode, using malicious JavaScript to try to steal data from online accounts (as in a recent fake auction that started on eBay but sent people to a phishing site). These attacks don't need to access system files—they just need to steal the data that passes through the browser.

Such attacks are both more limited and more powerful than malware that installs a file on a computer because they can hit a range of browsers and OSs, but disappear when you close your browser.

—Erik Larkin

SECURITY TIPS

3 WAYS TO PROTECT YOURSELF

1. Stay sharp to counter social engineering. More than ever, you should distrust any unexpected e-mail attachment, even if it appears to come from someone you know. The same goes for e-mail links—always use a bookmark or type in the URL to access your accounts.

2. Use a strong, unique password for each important site. Multiple passwords reduce the risk of giving thieves easy access to all your accounts and services. And excellent free tools such as Stanford's Password Hash (find.pcworld.com/57417) can take care of remembering them all for you.

3. Test downloaded programs you're unsure of. Upload the suspect file (if it's 10MB or less) to Virustotal.com, which scans submissions using multiple antivirus engines to catch malware that any one antivirus app may miss.

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Phone Services Tame Voice Mail

YOU HAVE NEW WAYS TO HEAR—OR READ—THE MESSAGES THAT MATTER AND SKIP THOSE THAT DON'T.

TIRED OF WADING through 5 minutes' worth of voice mail to hear a vital message from your boss? A gaggle of new services, including GotVoice, SimulScribe, and SpinVox, address the problem by turning voice recordings into digital audio or even text files you can access via the Web or e-mail. Using caller ID to identify the source, they let you process the most important messages first and the rest when it's convenient.

I tried some services and found that they can be useful for business people who typically wade through at least half a dozen messages several times a day. But there are a few drawbacks, and casual voice-mail users will probably find the most robust, fee-based offerings too pricey.

The latest wrinkle in this area is the use of speech-to-text technology to convert voice mail into text messages. SimulScribe (simulscribe.com) leads the pack with a $10-per-month service that transcribes up to 40 messages a month, after which you pay 25 cents per call.

That can get expensive if you have enough messages to benefit from the service. In my tests, however, call transcripts were quite good, meeting the company's claim of 90 to 95 percent or better accuracy. The transcripts arrive via e-mail (along with a digital audio file of the message) within moments; you can also access your messages and audio files over the Web.

SimulScribe forwards your unanswered calls to a phone number that it assigns to you. You can still access and manage your voice mail via cell phone (but not through your carrier's usual voice-mail key). You may not be able to use SimulScribe with carriers for which call forwarding is problematic, and you may be stuck with long-distance or call-forwarding fees. In addition, because your voice mail is no longer integrated with your cell phone service, you may not realize that you have new messages unless you opt to receive SMS notifications, which also could be costly.

Most of these problems go away, though, if your carrier partners with SimulScribe; Vonage, for example, now offers it as a premium service.

DIGITAL AUDIO FILES

SIMULSCRIBE RECENTLY rolled out the free beta of a variant called SimulSays for BlackBerry Pearl and BlackBerry 8800 devices; a Windows Mobile version should be available by the time you read this. SimulSays allows you to manage digital audio recordings of your voice mail on your handset without having to call your voice-mail number; but you must subscribe to SimulScribe to receive text transcripts as well.



GOTVOICE IS ONE of several services that help you manage voice mail, presenting messages as digital audio files in a Web interface.

United Kingdom–based SpinVox (spinvox.com), a speech-to-text service that hasn't fully launched in the United States, claims to transcribe not just voice mail but also memos, blog entries, and SMS text messages that you dictate into your cell phone. However, it offers no Web interface—you get transcripts via e-mail or text message—and you don't get an audio file (you must access your voice mail as usual to hear it). We were unable to test the service's voice-mail capabilities.

GotVoice (gotvoice.com) takes a simpler approach that has universal inbox appeal: It calls your usual voice-mail numbers, records the messages, and presents them to you (using caller ID to identify the senders) as digital audio files in a Web interface. The service automatically checks for voice mail three times a day on up to two phones and notifies you through e-mail when messages are waiting. You can also initiate up to 12 voice-mail checks daily.

On top of that, GotVoice lets you send up to 15 voice-mail messages a month to groups of up to five phones—useful for quickly notifying family of a schedule change, say.

FREE OPTIONS

THE FREE GOTVOICE service is supported by Google-like ads that appear when you play voice-mail files. A $10-a-month premium service eliminates ads, supports three phones, and ups usage limits.

Another free service, CallWave (callwave.com) also generates digital audio files from voice mail. But like SimulScribe, CallWave works only if you can forward your unanswered calls, and it supports only one phone number. (The company recently announced a speech-to-text service called Vtxt that promises to transcribe only enough of a message to help you decide whether it's important.)

Services like these that depend on voice input are just getting into high gear; they can be pricey, and you may find that they take longer to tell you about new messages than the traditional system does. But if your voice-mail inbox is chronically overstuffed, one of these services might help you dig through it.

—Yardena Arar



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A furniture solution for work sessions that go into the wee hours? Well, actually it's just a whimsical "what if." But it proves that Anthro's built-in modularity helps you do things with furniture you never thought possible. Here, for example, is our extra-strong AnthroBench showing off its muscle and some handy outboard shelves. So for a workstation that fits you and your work exactly, contact our friendly and knowledgeable folks at **800.325.3841** or **anthro.com/pcw**. We'll help configure something just for you!

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USER INTERFACE

Microsoft's Multitouch Table Computer

THE SURFACE PC WILL SHOW UP IN HOTELS, CASINOS, AND T-MOBILE STORES IN NOVEMBER.

MICROSOFT'S LATEST hardware project intriguingly mixes elements of the futuristic interface from *Minority Report*, the iPhone touch system, and the exterior design of old Pac-Man gaming tables. Surface, as Microsoft is calling it, consists of a Windows Vista PC, a short-throw DLP projector, and five cameras, all built into a cocktail table with a translucent top.

You can forget about a keyboard and mouse when you interact with Surface. Instead, you use your fingers—and your friends use theirs, too—to handle images and data. Mark Bolger, director of marketing for Microsoft's consumer productivity experiences group, says, "This is a NUI—a natural user interface. It's a natural way for people to interact with digital content using their hands. Users can control information with the flick of a hand." Surface will also interact with objects placed on top of it.

The first-generation Surface will be too expensive for homes, Microsoft says. Instead, you'll see the units in casinos, hotels, and stores run by the company's partners: Harrah's Entertainment, International Game Technologies, Starwood Hotels, and T-Mobile. To see a slide show about Surface, visit find.pcworld.com/57511.

YOU PROBABLY WON'T use Surface to build your next spreadsheet. But it's a good way for a group to look at photos, plan a trip on a huge map, or just order drinks at a restaurant.





SURFACE WILL RECOGNIZE up to 52 points of touch at any one time, thanks to five cameras within the table that are trained on overlapping sections of the top. As with Apple's iPhone, you can use two fingers to stretch or shrink a photo. You can also rotate a shot, toss it to the side, or stack it with others.



WHEN YOU PLACE objects on Surface that it recognizes, it will supply information about them. Another trick: Place a camera on the tabletop, and its images will automatically transfer to Surface.

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PLUGGED IN

ERIC DAHL

Is New Chip AMD's Last Stand?

PLUS: MASHUPS FOR THE MASSES AND HD VIDEO IN A DIGITAL CAMERA.

PHENOM AND FASN8

The Buzz: So what's up with AMD these days? Intel's main competition faces a steep climb as it looks to regain a bit of the desktop performance supremacy that it enjoyed in pre–Core 2 Duo days. But with a new, forward-looking architecture (Barcelona) and desktop processor (a line of chips recently branded Phenom) set to launch in the latter half of the year, AMD may not be done yet.

The company plans to release both dual- and quad-core versions of Phenom, with the quad-core processor built on a single die, unlike Intel's current quad-core offerings. Also, an AMD enthusiast platform called FASN8 would employ a new AMD chip set, a motherboard that includes sockets for one or two Phenom chips, and a pair of the latest graphics boards from AMD's ATI Radeon HD 2000 series.



Bottom Line: It's been a while since I've seen a lead lost as dramatically as AMD's on the desktop—and I'm a Cubs fan. AMD has a lot riding on Phenom, and with Intel's Penryn set to launch in volume early next year, it may not have much of a window.

MASHFEST '07

The Buzz: I haven't seen this much noise about mashups since Danger Mouse put out *The Grey Album*. But rather than mixing Jay-Z tunes with Beatles instrumentation, today's mashups are all about slicing and dicing Web data—a Google Map here, a Craigslist data feed there—to quickly build nifty new Web applications. And with tools such as Yahoo's Pipes and Microsoft's Popfly, you don't need to be a coding geek to start mashing things up. In both tools you can drag and drop data to combine information from various feeds easily, but Popfly has an edge in that its beautiful and simple-to-use interface is more user-friendly.

Bottom Line: Despite its polish, Popfly was still just a private alpha release with limited invitation slots at press time. Until it opens, anyone with a bit of scripting know-how can try out Pipes.

HD DIGICAM

The Buzz: Here's how accessible HD video is becoming: Panasonic has built it into point-and-shoot digital cameras. Set for release in July, the $399 Lumix DMC-FX100 will be the flagship of Panasonic's Lumix line. This sleek digicam packs a whopping 12.2 megapixels, image stabilization, and a wide-angle lens. Plus, it shoots 720p high-def video clips, though only at 15 frames per second. (That's nine frames fewer than film, for those scoring at home.)



Bottom Line: Purists will claim that 15 fps isn't true HD video, and I'd agree if that were the point. Nobody shoots serious video on a digital camera. What's cool here is that even silly little digicam clips are going HD. Better stock up on your memory cards. ■

You can contact PC World *Senior Editor Eric Dahl at eric_dahl@pcworld.com; visit find.pcworld.com/31643 to read additional* Plugged In *columns.*

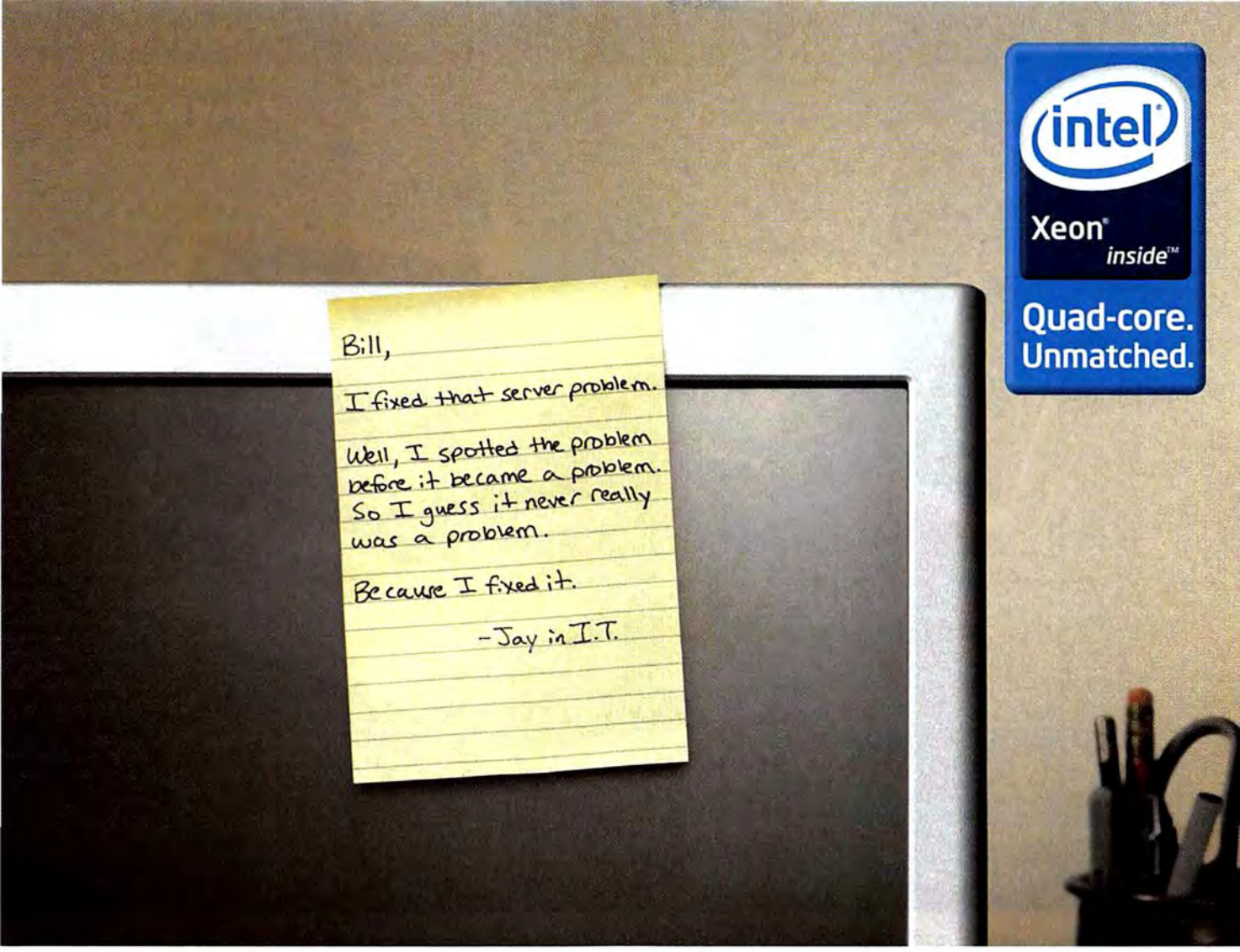
FUTURE TECH

5-TERABYTE HARD DRIVES

AROUND THE year 2013, the gigabyte will become passé, thanks to a team of researchers at Toshiba and Tohoku University. By then, their recently developed hard-drive technology should lead to 5TB desktop drives and 1TB 2.5-inch notebook drives. Called Nanocontact Magnetic Resistance (NC-MR), the technology greatly boosts a drive head's ability to detect tiny changes in magnetic fields. Down the road, NC-MR should let manufacturers increase storage density from the current 178.8 gigabits per square inch all the way up to 1 terabit per square inch. Heat-Assisted Magnetic Recording (HAMR), being developed by Seagate and others, should eventually push storage density even higher—perhaps to 50 terabits per square inch by 2019.

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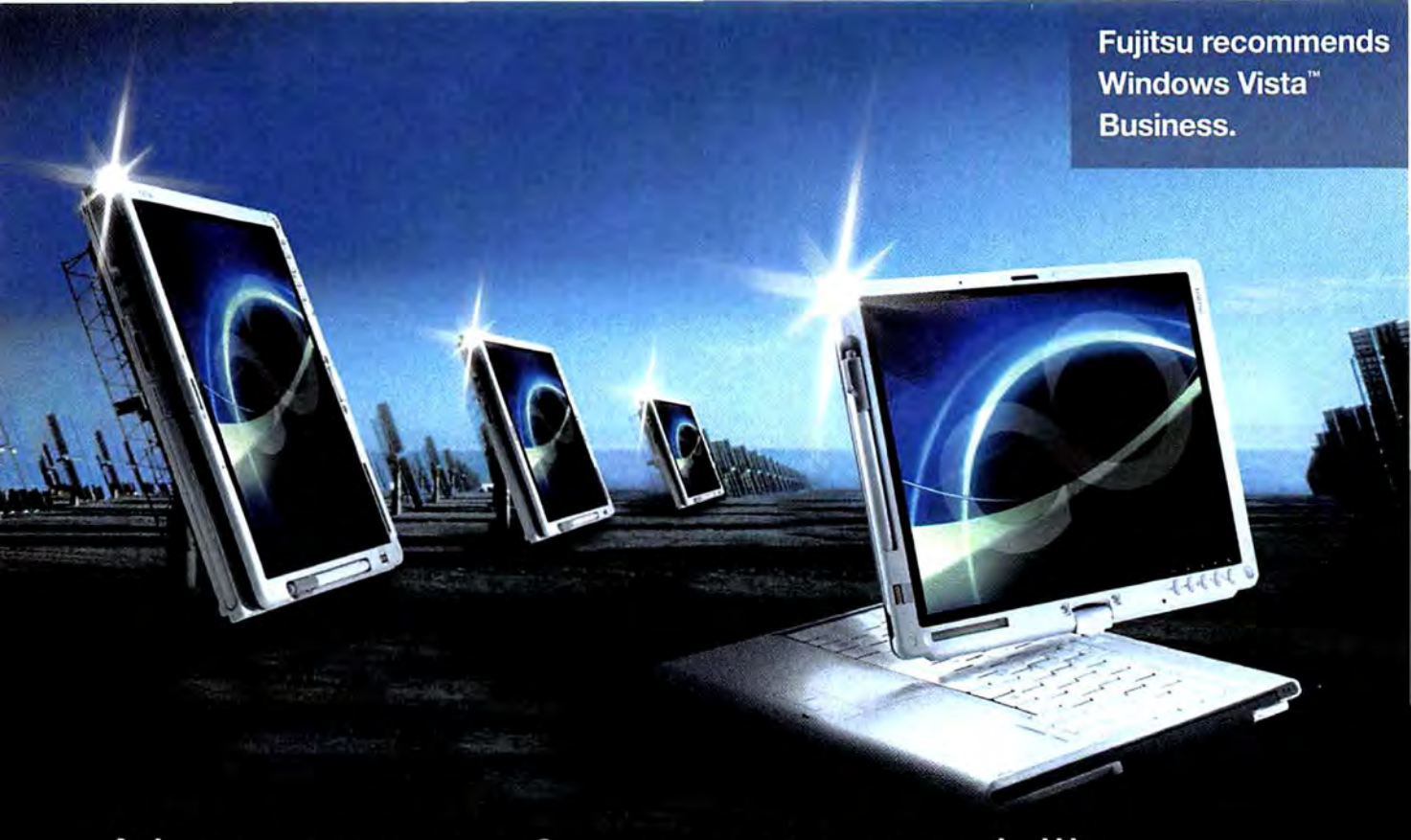
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LETTERS

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TURN OFF THOSE AUTO GADGETS! | NOT-SO-RELIABLE HARD DISKS | VISTA VS. LINUX—DEBATE CONTINUES



COVERING OS SECURITY

I'VE NOTICED A disturbing trend in coverage of operating system security. In your June issue, Ryan Naraine's "Vista Security" [*News and Trends*] is a prime example—an article pointing out security "holes." But what I am not seeing is how these exploits are being used.

For example, Naraine talks about the Microsoft problem with animated cursor files. Yet he does not say who is being attacked, and what Web sites (or e-mail attachments) are creating the problem.

I see this all the time in technology reporting. Are we reading articles that are there for the pure excitement of saying "Vista has a security hole," or are we reading about a real-world problem? If the latter, you should give us all the gory details.

In short, has it just become fun to take shots at Microsoft when a hole is found in its millions of lines of code, or are you trying to make people understand that PCs require tune-ups (patches) and oil changes (antivirus software), just like the family car?

Larry R. Flowers, Buford, Georgia

Editor's reply: Our print articles tend not to cover particular attacks—the details would be old by the time the story appeared. Instead, they focus on trends and what to look out for. "Vista Security," for example, noted that the new OS will likely be safer than XP, but that attacks can and will continue, so people shouldn't let their guard down. Online, in blog postings and news alerts, we often report specific attacks on a day-to-day basis. *—Erik Larkin*

HOT TOPICS IN FORUMS

Vista Advice; Can the Net Be Saved?

PARTICIPATE IN OUR community discussions on these and other topics by heading to find.pcworld.com/55165.

Transferring files to a Vista PC from an XP PC: Go to www.xdrive.com. You can set up online storage accounts with 5GB for free. Upload your files from your XP laptop, and then download them to your Vista laptop. *—mphenterprises*

Connecting a Vista laptop to unsecured wireless networks: If it says 'limited connectivity', you could go to *Start, Control Panel, Network and Sharing Center* (on Classic view), *Manage Network Connections*, right-click the wireless network connection and disable, then right-click and enable, then try connecting. Your firewall and antivirus software may pop up telling you to create a profile for this network or to choose your status—home, away, office. Select home; the firewall must think the network is not a threat. *—abercoreyinfitch*

Shut down the Internet? Despite all efforts to stop attacks by using antimalware programs, maybe the best course is to shut down the Net. Drastic, yes, but it no longer seems that the Net's good outweighs the bad. *—backpack*

DRIVING AND BROWSING

REGARDING YOUR ARTICLE on cars being equipped with Internet access and MP3 players ["Cruising the Internet at 70 MPH," *Gadget Freak*, May]: If I am driving a car, the only thing I should be doing is driving my car—nothing else. Why do cars of the future need all these gadgets? We don't need better cars or better roads; what we need are better drivers—people who realize that driving a car on today's roads is a tough job all on its own, a job that demands 100 percent concentration, with 0 percent distraction.

I'll be sure to stay off the roads in the near future—especially if all the other drivers are surfing the highway to hell.

Jim Papastamos, Hamilton, Ontario

SEARCH ENGINES

IN YOUR JUNE issue's "Search Engine Shoot-Out," Jeff Bertolucci overlooked Copernic Agent Basic [find.pcworld.com/57461], a free search engine that I've used exclusively for the past four years. In my experience it is better than any of the others you reviewed. It has no pop-up ads or banners. It is easy to use and combines the resources of 12 search engines, including AlltheWeb, AltaVista, AOL Search, Ask.com, Lycos, MSN Web Search, and Yahoo. Copernic is quick, and it provides more relevant results than any other search tool that I've ever tried.

David Ferrera, Baltimore

HARD-DISK FAILURES

YOUR ARTICLE "HARD-DRIVE Failures Surprisingly Frequent" [*News and Trends*, June] may have uncovered something. As a physician and IT manager for several practices, I have had experience with hard disks dating back to the 1980s. Until recently, hard-disk failures seemed ▶

PHOTOGRAPH: ROBERT CARDIN

among the least likely of all causes for computer crashes. Then, to my amazement, a 320GB hard drive, six months old, failed. It was accessed only once a week, for 15 to 20 minutes, and kept in its own case, so ventilation was not an issue. Disk manufacturers, in their search for more data storage, may have run into a new limiting factor: As mechanical parts get smaller, they get weaker.

More than ever, we must implement redundant backups: some to disk, some to optical storage, and some to the Web.

Paul DeLeeuw, M.D., Fort Myers, Florida

VISTA VS. LINUX

TWO POINTS IN the May issue need clarification. Contrary to a Microsoft executive's claims in "Real Obstacles for the Virtual PC" [*Techlog*], it is Vista, not CPU-level virtualization, that is insecure. Linux does not have these problems. And Vista is such a resource hog that you must devote half a dual processor to holding Vista's hand while the other half does the work.

"Real-World Vista" [*News and Trends*], in the same issue, dedicates three pages to documenting a less-than-mediocre operating system. Linux, on the other hand, is an awesome OS: secure, fast, stable, configurable, easy to install and use, and customizable for a minimalist user interface or the ultimate in glitz.

Eric Skalwold, Ithaca, New York

MOST OF THE letters you publish seem to bash Vista. In early February we purchased a new economy-priced PC with the Vista Home Premium OS. It installed most software without problems; a few (chiefly older) programs would not install at all, but I soon found alternates. The upshot: We like our PC with Vista very much; it cost less than a Mac, and it does not have the idiosyncrasies of Linux.

What surprises me most, though, is all the whining about Vista's User Account Control. For years, writers have criticized Microsoft for having poor security. Now that UAC is there to help prevent unwanted system changes, some people want to disable it. They say that it pops up all the time and is so annoying. If that were the most annoying thing I had to deal with, that would be a good day!

Eldon Witmer, Manheim, Pennsylvania

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Excludes extension of International Traveler's Warranty.

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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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CONSUMER WATCH

YARDENA ARAR

WEB 2.0 SITES TAKE ON TRIP LOGISTICS

COULD YOU BE GUILTY OF FIREWALL OVERKILL?

ESCAPING SITEADVISOR'S BLACKLIST

New Sites Ease Travel Planning

Services provide recommendations, companions—even a couch to crash on.

FOR ME, PLANNING a trip has always been almost as much fun as the travel itself. And travel planning is right up there with banking and shopping among activities that have benefitted enormously from the Web. I get a real thrill from tracking down deals and checking out user reviews of hotels and restaurants in order to winnow out the duds—the sense of empowerment is heady.

Most people know about the big sites for booking travel—Expedia, Orbitz, and Travelocity. And if you haven't seen an ad that features William Shatner hawking Priceline.com, then you simply don't own a television. Sites such as Priceline, CheapTickets and Hotwire.com purport to specialize in tracking down travel deals, but in many instances you can find equally good deals at the big sites.

For user reviews, nothing quite measures up to TripAdvisor—a regular in our best-of-the-Web stories, and number 81 in our recent "100 Best Products of 2007" (find.pcworld.com/57509). In fact, many people consider it the preeminent Web 2.0 travel site because it has successfully parlayed user-added content into a thriving business.

But new resources continue to appear, offering different twists on these familiar themes. I polled my colleagues for their favorite travel sites and came up with a few that will help you research travel deals and find like-minded travelers and their recommendations for restaurants, hotels, and destinations. Other sites that we came up with will let you chronicle your wanderings in word and in video.

One travel-site trend is the specialized search engine. Kayak (number 22 in our "100 Bets Products" feature) and Booking Buddy help you avoid having to navigate



to several sites and enter trip information on each to comparison-shop. Instead, you just provide your desired dates and destination; they then initiate searches of the booking sites. Kayak makes this supremely easy by searching all the sites at once and presenting the results in a list; with Booking Buddy, you're offered a selection of sites to search one at a time (in much the same way that TripAdvisor works when you click the Check Rates button on a hotel review page). Note that these sites don't sell you anything—they make their money from advertising and click-throughs. But the ads aren't too annoying, and the sites do save you time.

Several new sites offer social networking features for travelers. TripConnect, for example, invites you to seek advice and share experiences with friends (if they too sign up) or with other members who share your interests. For example, a Food and Restaurants group on TripConnect is basically a forum where foodies can seek restaurant recommendations or other food-related information from like-minded travelers (this is one group I signed up for immediately).

Want more socializing from your network? Several travel sites cater to younger, more-adventurous wanderers who might want to meet in person. On TripUp (formerly known as TripMates), you can write a review, post videos, alert the world to your travel plans, ask questions at the site's forums, consult a 'Trip Guru', or even seek a travel mate by filling out a compatibility form. TravBuddy presents a somewhat similar set of features in a simpler interface.

FORGET THE HOTEL

FOR MOSTLY twenty-somethings who'd like to make new friends and keep their travel expenses down by crashing on an Internet buddy's couch, there's CouchSurfing. Here you can connect in advance with people located on your route; even if they don't invite you to their home, they might at least be willing to grab a latte with you at a local café. Since many people are understandably nervous about dealing with strangers, the site lets users ▶

ILLUSTRATION: EDWIN FOTHERINGHAM

post recommendations about other users; to bolster your own credibility, you can pay CouchSurfing to verify your name and address—but the process requires a $25 charge to a credit card in your name. One page of the site offers common-sense tips for women traveling alone.

Several sites cater to planners who want to organize their trip or gather research in a central location. TripHub takes a sort of Evite approach to travel: You create a home page for your trip (complete with maps and a schedule), and then invite friends and create a blog. Gusto lets you put a free Gusto Grabber button in your Internet Explorer Links toolbar; click it when you see a page that you want to save, and that page (along with any comments you enter on a pop-up form) is saved to the Gusto folder you choose (Places I've Been, Places I'm Going, My Other Interests, My Travel Deals). Unfortunately, Gusto itself has attracted little user-generated content (only one reader-recommended restaurant in all of Cancun, Mexico?), so it isn't a great source of information.

In fact, for a number of sites that depend on users for content, this is a major problem: There don't seem to be enough content-generating users to go around. I visited World Wikia (world.wikia.com)—a free-form wiki where anyone can add information to city and travel guides—and found only blank pages for hotels and restaurants in Florence, Italy, for example. Wikitravel (wikitravel.org) seemed to have more content, as did World66, a wiki-like site with such extras as an Internet café guide and selected offerings in PDF, XHTML (which enables viewing on a phone browser), and another format called RepliGo (which is also for phones). But I ran into the same relative dearth of reader-supplied content at 43Places, TheresAPlaceIKnow.com, and Epic Trip, one of several sites that encourage users to create travel blogs (MyLifeOfTravel, TravelPod, and VCarious are others).

> Good travel blogs are fascinating, but many wander off on boring tangents.

Travel blogs tend to be more detailed than standard reviews. And like blogs in general, the good ones are fascinating, but many writers wander off on boring tangents. Also, you can't count on finding information on a specific hotel or restaurant. Overall, I'd say these sites tend to be more useful for getting travel ideas ▶

PRIVACY WATCH

Surprise! You May Have More Firewall Than You Need



WHEN MICROSOFT SHIPPED Windows Vista, it included an upgraded firewall that enabled Windows—for the first time—to filter outgoing connections from your computer. But the company elected to turn off the outbound filtering by default and even made the feature hard to access. Smart, security-conscious people cried foul, saying that Microsoft had dropped the ball.

But Microsoft was right: You don't need outbound filtering.

Sure, many good, free firewalls (like ZoneAlarm and Agnitum) and security suites for XP offer this extra layer of defense, which can be useful for stopping malware such as a keylogger that tries to transmit stolen passwords to a remote server, or a bot that tries to fetch malicious instructions from an IRC (Internet Relay Chat) channel. With these firewalls, you get a pop-up warning that a program is trying to connect to an Internet destination, and you have the opportunity to say no.

The problem is, such protection doesn't mean much. For one thing, if you have a good antivirus program, if you're smart enough not to open unknown e-mail attachments, and if you don't use Internet Explorer 6, you already have strong layers of defense against Internet-based attacks.

For outbound blocking to be worthwhile, you must know—or be willing to research—every program and program component that needs to connect out for any valid reason, such as to get necessary program updates. Choose wrong, and something breaks. Or more likely, you become conditioned to clicking 'OK' in response to all prompts, and do so when it causes a problem.

Where outbound filtering can be useful is in catching those extra-chatty programs that send more info than they should—like Microsoft's original WGA Notifications, which last year sent many unnecessary PC details back to Redmond. But again, to know whether the data being sent is a benign check for program updates or a list of all your installed programs, you have to be willing to dig deep with additional, highly technical programs that can capture and scan network traffic.

Though it's great for experts to help keep software vendors on their toes with this kind of analysis, the average cautious PC user doesn't need the hassle. Still, if you want to become a de facto network expert and dig in, here are some tips:

- To bring up the interface for enabling Vista's outbound filtering software (and for creating rules for it), click *Start*, type **wf.msc** in the Start Search box, and hit **<Enter>**.
- The wf.msc interface is by no means user friendly, and I don't recommend it. The free Vista Firewall Control program (available from find.pcworld.com/57258) makes configuring the firewall much easier and adds functionality that will prompt you when new programs try to connect to the Internet, much as many third-party firewalls do.
- If you want to supplement your firewall, the Ethereal program can capture and scan network traffic for subsequent expert analysis. Download it free from find.pcworld.com/57259.

–Erik Larkin

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than for researching specific destinations.

Finally, a couple of sites combine elements of community, professional third-party content, and tools for planning and blogging, as well as travel booking: Real Travel and Yahoo Travel. Exploring these two sites gives you a sense of what Web 2.0 travel is all about without your having to visit a lot of smaller ones.

But if you look at planning a trip as part of the fun, then you have more ways than ever to enjoy your vacation—even before you set foot out the door. ■

Yardena Arar is a senior editor, Erik Larkin is an associate editor, and Amber Bouman is an editorial assistant for PC World. *You can send them e-mail at consumerwatch@pcworld.com, privacywatch@pcworld.com, or onyourside@pcworld.com. To read previously published* Consumer Watch, Privacy Watch, *or* On Your Side *columns, visit find.pcworld.com/31703, find.pcworld.com/31706, or find.pcworld.com/31709, respectively.*

ON YOUR SIDE

Legitimate Site Blacklisted by SiteAdvisor

I AM A big fan of McAfee's SiteAdvisor service—so I was devastated when it put up a "red flag" warning for my own Web site. I am the treasurer and information manager for our local yacht club. Looking at SiteAdvisor's explanation for the warning, I realized that the problem was a page in which people willing to crew for a skipper can leave their contact information. According to SiteAdvisor, that arrangement made it possible for spammers to harvest the information and spam the crew volunteers. We removed the offending page, but now I can't get through to SiteAdvisor to get the warning taken down. It seems nearly impossible for a Web site administrator to reach them.

Sharon Gibson, Lihue, Kauai, Hawaii

***On Your Side* responds:** We contacted McAfee, which informed us that SiteAdvisor automatically tests sites for pop-ups, malware, and fraud. The system also fills in forms and monitors any spam received as a result. Site administrators like Gibson who feel that their sites shouldn't be subject to a warning can alert the SiteAdvisor rating team at www.siteadvisor.com/feedback or send e-mail to complaints@siteadvisor.com.

Gibson has contacted McAfee; however, she may have to wait a few weeks before the warning is removed. SiteAdvisor retests sites to ensure that they have changed, but those that have received a negative rating must stay clean over time to get the rating overturned.

–Amber Bouman



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STEVE BASS

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The Hassle: *A buddy said my e-mail is annoying. I stopped sending jokes and don't use all capitals anymore. But I must be violating other rules of e-mail etiquette. Do you have any advice?*

The Fix: ALL CAPS and jokes? Stay away from my inbox, okay? I have lots of e-mail advice for you to chew on.

Brevity is the soul: Use a short, descriptive subject line (if you leave it blank, I'll delete the message sight unseen). Many small paragraphs are better than one long one. Keep your signature information short, too, but do include your clickable e-mail address (put **mailto:** in front of your address, if your e-mail program hasn't already converted it into a link).

If the urge to send funny stuff overpowers you, prefix your subject line with "Joke." The prefix separates the note from your legitimate messages so I can filter it into the trash folder (just kidding) or my 'humor' folder for later reading.



When you reply to a mailing list, trim the junk from previous messages that accumulates at the bottom, keeping just the essential text. If you decide to forward a daily digest of mailing-list messages, warn recipients by changing the subject from "Digest" to something descriptive.

Complicated messages, or those with multiple topics, are easier to understand if you number each topic. It also makes replying—by the number—simpler.

Here's another easy rule to follow: Delete any message filled with angle brackets. If you *have* to forward a year-old, friend-of-a-friend e-mail petition to draft Tipper Gore, delete the 80 lines of headers first. Then kill the brackets with EmailStripper (find.pcworld.com/57377), before forwarding what's left.

I'm a fan of vCards, which contain data about the sender, but if you've sent it to me once, don't attach it to every new message.

I have more ways for you to make your e-mail less aggravating. Read my four-part "Be Less Annoying" series at find.pcworld.com/57378 to 57381.

SPAM HEADACHES

The Hassle: *Spam! It's driving me nuts. Could you give me some relief?*

The Fix: I use throwaway e-mail addresses for Web forms, mailing lists, and online purchases. EarthLink, my ISP, gives me an unlimited number of Anonymous Email Addresses (write to me at tyres91423@mypacks.net). Once I set up a disposable address, I use it until it picks up spam. The free Mailexpire.com service similarly forwards messages from a disposable address to your real e-mail account. Or sign up for a Gmail account to share with people outside your circle (find.pcworld.com/57382).

Browse to find.pcworld.com/57383 for more on disposable e-mail addresses, and visit find.pcworld.com/57384 for instructions on creating spam filters. ■

Contributing Editor Steve Bass writes the Tips & Tweaks blog (find.pcworld.com/50268). Contact him at hasslefreepc@pcworld.com.

TOOL OF THE MONTH

As-U-Type Checks Spelling and More

HERE'S A SHOCKER: I have replaced the spelling checker in Word and my e-mail program with As-U-Type, an amazingly useful tool that's worth every penny of its $40 price (browse to find.pcworld.com/57385 for the free trial). As-U-Type also catches *and* fixes spelling errors in Excel and other apps—even dialog boxes and browser forms. You can set the program to complete words and phrases automatically, such as generating "PC World" when you enter **pcw**. In addition, you can assign a block of text to a keystroke combo: For instance, when I press **<Alt>-T**, it inserts "thanks for reading my column," along with a signature line; it even pauses long enough for me to insert the recipient's name.

ILLUSTRATION: ROBERT NEUBECKER



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GADGET FREAK

DAN TYNAN

Is That a Social Network in Your Pocket?

These Web services give you new ways to connect with friends by cell phone.

"CAN'T YOU EAT lunch like a normal person?" my wife asked as I snapped a photo of my Steamer sub with my phone.

"I just need to check in and let everyone know where I am," I said. I attached the picture to a text message and e-mailed it to my Groovr.com home page. My phone buzzed with a reply. "Hey look," I said. "Crystal's at her mom's house in Irvine, and Earle is in Cannes."

"I am starting to worry about you," she said, munching a chip.

She had a point. I had become addicted to mobile social networks. I had to tell the world what I was doing and where I was doing it, 24/7—and thanks to a new breed of Web sites like Twitter, Groovr, and Loopt, I could, easily.

But I wasn't merely acting like a self-obsessed, tattooed twenty-something, I was looking at the future of communications. Before long, the cell phone will be the device many of us use to locate friends, get restaurant or music recommendations, navigate new cities, and do a whole lot more.

GENERATION TEXT

THE NEW SOCIAL mobility starts with "microblogs" like the free Twitter.com. With Twitter, you use your cell phone to post 140-character summaries ("tweets") of what you're doing at any moment. Friends receive your updates on their phones, and the updates post to your Twitter page and on the site's public timeline. (You can be famous for 1.5 seconds, or keep your updates private.) And yes, it is just as silly as it sounds.

Take the "tweets" concept and toss in location-based multimedia, and you have Groovr.com. When you arrive at, say, your favorite sub shop, you check in to Groovr by putting the name of the shop inside a text message, then e-mail photos or videos of the spot. Your friends can find you by looking at your Groovr Web page, which displays your location on a Google map, or by sending a text message to Groovr, which replies with the name of your last check-in location. Groovr is free, easy to use, and stupidly addictive; every time I arrive someplace new, I feel a strange compulsion to upload photos. But I can't log in to Groovr's site from my phone, and this makes the service less than truly mobile.



Loopt.com pushes "social mapping" to another level. Loopt already knows where you are and displays your location on a map (provided you have a phone with built-in GPS, such as the $300 Motorola i885 or the $30 Motorola i415). As with Groovr, you can post journal entries and photos, but you can also attach notes to places you've been, such as a favorite restaurant ("try the Steamer sub—it's delicious"), which your friends can access from their phones. (They don't receive text message alerts when you update, though, only when they log in.)

The service can pinpoint other Loopt users in your address book, display their location on a map, and automatically notify you when they're within 1, 5, or 25 miles of your spot. But first they must accept an invitation to be part of your Loopt network—you can't just locate Loopt users at random. You can also hide your location when you want to be discreet.

Loopt is a great idea, and it works well, once you get past Motorola's less-than-intuitive phone software. At press time Loopt was available for $3 a month from Boost Mobile. By the time you read this, the service should be available from two other major carriers, according to Loopt marketing manager Evan Tana.

LOCATION, LOCATION

SOCIAL NETWORKING IS just the beginning. Eventually all forms of communication will converge on one pocket-size gizmo that lets you access virtually any information anywhere, at any time. Other people can likewise use their gizmo to find you—as will anyone interested in selling you location-based services.

Or you can simply turn it off and eat a sub—provided you can resist the urge to broadcast that info to the world. ■

Contributing Editor Dan Tynan is the author of Computer Privacy Annoyances *(O'Reilly Media, 2005). You can send him e-mail at gadgetfreak@pcworld.com.*

ILLUSTRATION: BARRY BLITT

Toshiba recommends Windows Vista™ Business.



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BUGS & FIXES

STUART J. JOHNSTON

Microsoft Glitches Hamper Critical Fixes

Crucial patches for IE and Office hit snags; a fix for a Norton security hole.

YOU KNOW THAT patches are essential, but the download/install/reboot cycle gets old fast. And it doesn't help when the patches themselves have problems, as some from Microsoft recently did.

Take the latest cumulative update for Internet Explorer. Two of its corrections sealed significant holes in IE 7 for both Vista and XP, starting with COM objects (precursors to ActiveX controls). Viewing a site with a poisoned COM object could allow an attacker to take control of your system, although you would have to okay an IE 7 dialog box first.

The second flaw exists in an internal IE function, the *property method*. An attacker could target the flaw with a specially crafted Web page and hit you with a drive-by download.

The same cumulative update addressed four crucial issues with ActiveX and Active Scripting in IE 6 on Windows XP SP2. When you factor in fixes for critical flaws in IE 5.01 and 6 on Windows 2000 SP4, as well as in IE 6 on Windows XP SP1, it's a patch you'll want from find.pcworld.com/57435, if you haven't already received it through Automatic Updates.

BROKEN IE

IT'S CLEAR THESE are must-have patches. But a nasty post-patch surprise awaits some Vista users: IE may fail to start. Here's the problem: If you've changed the location of Vista's Temporary Internet Files folder and employ the anti-phishing filter, IE might not be able to use that new folder location. The workaround, described at find.pcworld.com/57436, involves moving the folder back to its original location or changing the permissions on its new location.



Patch problems may annoy, but malware is much worse.

On top of that, some Windows XP SP2, Windows 2000 SP4, and Windows Server 2003 users had trouble with Windows Update and Microsoft Update: When Windows scanned automatically for updates, or when the user went to the update site, the PC's CPU sometimes bogged down and became unresponsive.

Bad problem, so Microsoft released a patch. But in some PCs, the hotfix not only failed to work, it caused important system tasks to crash. So Redmond released a second patch that supersedes the first and will be distributed via Automatic Updates through the end of June; it's also available at find.pcworld.com/57437. We'll see if the second hotfix fully cures the problem.

OFFICE FIX DELAYED

AFTER THESE TWO strikes, the third swing-and-a-miss came when a problem with Microsoft Update prevented some Office 2007 users from receiving important patches. Microsoft fixed the problem quickly, but the Update snafu caused some people to wait an extra week to receive the patches.

Two of the seven fixed bugs are rated as important for Office 2007. All of them are critical for Office 2000 Service Pack 3, and important for other supported Office versions. Any of these flaws could be hit if you open an e-mailed or downloaded rogue document, and one of the holes is under active attack. So if you are not using Automatic Updates, get the fixes at find.pcworld.com/57438 to 57440.

These glitches might tempt you to avoid the hassle and stop updating your programs, but remember: A malware infection is much worse. ■

Stuart J. Johnston is a contributing editor for PC World. *Visit find.pcworld.com/31580 to see more* Bugs and Fixes *columns.*

IN BRIEF

Symantec Risk

AN ACTIVEX control added by Norton Personal Firewall 2004 and by Norton Internet Security 2004 has a serious flaw that could permit a takeover of your PC if you open a malicious Web site in Internet Explorer. To get the security fix, either run Symantec LiveUpdate or pick it up at find.pcworld.com/57443.

Trillian IRC Hole

A RISK IN Version 3 of the chat client leaves you vulnerable to an attack if you highlight a specially crafted hyperlink sent as part of a message in an IRC chat session. Version 3.1.5.1 closes the hole; download it from find.pcworld.com/57444.

Winamp Fix

VERSION 5.35 OF the media player fixes a flaw that arises if you use the program to open a poisoned MPEG-4 (.mp4) audio or video file downloaded from the Web or received as an e-mail attachment. Get the update from find.pcworld.com/57445.

BUGGED?

FOUND A HARDWARE or software bug? Send us an e-mail on it to bugs@pcworld.com.

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REVIEWS & RANKINGS

EDITED BY ERIC BUTTERFIELD AND LIANE CASSAVOY

REVIEWS

57 MICROSOFT XBOX 360 ELITE
57 AMD ATI RADEON HD 2900 XT
59 FLURRY, TELEFLIP
60 BLACKBERRY CURVE 8300
60 T-MOBILE WING
62 UBUNTU LINUX 7.04
63 SAMSUNG BD-P1200, TOSHIBA HD-A20
63 LG GGW-H10NI

Bargain Cameras: Basic but Capable

Low-cost cameras lack fancy features, but some take high-quality photos that match pricier models'.

DIGITAL CAMERAS

TEST Center

MANY OF THE latest digital cameras offer a wealth of sophisticated features, but may be pricey as a result. If all you can afford is an inexpensive backup camera, though, you'll be pleasantly surprised to find that the budget models we tested for this review tended to take attractive pictures. We surveyed the major camera makers for high-quality yet low-priced point-and-shoot units, and came away with five worthy contenders. The most expensive of the bare-bones models we tested are just $130.

You don't have to forgo all of the features found on pricier cameras, either. Among the units here you can find features such as image stabilization, facial recognition, custom white balance, in-camera panorama stitching, and high ISO settings for low-light shooting. Though no one model has all of these features, all offer at least one of them.

Better still, several of the cameras performed well in our image-quality tests. For example, the Kodak EasyShare C653 earned a mark of Very Good for its photo quality, and it costs just $130. The identically priced Canon Powershot A460, our Best Buy, was close behind, although its shots didn't look quite as sharp. In comparison, the average price of recently tested point-and-shoot cameras earning a Very Good for image quality is over $300.



THE CANON POWERSHOT A460 (top) is sturdy, thick, and well designed; the Nikon Coolpix L10 (left) has a slimmer, wavelike look; and the Kodak EasyShare C653 delivered the best image quality.

LIMITED CONTROLS

THESE BUDGET CAMERAS are geared toward users of scene modes, not manual controls. The $130 HP Photosmart M537 offers the fewest number of such modes—just eight—covering basics like close-up, antishake, theater, sunset, and night portrait. In contrast, the Kodak EasyShare C653 provides 20 of them. Most of the extra modes (such as backlight, beach, candlelight, and fireworks) sound useful, though others seem less so. I would be unlikely to use the self-portrait mode, for example.

If you're an amateur entomologist or just enjoy photographing small things such as bugs, you'll like the super macro mode in our Best Buy, the Canon Powershot A460: In this mode you can get really close to your subject—up to a mere 0.4 inches away—and still keep it in focus.

Considering the emphasis

PHOTOGRAPHS: MARC SIMON

64 CANON HV20, PANASONIC HDC-SD1, SANYO VPC-HD2 XACTI, SONY HDR-SR1
65 COREL ULEAD VIDEOSTUDIO 11 PLUS, PINNACLE SYSTEMS STUDIO 11 ULTIMATE
67 MICROSOFT WINDOWS LIVE HOTMAIL
67 HUMANCONCEPTS ORGPLUS LIVE
68 IRIVER CLIX 2ND GENERATION
68 PANDORA RECOVERY 1.1.20
70 FUJIFILM FINEPIX S700
72 HARMAN/KARDON GUIDE+PLAY GPS-500
58 TOP 10 LAPTOPS
66 TOP 10 INKJET MULTIFUNCTION PRINTERS



64


60

on scene modes over manual controls, it makes sense that none of these models let you select the shutter speed and aperture independently. The closest thing you'll find in these cameras is the aperture-priority mode in the Kodak EasyShare C653. But neither the Kodak nor the HP Photosmart M537 has exposure compensation—a basic setting that we usually take for granted in cameras.

Three models—the Kodak EasyShare C653, the $120 Nikon Coolpix L10, and the $130 Canon Powershot A460—let you choose a custom white-balance setting for improving color accuracy in challenging lighting conditions. The $120 Fujifilm FinePix A610 lacks a custom setting, but it provides six white-balance presets, including three separate settings for fluorescent lighting. The $130 HP Photosmart M537 was the least impressive in this regard, offering no white-balance presets at all.

	POINT-AND-SHOOT CAMERA	PCW Rating	Performance	Features and specifications[1]
1	Canon Powershot A460 Best Buy $130 find.pcworld.com/57326	83 Very Good	• Image quality: Good • Battery life: Good • Overall design: Very Good	• 5.0 megapixels • 38mm-to-152mm zoom • 8 scene modes • 7.5 ounces
	▸ **Bottom line:** This Canon has controls such as exposure compensation, as well as a super macro mode, though you're limited to ISO 400.			
2	Nikon Coolpix L10 $120 find.pcworld.com/57329	82 Very Good	• Image quality: Good • Battery life: Very Good • Overall design: Good	• 5.0 megapixels • 37.5mm-to-112.5mm zoom • 15 scene modes • 6.0 ounces
	▸ **Bottom line:** The L10 is sleek and provides custom white balance, panorama mode, and face-recognition autofocus. But the LCD is small.			
3	Kodak EasyShare C653 $130 find.pcworld.com/57328	82 Very Good	• Image quality: Very Good • Battery life: Poor • Overall design: Good	• 6.1 megapixels • 36mm-to-108mm zoom • 20 scene modes • 6.9 ounces
	▸ **Bottom line:** The C653 is easy to use, delivers high-quality photos, and offers in-camera panorama stitching. Battery life is short, however.			
4	Fujifilm FinePix A610 $120 find.pcworld.com/57325	81 Very Good	• Image quality: Good • Battery life: Poor • Overall design: Good	• 6.3 megapixels • 39mm-to-117mm zoom • 14 scene modes • 6.8 ounces
	▸ **Bottom line:** Model has limited controls, such as exposure compensation and white-balance presets, but for low light it reaches only ISO 400.			
5	HP Photosmart M537 $130 find.pcworld.com/57327	77 Good	• Image quality: Poor • Battery life: Very Good • Overall design: Good	• 6.0 megapixels • 32mm-to-96mm zoom • 9 scene modes • 6.8 ounces
	▸ **Bottom line:** Basic camera comes with an antishake mode and a generous software bundle, but its image quality was disappointing.			

CHART NOTE: Ratings and prices are as of 5/10/07. **FOOTNOTE:** [1]Zoom magnification is 4X for the Canon Powershot A460, and 3X for all other models.

LOW-LIGHT SHOOTING

FOR TAKING PHOTOS in low light, most of these cameras let you adjust their ISO to a fairly high setting. The Nikon Coolpix L10 and the HP Photosmart M537 both have up to ISO 800. The Kodak EasyShare C653 offers the highest number, ISO 1250, but you can't manually set the ISO as you can with the Canon A460 and the Fujifilm A610, both of which top out at ISO 400.

The EasyShare C653 and the Coolpix L10 supply a dedicated mode for shooting in dimly lit environments; in both cases, however, digital noise was quite evident. But I got generally good results using the C653's low-light mode with no flash, though my pictures looked underexposed, while photos taken with the Coolpix L10 came out with better exposure.

The Nikon camera's approach to low-light shooting is distinctly different from the Kodak's: In the L10's best-shot selector mode, the camera shoots as many as ten no-flash photos at up to ISO 800 while you press the shutter button; it then saves only the sharpest image. Even so, low-light images from the L10 didn't look as sharp as comparable photos from the C653.

The HP Photosmart M537 calls its antishake feature ▶

Steady Photo mode. Like the Kodak C653, the M537 uses built-in software to sharpen an image that might turn out blurry due to a moving subject or shaky hands in low-light conditions. In my informal tests, this feature did help to improve photos that were shot in very dim lighting.

PORTRAITS AND PANORAMAS

IF YOU LIKE taking a lot of portraits, you should consider a camera that offers facial recognition. The Nikon Coolpix L10 is the only model here to include this feature; turning it on optimizes the focus for the faces detected within the frame, so you don't have to worry about the autofocus point being correctly on your sitter's visage before clicking.

The Coolpix L10 also has a panorama mode, but you'll need to use its PictureProject software to stitch the individual frames together. If that seems like too much trouble, the Kodak EasyShare C653 offers both a panorama mode and in-camera stitching, with the ability to combine up to three shots. Processing the images in the camera takes some time, however. Each of the first two shots took the C653 about 9 seconds to process; after capturing the third photo, the camera took roughly 22 seconds to combine the images into a panorama. Also, the panorama mode in the C653 limits the size of each image to 3.1 megapixels.

A 3X zoom doesn't sound exactly thrilling nowadays, when you can find a point-and-shoot camera with a lens as powerful as 12X or 15X. But those models are few. Most digital cameras still sport a 3X zoom lens, as do these budget units (the Canon Powershot A460 has a slightly more powerful 4X zoom).

As for looks, none of these cameras will pass for a fashion accessory. Their silver cases are bland-looking, lacking alluring design touches, and none of them are super-slim. The Canon Powershot A460 is the bulkiest and most brick-like of the bunch, measuring 1.6 inches thick. The slimmest model is the Nikon Coolpix L10, which, at 1 inch thick, can slip into a shirt pocket. The bodies of these cameras are mostly made of plastic, so they don't feel as rugged as some of the predominantly metal cases you get on pricier models.

Three of the cameras offer fairly large LCDs, measuring roughly 2.5 inches. The exceptions are the Canon Powershot A460 and the Nikon Coolpix L10, which both have 2-inch LCDs. In addition, the Canon A460 and the Kodak EasyShare C653 come with an optical viewfinder, a feature that can be handy in bright sunlight when the image in an LCD is often hard to see.

Both the A460 and C653 have a mode dial for quick access to some options, such as the scene mode menu and the movie mode. The EasyShare C653's dial also has positions for launching its antishake and macro modes.

PERFORMANCE

THE KODAK EasyShare C653 earned the highest score of the group for photo quality, particularly its exposure accuracy and color reproduction. The Nikon Coolpix L10 scored similarly well in both of these categories, but since its images looked less sharp, it earned a mark of Good. Compared with all recently tested point-and-shoot models, none of these units took extremely sharp photos. Four of the five rated below the average for image sharpness; even the highest score, from the EasyShare C653, was only average.



THE FUJIFILM FINEPIX A610 (front) suffers from low battery life; the HP Photosmart M537 has long battery life, but poor image quality.

The lack of sharpness isn't surprising considering that these cameras offer 5- or 6-megapixel resolution—lower than that of many models we've tested lately. The 6.3-megapixel FinePix A610 and the 6.1-megapixel EasyShare C653 had the highest scores here for image sharpness.

Megapixels aren't everything, either: The C653's photographs looked just as sharp as those of the 10-megapixel Panasonic Lumix DMC-LX2, which costs $410 (see find.pcworld.com/56527).

None of these cameras use lithium ion batteries or come with a battery charger; they all run on AA batteries, which, conveniently, are available just about anywhere. Battery life in these models, however, varied greatly in our tests. The Nikon Coolpix L10 and the HP Photosmart M537 reached nearly 350 shots before their batteries died, and the Canon A460 lasted a respectable 253 shots—but you may need to keep extra AA cells on hand with the other two units, as the Fujifilm A610 captured 195 shots and the Kodak C653 lasted just 160 frames.

On most of these cameras, the memory card slot shares one compartment with the batteries—an arrangement that causes the batteries to fall out easily when you swap the memory card. The Nikon L10, however, provides a separate compartment for the card slot, which improves matters.

BOTTOM LINE

THESE BASIC SHOOTERS have a somewhat dowdy appearance compared with the sleek metal cases of other cameras, and they have limited controls for fine-tuning exposures. But if you don't mind that their images, though generally of high quality, aren't as sharp as those from many pricier models, you'll likely be pleased by what they deliver with minimum fuss.

—Eric Butterfield

PHOTOGRAPH: MARC SIMON

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New Xbox 360 Elite Has HD Chops

GAMING CONSOLE

TEST Center THE $480 Xbox 360 Elite offers two improvements over its predecessor, the Xbox 360: The hard-drive capacity leaps from 20GB to 120GB, and the new HDMI 1.2 interface delivers better image quality.

We tried a shipping Xbox 360 Elite, which has a matching wireless controller, a gaming headset, and an HDMI AV cable. The Elite includes an internal DVD drive; the $200 HD DVD Player remains a cumbersome accessory, but at least its software is better integrated with the Elite.

In PC World Test Center evaluations, the Elite's HD DVD movie quality via HDMI at 1080p was slightly better than what the Xbox 360 delivered over component video at 1080i resolution. But many less-expensive and quieter dedicated HD DVD players are currently available.

You get ethernet, but Wi-Fi is still a $100 add-on. In total, the Elite will set you back $780 if you take it with Wi-Fi and an HD DVD drive. But the Xbox 360 currently provides the best online gaming experience, and it arguably has the edge for now over the Sony PlayStation 3 and Nintendo Wii in the number of available games. Plus, the revamped Xbox Live Marketplace, with its standard and high-def movie and TV show downloads, is a boon.

We see little reason to chuck an old Xbox 360 in favor of the Elite, because both can serve multiple purposes—namely, playing games, buying and downloading HD video, and streaming music, photos, and movies from networked Windows PCs. But first-time buyers should spring for the Xbox 360 Elite.

—Danny Allen and Melissa J. Perenson



THE XBOX 360 Elite comes in a matte-black color scheme.

Xbox 360 Elite
Microsoft
PCW Rating 80 **Very Good**
The Elite's improved output quality and storage capacity are well worth the $80 premium over the 20GB version.
List: $480
find.pcworld.com/57477

ATI Rolls Out Its First DX10 Graphics Board

GRAPHICS BOARD

TEST Center AMD's $449 ATI Radeon HD 2900 XT resides in a product no-man's-land of sorts. Though the graphics card breaks all kinds of new ground for AMD/ATI, on today's games it's merely equal to (and in some cases slower than) cards using the 320MB version of nVidia's GeForce 8800 GTS—a less-expensive chip set that nVidia launched a few months ago.

The Radeon HD 2900 XT is the flagship of a new line of ATI cards with top-to-bottom DirectX 10 support. The product is packed with impressive technology, including a 512-bit memory interface; 320 unified stream processors, which can handle any type of shader you throw at them; and high-quality video processing with full encode and decode support for high-definition video.

But the benchmark story isn't particularly compelling: Almost any member of the current generation of graphics boards will handle today's games perfectly well. Unless you're looking for full antialiasing and 60 frames per second on your 1900-by-1200, 23-inch LCD, you'll be fine with even a midrange ATI or nVidia graphics board. As a result, high-end boards are tough to differentiate.

SPEED MARKS INTACT

THE RADEON HD 2900 XT lagged just a bit behind the GeForce 8800 GTS–based cards we've tested. When we bumped Half-Life 2 up to 1600 by 1200 resolution with antialiasing enabled, though, one significant difference became apparent: The Radeon achieved just 91 frames per second, versus 116 fps for a comparably priced GeForce 8800 GTS board and 124 fps for a top-of-the-line GeForce 8800 GTX model.

Results in Battlefield 2, Far Cry, and Quake 4 showed the HD 2900 XT and the GeForce 8800 GTS running neck and neck. In Splinter Cell: Chaos Theory, the HD 2900 XT managed to pull ahead: It ran the game at 51 fps at 1600 by 1200 resolution with antialiasing, while the GeForce 8800 GTS board managed 45 fps.

The real battleground for these new boards will take shape later this year, when the first DX10 games start to appear. That's when we'll see who has really done a better job of building a unified shader architecture that's ready for the future of 3D gaming.

—Eric Dahl

PHOTOGRAPHS: MARC SIMON



THE HD 2900 XT has flames, but frame rates are not smoking.

Radeon HD 2900 XT
AMD/ATI
PCW Rating 83 **Very Good**
Hot technology and beautiful video processing can't make up for performance that trails less-expensive nVidia competitors.
Street: $449
find.pcworld.com/57513

TOP 10 LAPTOPS

Asus Gets Game, Sony Gets Connected

TEST Center AN ASUS GAMING notebook debuts atop the desktop replacement half of the chart, while a Sony model equipped with an 11.1-inch screen slides in at fifth place on the ultraportable list.

Shoot-'em-up fans will like the smooth gaming action and flashing red lights of the heavy, 17-inch G2P-7R009C from Asus, which even color-codes gaming action keys—A, S, D, and W—in red.

On the ultraportable side, Sony's expensive and lightweight VGN-TXN15P/B is long on battery life, but its 1.2-GHz Core Solo U1400 CPU gives it less power than other units on the chart. Like the top-ranked Dell XPS M1210, though, the VGN-TXN15P/B is broadband-ready; using Sprint Mobile Broadband service, you can access the Internet when you're out of reach of a Wi-Fi hotspot.

—*Carla Thornton*



ASUS'S G2P-7R009C GAMING notebook is fast and flashy.

ONLINE

FOR MORE INFORMATION about these notebooks, including details on how we tested them, go to find.pcworld.com/55176.

	DESKTOP REPLACEMENT	PCW Rating	Performance	Features and specifications
1	Asus G2P-7R009C Best BUY $1949 NEW find.pcworld.com/57459	87 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: If your dream notebook is a desktop replacement that doubles as a lights-flashing gaming machine, look no further.			
2	HP Pavilion dv9000t $2125 find.pcworld.com/56991	84 Very Good	• WorldBench 6 Beta 2 score: 74 Superior • Overall design: Very Good • Tested battery life: 2:32	• 2-GHz Core 2 Duo T7200 • 17-inch wide screen • 7.7 pounds • HD DVD-ROM/DVD±R DL/DVD±RW/-RAM
	▸ Bottom line: The dv9000t provides great desktop muscle plus one-touch music, photos, and movies.			
3	Gateway NX860XL $2010 find.pcworld.com/56862	84 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-inch wide screen • 8.0 pounds • DVD±R DL/DVD±RW
	▸ Bottom line: Looks can deceive: The Gateway NX860XL lacks flair, but it's fast and powerful.			
4	Toshiba Satellite P105-S6217 $1649 find.pcworld.com/56861	82 Very Good	• WorldBench 6 Beta 2 score: 68 Very Good • Overall design: Very Good • Tested battery life: 1:55	• 1.66-GHz Core 2 Duo T5500 • 17-inch wide screen • 7.4 pounds • DVD±R DL/DVD±RW
	▸ Bottom line: This reasonably priced model offers good multimedia features, including an HDTV tuner—but its performance was modest.			
5	Micro Express NP5760 $2499 find.pcworld.com/56866	82 Very Good	• WorldBench 6 Beta 2 score: 82 Superior • Overall design: Good • Tested battery life: 1:52	• 2.33-GHz Core 2 Duo T7600 • 17-inch wide screen • 9.4 pounds • DVD+R DL/DVD±RW
	▸ Bottom line: This pricey gaming notebook's scorching performance is undermined by poor design in certain areas.			
	ULTRAPORTABLE			
1	Dell XPS M1210 Best BUY $2150 find.pcworld.com/56871	82 Very Good	• WorldBench 6 Beta 2 score: 76 Superior • Overall design: Very Good • Tested battery life: 5:18	• 2-GHz Core 2 Duo T7200 • 12.1-inch wide screen • 4.9 pounds • DVD±R DL/DVD±RW
	▸ Bottom line: If 5 pounds won't weigh you down, the Dell XPS M1210 is the perfect choice for work and play.			
2	Lenovo ThinkPad X60 Tablet $2500 find.pcworld.com/56869	81 Very Good	• WorldBench 6 Beta 2 score: 63 Very Good • Overall design: Very Good • Tested battery life: 5:20	• 1.83-GHz Core Duo L2500 • 12.1-inch screen • 4.6 pounds • DVD±R DL/DVD±RW/-RAM
	▸ Bottom line: Though pricey, the ThinkPad X60 offers the best of both worlds if you're choosing between a regular notebook and a tablet PC.			
3	Asus W5Fe-2P025E $2199 find.pcworld.com/56872	77 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: Powerful, light, and with an always-on lid LCD, the Asus W5Fe-2P025E is perfect for people with heavy schedules.			
4	HP Pavilion tx1000 $1779 find.pcworld.com/56592	76 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: Easy-to-use tablet PC has thoughtful design touches but short battery life.			
5	Sony VGN-TXN15P/B $2300 NEW find.pcworld.com/57460	76 Good	• WorldBench 6 Beta 2 score: 32 Poor • Overall design: Good • Tested battery life: 6:35	• 1.2-GHz Core Solo U1400 • 11.1-inch wide screen • 2.9 pounds • DVD+R DL/DVD±RW
	▸ Bottom line: The broadband-ready VGN-TXN15P/B is travel-ready and a battery champ, but it performed poorly and has a cramped keyboard.			

CHART NOTES: Prices and ratings are as of 6/6/07. Weight does not include AC adapter, power cord, or optical drive.

PHOTOGRAPH: ROBERT CARDIN

On-the-Go E-Mail for Everyday Cell Phones

CELL PHONE SERVICES

FULL-BLOWN E-MAIL management is the raison d'etre for BlackBerry units and Palm Treos. But what if you don't have a high-end cell phone? A pair of free services, Flurry and Teleflip, let you monitor e-mail on a variety of mass-market handsets. Both are useful, but in different ways.

For Flurry you need a Java-capable phone that can access the Internet. After signing up, I got a text message with a link; when I clicked it, the service's Java client downloaded and installed in a matter of minutes. After that I launched the application, and it started downloading message headers. All of the e-mail that it retrieves is processed through Flurry's servers, which compress images and strip down headers to keep your data airtime costs down.

You can add multiple e-mail accounts and RSS feeds, as well as import CSV-formatted contact lists, via your account page on Flurry's Web site. You can also set filters so that, for example, Flurry delivers messages only from certain people. Flurry doesn't refresh your inbox until instructed to do so, but you can opt to get text messages alerting you to any new mail, or messages from specific senders.

Flurry officials say it supports some 700 phone models worldwide, more phone models than services from Gmail and Yahoo can support.



THE FLURRY INBOX shows abridged message headers.



TELEFLIP USES SMS to show e-mail messages on a cell phone.

But Flurry doesn't work on networks such as Alltel or Verizon that prohibit third parties from installing software on their devices without carrier support (this failing also holds true, however, for Gmail and other Java-based mobile clients that don't partner with such carriers).

EASY ACCESSIBILITY

TELEFLIP HAS NO such problem because it requires no software download. You just sign up online via your PC and list the addresses of senders whose mail you want delivered to your phone; Teleflip's servers immediately relay their messages as SMS text messages. That makes Teleflip feel like push e-mail, and makes it accessible to virtually every current handset.

But Teleflip too has some negatives: The service's whitelist approach, intended to keep your phone spam-free, makes monitoring your inbox difficult, and right now you can't authorize your entire contact list. Also, because SMS messages cannot exceed 160 characters, Teleflip must split longer messages into several smaller ones. (You can stop the messages at any time).

Both companies plan to make money with ads located at the bottom of e-mail messages. Though you don't pay for either service, you may need to pay carrier fees for data or for text messages, depending on your plan.

If your carrier and handset support it, Flurry's superior feature set makes it the better choice. Teleflip might be worthwhile if you want to receive mail on your phone from only a few individuals.

—Yardena Arar

Flurry
PCW Rating 91 Superior
Fast, free, convenient way to monitor e-mail or RSS feeds on a conventional Java phone.
Free
find.pcworld.com/57419

Teleflip
PCW Rating 90 Superior
Free delivery of e-mail via SMS messages is best for receipt of important, expected messages.
Free
find.pcworld.com/57420

ASK OUR EXPERTS

Smart Parental Controls

I LIKE THE parental controls of Check Point's ZoneAlarm Internet Security Suite, but not the program as a whole. Can another program block unwanted Web sites just as well?

–Zoolou, via the PCWorld.com forums



Senior Editor Narasu Rebbapragada responds: The parental controls in most Internet security suites block sites found in a database of known bad sites (commonly called a blacklist). ZoneAlarm supplements its database with real-time analysis for protection against unknown sites. Few other suites use real-time analysis in their parental controls. McAfee Internet Security 2007's parental controls employ an algorithm to block pornographic images, but in a review we didn't find the technology accurate (see find.pcworld.com/57466); McAfee says that it is upgrading the feature. You might consider a stand-alone parental-control tool such as ContentWatch's ContentProtect (www.contentwatch.com). We have not reviewed this program, but it promises real-time site analysis.

Need information or advice about a buying decision? Drop us a line at askourexperts@pcworld.com.

BlackBerry Curve Looks Stylish

CELL PHONE

TEST Center

THE BlackBerry Curve 8300, the newest chic smart phone to sashay down the mobile-device runway, does for Research In Motion's line of QWERTY-keyboard-equipped handhelds what the Pearl did for RIM's standard-keypad devices: It adds style.

BlackBerry Curve 8300
Research in Motion
PCW Rating 90 **Superior**
Seductive handset with a QWERTY keyboard and camera lacks GPS and wireless network (Wi-Fi or 3G) support.
List: $200 (with a two-year Cingular/AT&T contract)
find.pcworld.com/57386

The Curve includes such multimedia features as a 2-megapixel camera with built-in flash and 3X digital zoom, as well as new desktop media-management software.

It supports all four GSM frequencies (800, 850, 1800, and 1900 MHz). Data-transfer rates, however, top out at 2.5G EDGE speeds; lack of HSDPA or Wi-Fi support is among the device's few weaknesses. I also miss the GPS chips and navigation software that come with the BlackBerry 8800, a more business-oriented device.

I evaluated a production-level Curve equipped with late-preproduction software and found it generally impressive. The device is small and lightweight. Voice quality on calls was fine. In our lab tests of the talk-time battery life, it lasted 10 hours, the maximum amount of time we test for. Its 320-by-240-pixel screen is gorgeous, and I also appreciated the marblelike trackball.

The Curve really shines as a mail and data device; the BlackBerry Internet Service did a first-class job with my Gmail account. The improved media player was intuitive and easy to use, too. But the Curve offers a rather thin array of productivity features.

Overall, however, I found the Curve a seductive alternative to other candy-bar phones with wide-aspect-ratio screens. It could well become the hot PDA phone of the moment.

—Yardena Arar



THE BLACKBERRY CURVE 8300 has multimedia savvy.

T-Mobile Wing Offers Great Call Quality

CELL PHONE

TEST Center

I'M FINICKY ABOUT call quality—but in my hands-on experience, the T-Mobile Wing ($300 with a two-year contract) sounded terrific. While on calls, I heard virtually none of the telltale hissing you find on most cell phones. The Wing also offers impressive battery life and a strong array of features.

The phone—the first to ship preloaded with Windows Mobile 6.0—includes a still-image and video camera, messaging, and a Windows-like menu system with apps such as Word and Excel to go.

The Wing sports a 2.8-inch touch-screen display and comes with a stylus. Six buttons and a five-way control located beneath the display make navigation a breeze. Slide the display left, and the screen automatically reorients itself in landscape view to accompany smooth typing on the roomy keyboard. The keys are wide and flat, with backlighting.

Unfortunately, I found many of the buttons around the perimeter of the phone hard to press and not well made. The volume slider was also difficult to adjust with the pad of my finger.

The dedicated camera button sits near the top left of the camera when the phone is oriented vertically, and at the top right when the phone is situated horizontally. But the button is hard to press. When I did push it, I often accidentally twisted the phone's slider mechanism, too.

The Wing is a quad-band GSM phone, providing support for 850-, 900-, 1800-, and 1900- MHz bands. In our lab tests the device lasted for 10 hours, which marks the ceiling of the PC World Test Center's battery-life evaluation.

For $300, the T-Mobile Wing is a reasonable value, given the device's versatility and stellar call quality. My greatest concerns about the phone involve its poorly constructed buttons; in the longer term, I'd worry about the integrity of its slider mechanism. But the Wing makes a great package, especially if you value the easy input that a touch screen affords, together with the computing flexibility of Windows Mobile.

—Melissa J. Perenson

Wing
T-Mobile
PCW Rating 86 **Very Good**
Offers clear calls and long battery life, but some of the buttons are difficult to press.
List: $300 (with a two-year contract)
find.pcworld.com/57415



T-MOBILE'S WING HAS a touch screen and includes a stylus.

PHOTOGRAPHS: MARC SIMON

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75555*

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❖ not available for T-Mobile, Verizon Wireless & Virgin Mobile customers

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REALTONES

Buy U A Drank... - T-Pain	**true 7097**
Pop, Lock & Drop It - Huey	**true 7098**
I Tried (So Hard) - Bone Thugs...	**true 7099**
I'm A Flirt Remix - R. Kelly	**true 7100**
Don't Matter - Akon	**true 7101**
Walk It Out - DJ UNK	**true 7102**
Get It Shawty - Lloyd	**true 7103**
Outta My System - Bow Wow	**true 7104**
The Way I Live - Baby Boy...	**true 7105**
Like This - Kelly Rowland	**true 7106**
Doe Boy Fresh - Three 6 Mafia	**true 7107**
Umbrella - Rihanna	**true 7108**
Because of You - Ne-Yo	**true 7109**
Girlfriend - Avril Lavigne	**true 7110**
Go Getta - Young Jeezy	**true 7111**
Anonymous - Bobby Valentino	**true 7112**
Lip Gloss - Lil Mama	**true 7113**
When I See U - Fantasia	**true 7114**
Diamonds - Fabolous	**true 7115**

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We Ride
Rihanna



video1440
What's Your...
Ludacris



video1441
Trap Star
Young Jeezy

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Friendly 'Feisty Fawn' Makes Linux Easy

OPERATING SYSTEM

UBUNTU LINUX HAS been deemed one of *PC World*'s Best Products of the Year for two years running. Why? It's completely free, it installs easily from one downloadable CD, and it focuses on user-friendliness. Since Ubuntu releases come twice each year, changes tend to be evolutionary. **Ubuntu Linux 7.04** (nicknamed "Feisty Fawn") has a few major new features and distinguishes itself mainly with its continued focus on usability, especially for newcomers to Linux.

The installation CD boots not to a setup program but to a fully functioning Ubuntu environment. This is your chance to kick the tires, to make sure audio, video, and networking are A-OK, to check whether all your peripherals are recognized, and so forth.

To place Ubuntu on your hard drive, you must double-click the Install icon located on the desktop. Ubuntu Linux shrinks your Windows partition, making room for itself. A migration assistant scours that partition, rounding up your browser settings and bookmarks, your documents, your music and image files, and even your desktop wallpapers, copying everything over to the new Linux partition. The most vexing questions you'll be asked have to do with what language you speak and the time zone you reside in.

PLENTY OF APPS

AFTER REBOOTING the computer, you select Ubuntu from your new boot menu, and shortly you're greeted by the user-friendly Gnome desktop.



THE PACKAGE MANAGER in Feisty Fawn shows ratings and popularity scores of programs available for download from Ubuntu repositories.

OpenOffice.org 2.2 is on hand and waiting for word processing and spreadsheet work, as are the Firefox Web browser, the Evolution e-mail client (a worthy Outlook imitator), the F-Spot photo manager (think iPhoto), the GIMP image editor, and Rhythmbox, Gnome's answer to iTunes and Windows Media Player. An experimental "Desktop Effects" feature adds whiz-bang interface bling that should make Vista and OS X users take notice.

Some Windows power users might prefer the KDE desktop, which more closely resembles Windows. The Kubuntu variant of Feisty Fawn replaces Gnome 2.18 with KDE 3.8.5 as the default interface. (Another variant, Xubuntu, instead provides Xfce 4.4, a lightweight environment that's perfect for an old computer you may have thought was no longer of any use.)

THE FRIENDLY LINUX

FOR YEARS NOW, many people have predicted the rise of Linux on the desktop. The updated Ubuntu Linux 7.04 is exactly the sort of polished, friendly release that is needed to make the dream a reality.

—Matthew Newton

Ubuntu Linux 7.04
Canonical
PCW Rating 92 **Superior**
An operating system, a universe of free apps, and free updates for life. What's not to like?
Free
find.pcworld.com/57423

TECH TREND

Laptops Gain in Weight, Size, Sales



HAVE NOTEBOOKS gotten bigger and heavier lately? The answer is yes, but only within the past year. Until recently the average weight of a desktop replacement notebook on our *Top 10 Laptops* charts has been about 8 pounds. In fact, notebook weights have not increased significantly over the past ten years. Big notebooks have hovered at the 15-inch size for a long time, as well—only within the past few years have we seen 17-inch models predominate.

Lately, however, we've seen Acer, Dell, and Hewlett-Packard introduce 20-inch notebook models. The Acer and Dell machines, which tipped our scales at over 16 pounds, certainly redefine the term *desktop replacement*—their huge screens and crammed-in features qualify them as true portable desktops.

And as notebook PCs continue to outpace desktop systems in sales, we're likely to see even more big, heavy notebooks. Toting one of them might require a rolling suitcase instead of a backpack. *–Kalpana Ettenson*

Blu-ray, HD DVD Players Take a Step Up

HIGH-DEF PLAYERS

TEST Center THE BLU-RAY DISC and HD DVD formats are still duking it out for dominance in living rooms. I tested new movie players from Samsung and Toshiba, and found that the return on investment keeps improving.

TOSHIBA HD-A20

JUST A YEAR after Toshiba shipped its first, clunky 1080i HD DVD player, the company has introduced the **HD-A20**, a svelte 1080p player with the same price tag that the 1080i model had a year ago. The boost in resolution will help with some scenes, but our test jury saw some moiré patterns persisting in our test scene from *Mission: Impossible III*.

That instance was an aberration, though; across the rest of our tests, the HD-A20 performed well. It generated sharp images with better contrast and detail than other units we've tested—including Toshiba's $800 HD-XA2, a 1080p model. The audio on our test disc sounded good, too, with more detail and softer volume than the Samsung BD-P1200 could manage.

With the HD-A20, unlike with its predecessors the HD-A2 and the HD-XA2, I could seamlessly switch among inputs on our receiver and then resume playback on the HD DVD player. But I didn't like the HD-A20's lag in responsiveness: Whenever I pressed one of the buttons, movie playback jerked before the player proceeded with the action.

SAMSUNG BD-P1200

THE NEW ENTRY from Samsung, the **BD-P1200**, is the first Blu-ray Disc player to come with an ethernet port that you can use to update the player's firmware—a valuable feature. When Disney shipped the first two *Pirates of the Caribbean* films on Blu-ray discs, most Blu-ray players couldn't play them properly without a firmware upgrade. If you didn't have an ethernet connection to the Internet, you had to visit Samsung's support site in order to download the firmware, and then burn it to CD so you could install it on the player.

The BD-P1200 is slimmer than Samsung's first Blu-ray model, the BD-P1000, a one-time Best Buy. The memory card slots have vanished, but the menus look identical. The player responded briskly as I tested such actions as skipping ahead a few chapters.

In the PC World Test Center's jury evaluation, viewers examined scenes from our seven test movies and found that the BD-P1200's image quality virtually matched that of its predecessor. Its audio sounded slightly better: The BD-P1200 supports the core audio streams for Dolby True-HD and DTS-HD Master Audio only; however, it adds full Dolby Digital Plus to its list of supported audio formats.

Samsung's BD-P1200 is a solid follow-up to the company's first player (although I wish it had better audio support). But Toshiba's HD-A20 is a tremendous value; with a street price of $450, it's the least-expensive 1080p high-def player on the market.

—Melissa J. Perenson



TOSHIBA'S HD-A20 (TOP) is the least-expensive 1080p set-top player you can buy; if you prefer Blu-ray, Samsung's BD-P1200 is a good bet.

BD-P1200
Samsung Electronics
PCW Rating 80 Very Good
One of the better Blu-ray players for the money, this model comes with an ethernet port.
Street: $700
find.pcworld.com/57503

HD-A20
Toshiba
PCW Rating 81 Very Good
The best HD DVD player we've tested costs less than most high-def players of any format.
Street: $450
find.pcworld.com/57502

QUICK TAKE

Blu-ray/HD DVD Combo

TEST Center LG'S **GGW-H10NI Super Multi Blue BD Drive/HD DVD Reader** can write to Blu-ray Disc media and can play HD DVD ROMs, including all Hollywood HD DVD movies currently shipping. It's the first drive to have such flexibility—but at $1199 (list price), it will cost you.



The LG drive can handle 4X BD-R writes, but only 2X media is available now; manufacturers say 4X BD-R media won't appear until the third quarter of the year. In tests, the drive took 44 minutes, 14 seconds to write 22GB of files and folders with CyberLink's Power2Go (included with the drive)—typical for an internal 2X Blu-ray Disc writer. See find.pcworld.com/57483 for a full review of this model.

—Melissa J. Perenson

PHOTOGRAPHS: ROBERT CARDIN, MARC SIMON (TOP)

High-Definition Camcorders Make Video Pop

CAMCORDERS

TEST Center

YOUR NEXT TV will almost certainly be a high-definition model; and your next optical drive, whether it be in a new PC or under a TV, will probably play high-def movies. It's less certain that your next camcorder will capture HD footage, but a couple of models we appraised for this month's chart are good candidates for generating high-def content.

The PC World Test Center evaluated four different types of HD camcorders: The Canon **HV20** records HDV-format footage to a MiniDV tape; the Panasonic **HDC-SD1** records AVCHD footage to a memory card; the Sanyo **VPC-HD2 Xacti** records MPEG-4 footage to a memory card; and the Sony **HDR-SR1** records AVCHD video to an internal hard drive. (Turn to page 65 for more on the AVCHD and HDV formats.)

The Panasonic unit won our image-quality tests, but the Canon HV20 takes Best Buy honors with more features and a price $200 lower than the Panasonic's. Sony asked us to return the HDR-SR1 before we could conduct our hands-on tests, so we can't give it an overall rating, but we've included its results on our video, still-image, and battery tests.



CANON'S HV20 CAPTURES gorgeous HDV footage for a relatively low price.

AVCHD'S ADVANTAGE

UNDER NORMAL room lighting, the Panasonic HDC-SD1 captured much better video; and under dimmed lights, it held an even greater advantage. The other AVCHD model, Sony's HDR-SR1, finished second in video quality, but it didn't perform distinctly better than Canon's HV20. The VPC-HD2 Xacti trailed the others by a large margin—in part because our test TVs couldn't upscale its 720p signal, so we had to play its test footage at 480p. We also tried the VPC-HD2 on a 50-inch Pioneer Elite plasma TV that could handle upscaling, however, and the Panasonic model's footage still looked much better than the VPC-HD2's.

The VPC-HD2 virtually tied the HV20 in our still-image tests. The HDR-SR1 earned the best mark for audio quality, by a small margin over the HV20, but the HV20's battery lasted much longer than those of the other models.

At 7.4 ounces, the VPC-HD2 is less than half as heavy as any of the others; it's much smaller, too. But when you want to charge the unit, you must set it on its included dock, which also provides HDMI, component, and USB connections. The Canon HV20 is tubby by comparison, yet some of its control buttons—especially the start/stop button and the zoom lever—are unduly small and hard to use. But at least you don't have to put it on a dock to connect it to a TV via HDMI or component.

Neither Canon nor Sanyo provides software for transferring video to your computer. However, several video editing applications, including the two we cover on page 65, can import and edit MPEG, AVCHD, or HDV footage.

The Panasonic HDC-SD1's great image quality makes it an easy choice if you don't mind paying a premium for it. But the Canon HV20's video (which has more modest system requirements for editing) looks very good too, and that model has more features for less money.

—Alan Stafford

	HIGH-DEFINITION CAMCORDER	PCW Rating	Performance	Features and specifications
1	Canon HV20 Best Buy $999 find.pcworld.com/57457	85 Very Good	• Video/still-image quality: Very Good/Superior • Battery life: Superior (116 minutes) • Overall design: Very Good	• 10X optical zoom • 2.7-inch LCD; electronic viewfinder • HDV format on MiniDV tape • 18 ounces
	▸ **Bottom line:** The HV20 captures beautiful video in HDV format. It takes better still shots and has more features than the HDC-SD1, for $200 less.			
2	Panasonic HDC-SD1 $1199 find.pcworld.com/56524	81 Very Good	• Video/still-image quality: Superior/Good • Battery life: Very Good (96 minutes) • Overall design: Very Good	• 12X optical zoom • 3-inch LCD • AVCHD format on SDHC Card • 17 ounces
	▸ **Bottom line:** This model easily won our video quality tests. It is more comfortable to hold and use than the HV20, but it costs 20 percent more.			
3	Sanyo VPC-HD2 Xacti $699 find.pcworld.com/57458	72 Good	• Video/still-image quality: Fair/Superior • Battery life: Good (85 minutes) • Overall design: Good	• 10X optical zoom • 2.2-inch LCD • MPEG-4 format on SD Card • 7 ounces
	▸ **Bottom line:** This lightweight 720p model competes poorly with the 1080i models, but its small size and light weight are distinct advantages.			
—	Sony HDR-SR1 $999 find.pcworld.com/57433	— Pending	• Video/still-image quality: Very Good/Good • Battery life: Fair (80 minutes) • Overall design: Good	• 10X optical zoom • 3.5-inch LCD; electronic viewfinder • AVCHD format on 30GB hard drive • 25 ounces
	▸ **Bottom line:** We had to return our unit before finishing our hands-on tests, but in our performance tests the HDR-SR1 captured very nice video.			

CHART NOTES: Ratings are as of 6/6/07. All LCD screens except for the Sanyo VPC-HD2 Xacti's are designed in wide-aspect ratio. All video and still-image tests were conducted at each camcorder's highest quality setting or resolution.

PHOTOGRAPH: MARC SIMON

New Video Editors Need Beefy PCs to Edit HD

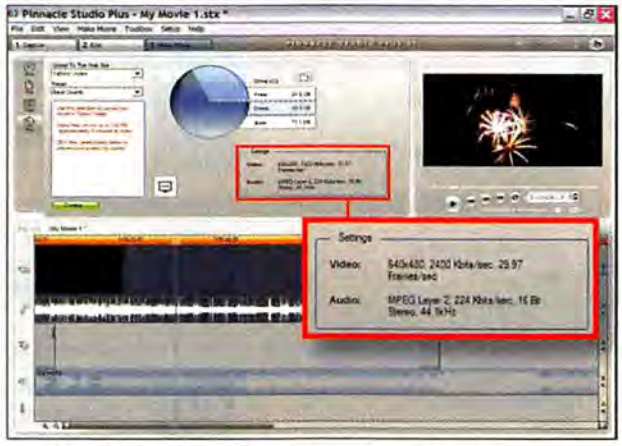
VIDEO EDITORS

VIDEO EDITING applications are starting to accept high-definition footage. But you may need to crank your PC up a notch: The shipping versions of Corel's **Ulead VideoStudio 11 Plus** and Pinnacle Systems' **Studio 11 Ultimate** require serious computing horsepower for editing in high def.

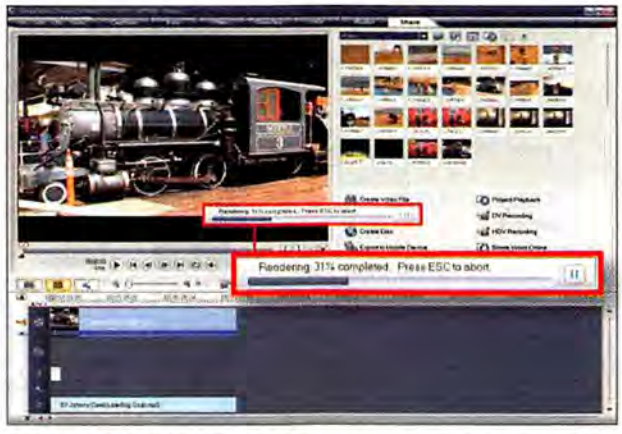
These apps are the first to let you edit footage captured in AVCHD (Advanced Video Codec High Definition, the newer of the two high-def formats); they also let you edit footage taken in HDV (High Definition Video). Both formats use very high compression, so they need a powerful processor to do the decoding.

Make that *very* powerful: For editing AVCHD footage, Pinnacle Studio Ultimate demands at least a 2.4-GHz Core 2 Duo CPU, a 256MB graphics card, and 1.5GB of RAM—2GB of RAM if you run the software on a Windows Vista PC. The program's requirements for HDV editing are lower. Corel's Ulead VideoStudio 11 Plus specifies at least a 3-GHz Pentium 4 with hyperthreading technology and 1GB of RAM for AVCHD or HDV.

I tried both applications on a 2.4-GHz Pentium 4 system and a new Polywell 2.66-GHz Core 2 Duo Extreme system. My older PC comfortably met both applications' minimum requirements for standard-definition video, and it had sufficient power to run either application. Both Studio and VideoStudio ran much more smoothly on the new system, of course, but VideoStudio outperformed its rival when working with high-definition video. Studio's interface was more lethargic when I performed edits in its time line.



PINNACLE STUDIO 11 uses fixed settings for Yahoo Video uploads.



COREL ULEAD VIDEOSTUDIO 11 Plus can pause rendering operations.

When outputting video in VideoStudio, you can pause the intensive rendering operation. This is a great feature if you need to use your computer for something else while you're exporting a movie.

Both programs let you burn HD movies to HD DVD discs or standard DVD discs, and the burned discs will play in a PC's DVD drive with the aid of an application such as WinDVD 8 (which Corel includes with the Plus version of VideoStudio) or in an Xbox 360. At this point neither Studio nor VideoStudio supports Blu-ray drives, but Pinnacle and Corel are planning to release free patches to offer such support.

Studio 11 Ultimate

Pinnacle Systems

PCW Rating 68 **Fair**

Lingering instability spoils this editor's high-def compatibility and neat Web upload feature.

Street: $130

find.pcworld.com/57431

Ulead VideoStudio 11 Plus

Corel

PCW Rating 84 **Very Good**

Strong performer with high-def video; all video editors could use its "pause rendering" feature.

Street: $129

find.pcworld.com/57432

UPLOAD OPTIONS

STUDIO LETS YOU upload edited movies to Yahoo Video or to Pinnacle's video-sharing site from within the app (an account at the latter costs $36 a year for 100MB of storage). The feature is easy to use, especially if you have a Yahoo account. The file that I uploaded looked okay, with good movement. I would prefer to be able to upload to YouTube, as well; Pinnacle says that it's working on adding other sites.

Studio 11 is more stable than Studio 10, but I still had problems with it. I experienced several crashes; and after each one, if I didn't restart my PC, the application would hang while reloading. The Instant DVD Recorder utility bundled with Studio wouldn't burn a DVD+RW or a DVD-R when I tried it on my older PC; instead, it kept reporting a 'Disc Error'. Two of the three burns that I attempted on the newer PC resulted in coasters. VideoStudio Plus never crashed while I was using it, though I worked with the same camcorders and files that I had used with Studio Ultimate.

If you own a camcorder that records in AVCHD format, I would recommend VideoStudio Plus on the strength of its stability and less onerous system requirements. If you own a standard-resolution camcorder, you could opt for the lower-priced VideoStudio 11 (no "Plus"); it doesn't handle high-def, but it costs $39 less.

—Alan Stafford

TOP 10 INKJET MULTIFUNCTION PRINTERS

New Printers Ideal for Home and Office

TEST Center BOTH OF THE new multifunction printers on this month's inkjet MFP chart have features that should appeal to home and office users. Canon's Pixma MP530, which captures the number four spot, is equipped with a built-in fax, an automatic document feeder, and a duplexer. It produced high-quality scans and copies in PC World Test Center tests.

HP's OfficeJet Pro L7680, which lands at number five, is pricey but comes with an array of office-minded features; for instance, its single paper tray holds 250 sheets, far more than other models can hold. It printed text pages very quickly (at 13.1 pages per minute), and its high-quality glossy prints looked superior to those generated by many color laser printers we've tested.

—*Kalpana Ettenson*



HP'S OFFICEJET PRO L7680 would fit well in a small office.

ONLINE

FOR MORE INFORMATION about all of the inkjet multifunction printers reviewed and ranked in this chart, including details about how we tested them, go to find.pcworld.com/57396.

	INKJET MULTIFUNCTION PRINTER	PCW Rating	Performance	Features and specifications
1	Canon Pixma MP600 Best Buy $179 find.pcworld.com/55963	84 Very Good	• Text quality: Good • Graphics quality: Good • Tested speed (ppm): 11.9 text/ 3.7 graphics	• 30 ppm text • 24 ppm graphics • 9600-by-2400-dpi maximum true color resolution
	▸ **Bottom line:** This unit prints good text and photos; it has a duplexer and dual paper trays, but no film scanning or automatic document feeder.			
2	Canon Pixma MP960 $400 find.pcworld.com/55964	80 Very Good	• Text quality: Fair • Graphics quality: Good • Tested speed (ppm): 11.7 text/ 3.1 graphics	• 30 ppm text • 22 ppm graphics • 9600-by-2400-dpi maximum true color resolution
	▸ **Bottom line:** A big LCD and scroll wheel make the pricey MP960 a snap to use. It prints top-quality photos quickly and scans film.			
3	Canon Pixma MP510 $149 find.pcworld.com/55965	80 Very Good	• Text quality: Fair • Graphics quality: Good • Tested speed (ppm): 8.2 text/ 3.3 graphics	• 25 ppm text • 17 ppm graphics • 4800-by-1200-dpi maximum true color resolution
	▸ **Bottom line:** This basic model comes with dual paper trays and produces high-quality photos, but its color LCD is small.			
4	Canon Pixma MP530 $200 NEW find.pcworld.com/57390	78 Good	• Text quality: Good • Graphics quality: Good • Tested speed (ppm): 8.9 text/ 3.2 graphics	• 29 ppm text • 19 ppm graphics • 9600-by-2400-dpi maximum true color resolution
	▸ **Bottom line:** The MP530 combines several home-office functions in one unit, but it prints digital photos only from a PC.			
5	HP OfficeJet Pro L7680 $400 NEW find.pcworld.com/57391	78 Good	• Text quality: Fair • Graphics quality: Fair • Tested speed (ppm): 13.1 text/ 4.2 graphics	• 35 ppm text • 34 ppm graphics • 4800-by-1200-dpi maximum true color resolution
	▸ **Bottom line:** Though expensive for an inkjet MFP, the L7680 provides small-office features at a price below that of a color laser MFP.			
6	HP Photosmart C5180 $200 find.pcworld.com/55966	76 Good	• Text quality: Fair • Graphics quality: Fair • Tested speed (ppm): 7.3 text/ 2.8 graphics	• 32 ppm text • 31 ppm graphics • 4800-by-1200-dpi maximum true color resolution
	▸ **Bottom line:** Priced competitively for a networked MFP, the C5180 delivers nice photos, but its performance on plain paper didn't wow us.			
7	Epson Stylus Photo RX580 $150 find.pcworld.com/55967	73 Good	• Text quality: Poor • Graphics quality: Poor • Tested speed (ppm): 3.9 text/ 2.8 graphics	• 30 ppm text • 30 ppm graphics • 5760-by-1440-dpi maximum true color resolution
	▸ **Bottom line:** This model is easy to use, but it fails to offer any outstanding features to compensate for its mediocre print quality.			
8	Dell AIO 966 $199 find.pcworld.com/55969	73 Good	• Text quality: Poor • Graphics quality: Fair • Tested speed (ppm): 7.7 text/ 1.9 graphics	• 32 ppm text • 23 ppm graphics • 4800-by-1200-dpi maximum true color resolution
	▸ **Bottom line:** The AIO 966 includes Wi-Fi, a fax, and an ADF, and it presents a range of upgrade options, but its print quality isn't tops.			
9	Kodak EasyShare 5300 All-in-One $200 find.pcworld.com/57306	72 Good	• Text quality: Fair • Graphics quality: Fair • Tested speed (ppm): 6.2 text/ 2.1 graphics	• 32 ppm text • 22 ppm graphics • No spec for maximum true color resolution[1]
	▸ **Bottom line:** This all-in-one delivers prints at very reasonable ink costs. Its performance is fair, but photo quality is mixed.			
10	Lexmark X5470 $99 find.pcworld.com/55968	71 Good	• Text quality: Fair • Graphics quality: Poor • Tested speed (ppm): 9.8 text/ 2.1 graphics	• 25 ppm text • 18 ppm graphics • 4800-by-1200-dpi maximum true color resolution
	▸ **Bottom line:** The inexpensive X5470 comes with many features, including faxing and media slots; print quality is lackluster, however.			

CHART NOTE: Prices and ratings are as of 6/6/07. **FOOTNOTE:** [1]Manufacturer does not provide information on the maximum true color resolution of its models.

PHOTOGRAPH: ROBERT CARDIN

New Hotmail Behaves Like a Desktop App

WEB-BASED E-MAIL

MICROSOFT HAS rolled out its new **Windows Live Hotmail** interface to all users of Hotmail, transforming it into an e-mail application with a much better desktop-app-like feel.

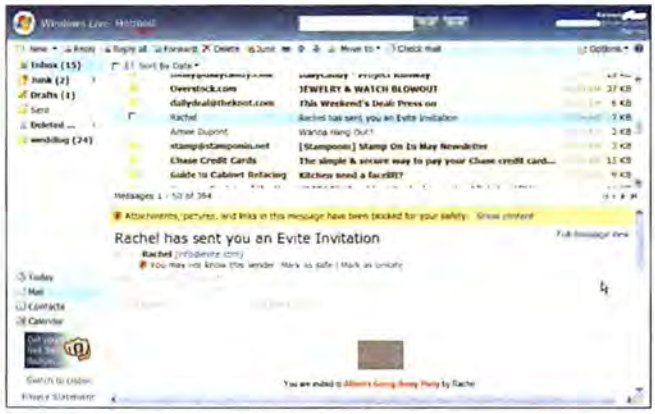
To switch to the new layout, you click a green *Join Windows Live Hotmail* button, and the installation routine prompts you to choose whether to put the new message preview pane on the bottom or on the right side of the browser window—or not to show it at all.

When you open a new folder or compose a new message, the display changes just as quickly as it would in a desktop program. But that view takes over the display; and unlike Yahoo Mail it has no tabs, so you can't compose a new e-mail message and check other messages simultaneously. Nor can you cut from one message and paste into another. You can use a search box up top to look for messages, but it searches only by sender.

Two nifty extras: A control bar in messages that contain sound file attachments permits you to play any such file from within Hotmail, and an Explorer-like interface with thumbnails helps you select photos to attach to messages. Both of these tools work only in Internet Explorer, though.

Of the recent crop of Web-based e-mail programs, I still like Yahoo's best. But if you're a Hotmail user, the new version's many enhancements make upgrading to Windows Live Hotmail a no-brainer.

—Erik Larkin



THE NEW WINDOWS Live Hotmail interface is easy to navigate.

Windows Live Hotmail
Microsoft
PCW Rating 88 **Very Good**
It's not the best Web-based e-mail program available, but the new Hotmail is an excellent upgrade.
Free
find.pcworld.com/57449

OrgPlus Live Takes Org Charting to the Web

ORG CHARTS

THE WEB-BASED **OrgPlus Live** from HumanConcepts lets you design and edit org charts easily. The beta version I tried worked well despite a few minor bugs. Depending on who is charting what, however, a desktop version of OrgPlus may end up costing less.

The Flash-based OrgPlus Live works with Firefox 2.0 and with Internet Explorer 6 and 7 on the PC. It seemed happiest when running in tandem with IE (in Firefox, I experienced a couple of crashes). I made a quick 20-person chart by filling out the 13-box org-chart template, dragging and dropping the rest of the hierarchical chart boxes from the toolbar. I entered data for each chart box, which in my example was a person, in the left-side profile pane. I added data fields as needed and had little trouble moving boxes, searching for people by field criteria, and navigating a large chart by zooming and panning around the window. OrgPlus Live exports charts to Microsoft Excel and PowerPoint, and to Adobe Acrobat for hard copies.

For creating extremely large charts (OrgPlus Live currently supports up to 750 boxes), you can import data from a Microsoft Excel .xls or .csv file or the OrgPlus desktop software. The service starts at $10 per month for one person who works on a maximum of 50 boxes per chart. The cost rises the bigger your chart and the more creators (or editors) you have. If one person creates large charts over a long period, the fuller-featured desktop software is more cost-effective.

OrgPlus Live does simple charting well if your needs are modest or short-term, or if you are an OrgPlus desktop user who simply needs to add a couple of remote editors.

—Narasu Rebbapragada



ORGPLUS LIVE'S TOOLBAR lets you organize chart boxes; a graphic display (at lower right) indicates the part of the chart you're viewing.

OrgPlus Live
HumanConcepts
PCW Rating 76 **Good**
This cleanly designed, easy-to-use Web-based program is cost-effective only for less-demanding org-charting needs.
List: $10 per month (one person editing an unlimited number of 50-box-maximum charts)
find.pcworld.com/57475

Lightweight and Sleek iRiver MP3 Player

MP3 PLAYER

TEST Center **THE SMALL, sleek Clix 2nd Generation** from iRiver has pretty much everything you'd want in a flash-based media player, starting with a beautiful, easy-to-read display and good controls.

The 1.9-ounce, 4GB shipping model I tested costs $200. The device plays MP3, OGG, and WMA song files; and it's compatible with eMusic, Napster, Sony, Urge, and Yahoo online services. It also supports files saved in WMV or MPEG format for video playback.

Video looks crisp and bright on the 2.2-inch, active-matrix organic light-emitting diode (AMOLED) display. The Clix 2nd Generation can play and record FM radio, too, and it can handle voice recordings.

The entire front panel functions as a directional pad. By clicking up-down or left-right, you can quickly navigate the menus and make selections.

In the PC World Test Center's audio tests, the Clix fared poorly at handling harmonic distortion and cross-talk; our test of the latter measure assesses whether sound from one channel leaks into the other. In informal testing, I got reasonably clean sound through the accompanying earbuds.

The Clix 2nd Generation is a fine player, with a great display and intuitive controls. Its storage space can't match that of a hard-disk-based player; but if you're looking for a light, portable, flash-based device, it makes an excellent choice.

—Erik Larkin

Clix 2nd Generation
iRiver
PCW Rating 78 Good
Lightweight, easy-to-use flash-based player has a nice display and fairly good sound.
List: $150 (2GB), $200 (4GB), $250 (8GB)
find.pcworld.com/57455



IRIVER'S CLIX 2ND Generation is narrower than a business card.

Save-Your-Bacon Utility Undeletes Files for Free

FILE UTILITY

FOR RESTORING FILES that you've deleted from your hard drive, **Pandora Recovery** is one solid option. Version 1.1.20 of the utility worked well in my tests—and it costs nothing.

An optional step-by-step wizard helps beginners get up to speed. The utility's paned file-browser interface is probably most appropriate for an experienced user, but anyone who's familiar with Windows Explorer will find it easy to learn.

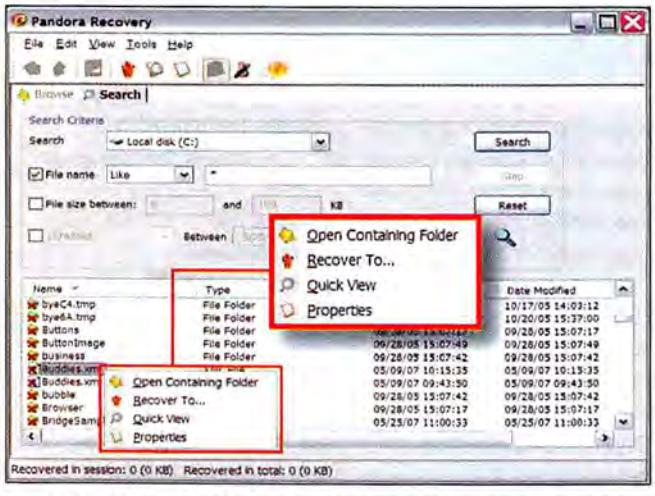
Selecting a partition in the file-browser interface produces a quick list of all the files and the status of each (healthy, deleted, or overwritten). To undelete a file, you simply select it, right-click, and choose *Recover* from the pop-up menu. The utility reveals to you how much of a deleted file has been overwritten—an important feature, since no program can retrieve overwritten data.

The version I tested has a "surface scan" feature that supposedly recovers files from reformatted media or from discs whose file allocation table is damaged or missing. But its scope is limited to digital image files, and it found no additional recoverable files on my 250GB test drive despite taking an hour to inspect it.

Because Pandora Recovery works only on existing NTFS partitions, you can't use it on a FAT32-formatted thumb drive, though the company says that a program to handle that task is in the works.

Unlike other programs of its ilk, it won't prevent you from writing undeleted files to the same media you're recovering them from (it does warn you against doing this); using the same media is a horrible idea because it may result in overwriting files that you want to restore. But quibbles aside, it's a good undelete program for NTFS partitions, and it's free.

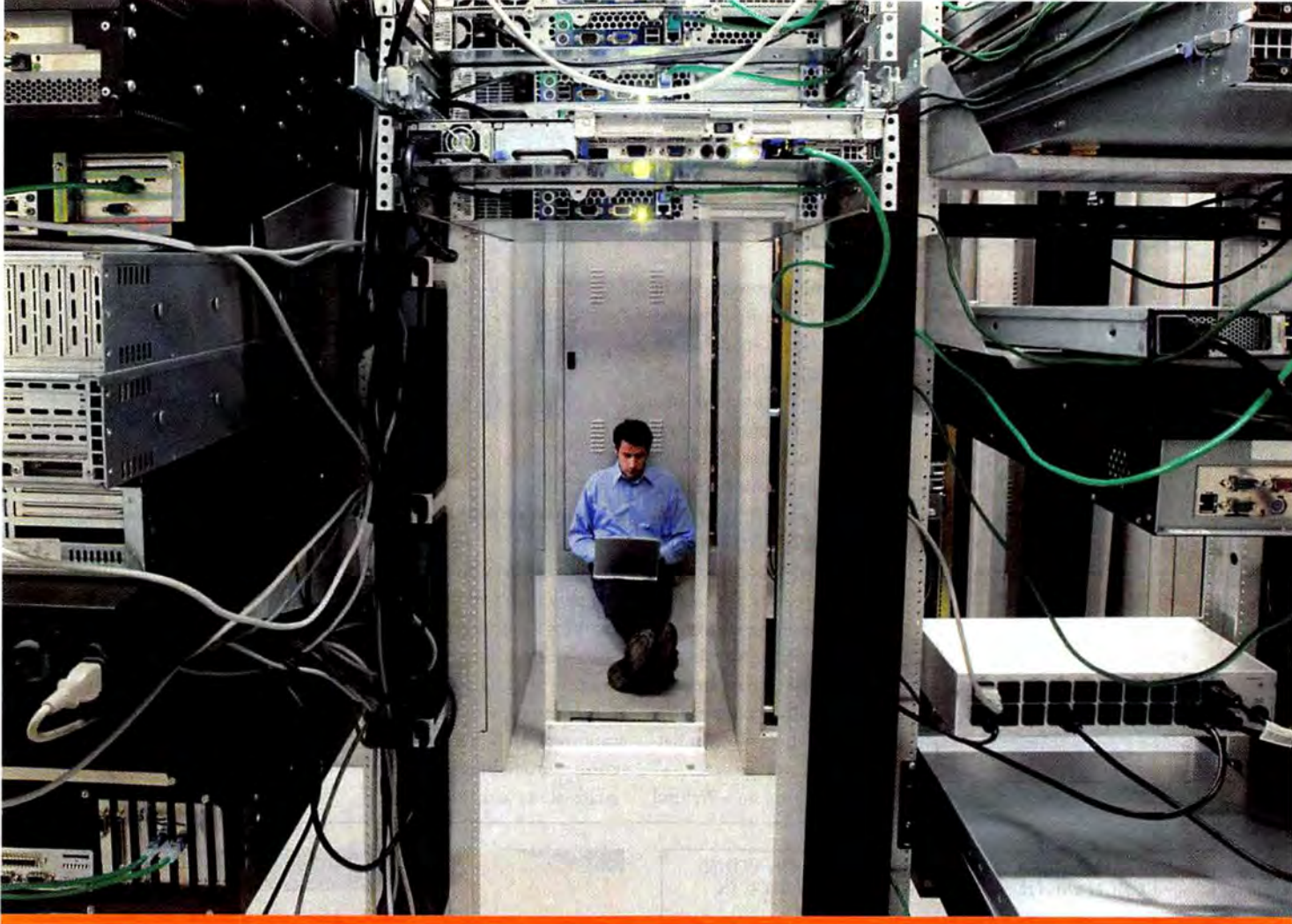
—Jon L. Jacobi



IN PANDORA RECOVERY, right-clicking in a list of deleted files yields a snapshot of the imperiled file or lets you pick a recovery destination.

Pandora Recovery 1.1.20
Pandora
PCW Rating 81 Very Good
A good undelete program for NTFS partitions, but be careful choosing a recovery location.
Free
find.pcworld.com/57453

PHOTOGRAPH: MARC SIMON



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Fuji Digicam Has SLR Looks, Budget Price

DIGITAL CAMERA

TEST Center

FUJIFILM'S FinePix S700 adds an SLR-style frame to the solid functionality of an advanced point-and-shoot. Its best traits are its long battery life, manual controls, 10X optical zoom, and image stabilization—not a bad combo in a $250 model.

FinePix S700
Fujifilm
PCW Rating 82 Very Good
The nicely priced S700 has good features and SLR styling but an awkward electronic viewfinder.
List: $250
find.pcworld.com/57463

The camera powers up in less than 2 seconds, and the shutter button responds fairly quickly. It handled close-up shots nicely; I photographed a quarter at a distance of about 2 inches, and the resulting shot looked crisp and clear.

In our lab tests, the 7.1-megapixel S700 earned a high score for color accuracy and an average score for sharpness. Its scores for distortion, however, were subpar. In our battery-life tests, the camera's four AA alkaline batteries supported 475 shots—much better than the average score.

I liked the camera's 'Natural Light and Flash' mode shooting option, where the camera captures a pair of consecutive shots—one without flash and another with flash—so you can compare which lighting captured the better image. A continuous-shooting mode snaps shots at a resolution of either 7 megapixels (the unit's maximum) or 4 megapixels. This feature worked fine, but it was a bit slow to record.

The S700 has the chops to perform well in most shooting scenarios. You may find the body a bit bulky, though.

—Grace Aquino



THE FINEPIX S700 has a sturdy but bulky body, and costs just $250.

PHOTOGRAPH: MARC SIMON

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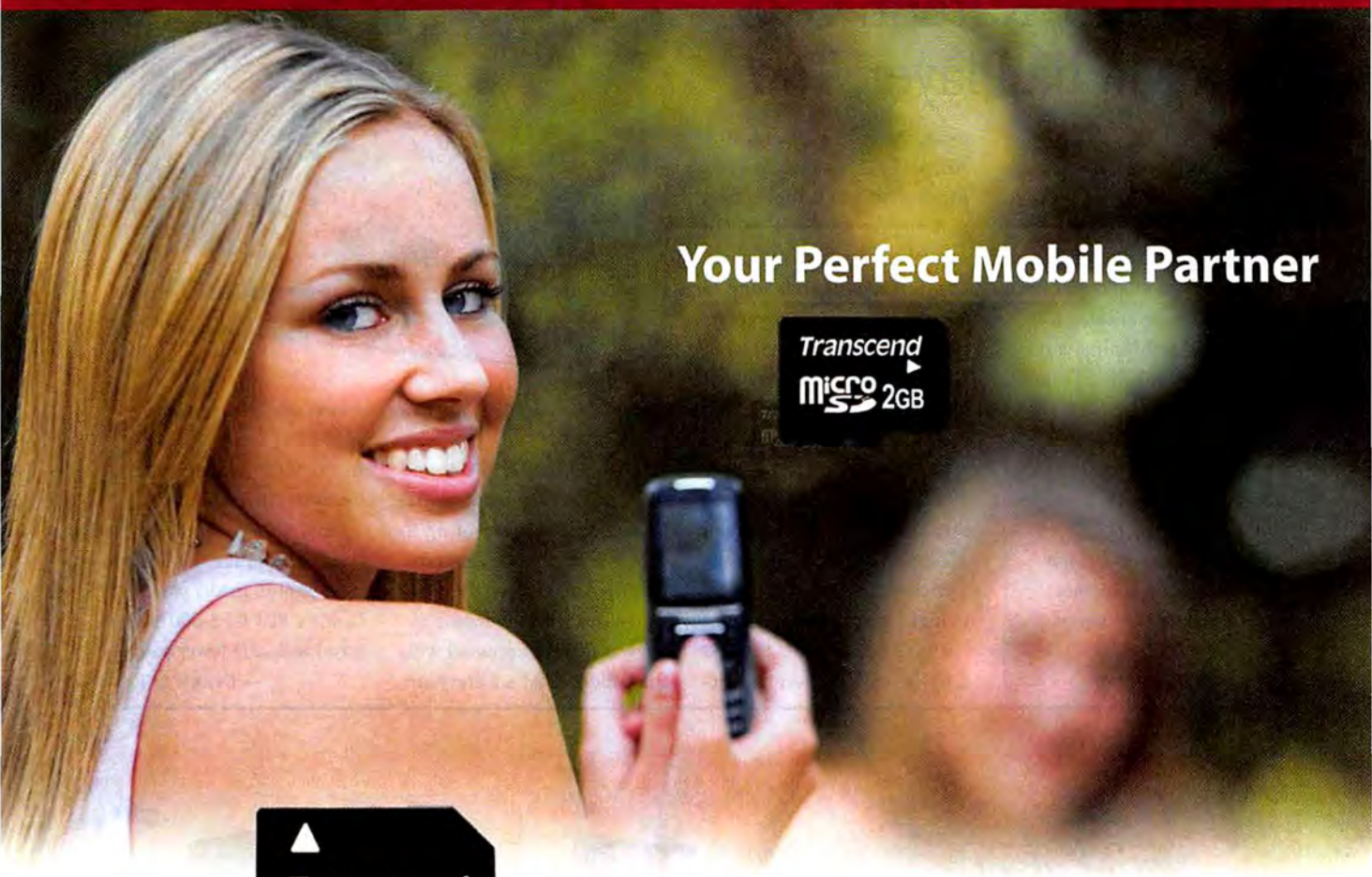
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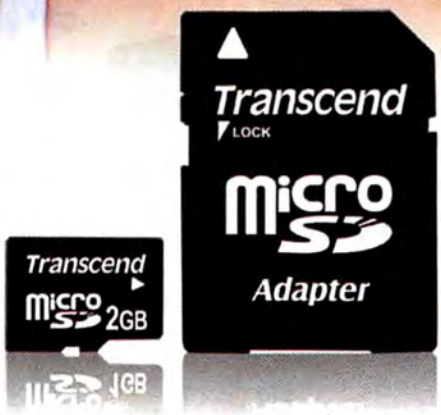
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Harman/Kardon GPS Is a Media Player, Too



THE GUIDE + Play GPS-500 navigates while you listen to music.

PHOTOGRAPH: MARC SIMON

GPS DEVICE

HARMAN/KARDON'S **Guide + Play GPS-500** is both a good in-car GPS-based navigator and a worthy portable media player, though it's a step down from the best in either category.

I tested a shipping version of the device. When I started its navigation app for the first time, its built-in Centrality Atlas II GPS receiver took more than a minute to find and display my location. On several subsequent cold starts, the unit took just as long to acquire enough GPS signals to orient itself. Once it locked on to the signals, however, it followed my progress along the route without lagging.

The Guide + Play's 4-inch, 480-by-272-pixel LCD touch screen shows maps in 2D and 3D views, and it automatically switches from daylight view to night view as the sun sets.

The Guide + Play is the first GPS device I've seen that lets you listen to MP3, WMA, and AAC audio files from an SD Card with a capacity of up to 4GB while also receiving turn-by-turn driving directions (no card ships with the product).

I was quite impressed with the Guide + Play's battery life: In my tests the device lasted for more than 6 hours.

Most GPS devices are just one-trick ponies. But thanks to its built-in media player, the Guide + Play GPS-500 lets you travel with one fewer gadget.

—Dennis O'Reilly

Guide + Play GPS-500
Harman/Kardon
PCW Rating 81 Very Good
Sleek GPS device has a useful media player, but sometimes lags at acquiring GPS signals.
Street: $400
find.pcworld.com/57451



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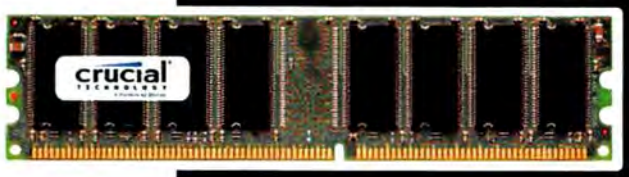


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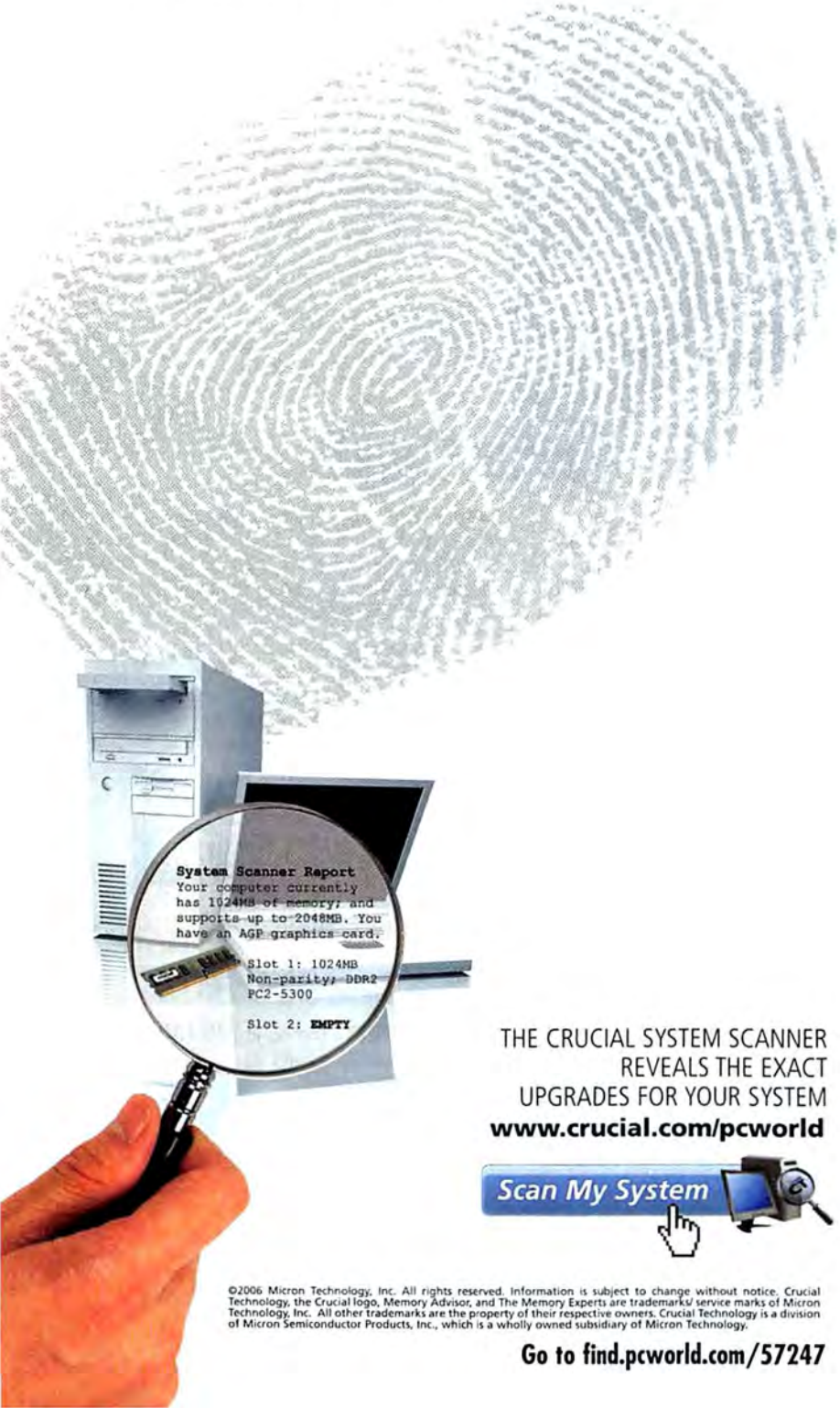
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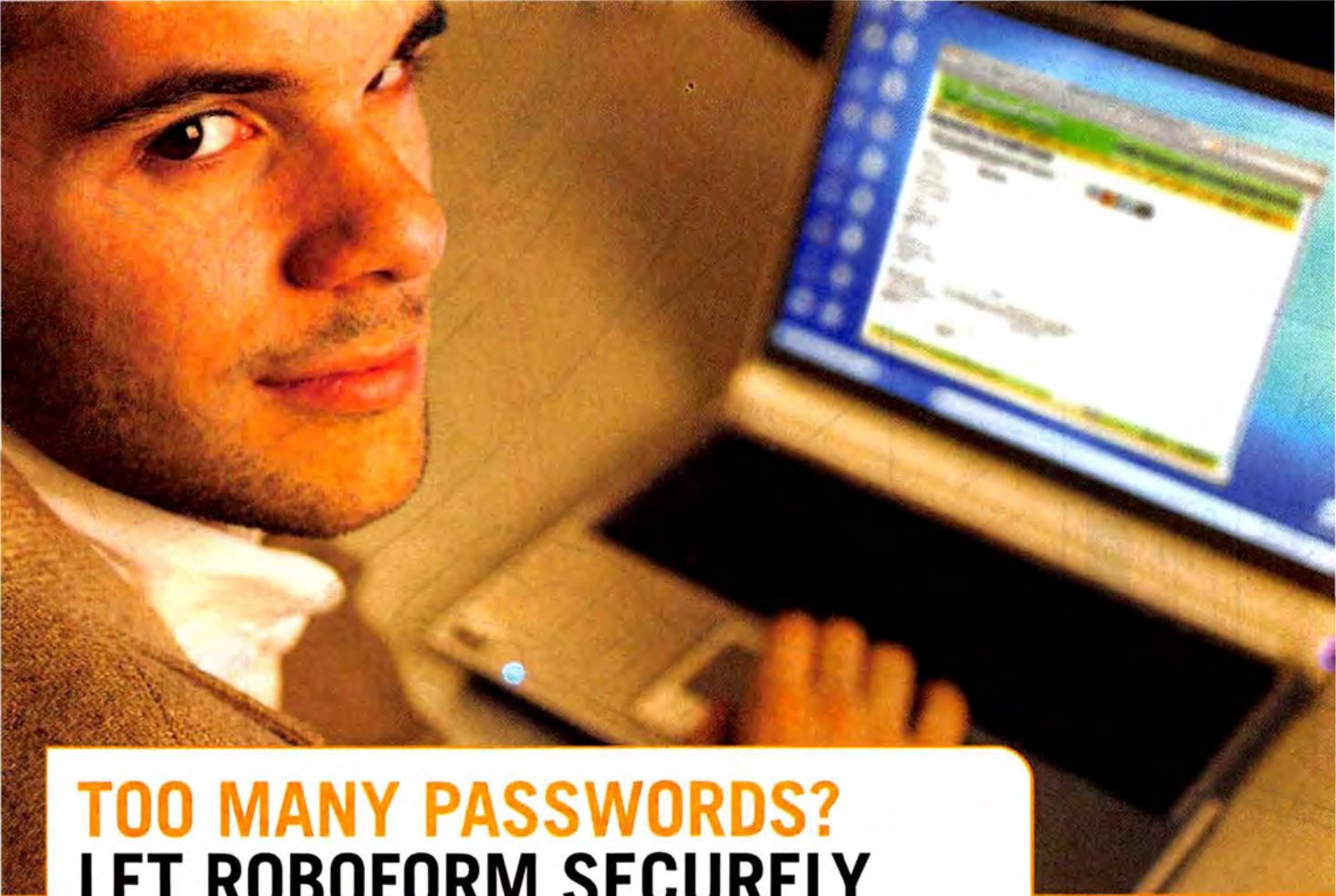
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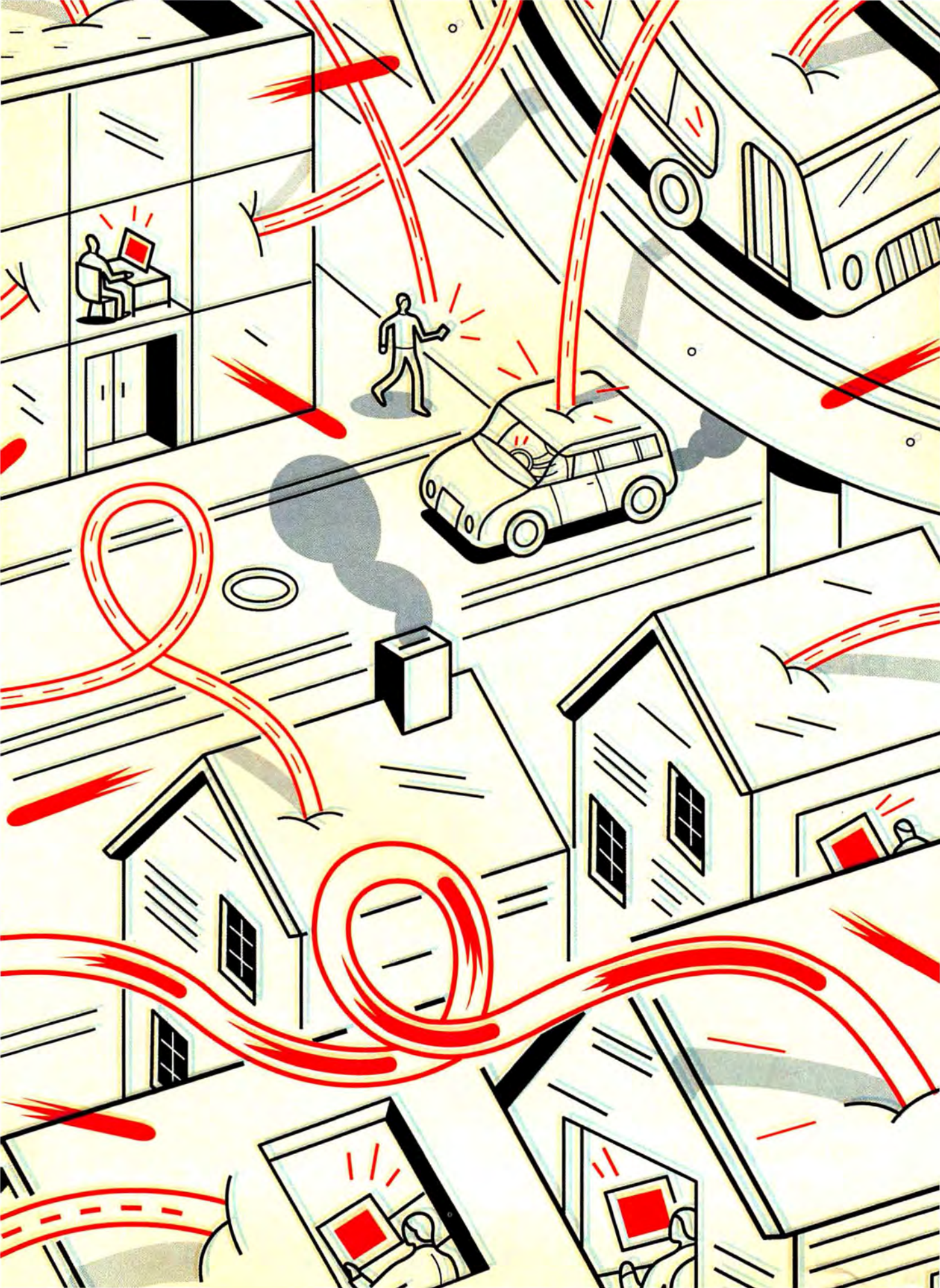
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Broadband EXPANDS

BY JEFF BERTOLUCCI

YOU WANT A FASTER INTERNET? So does IT professional Chris Hesler of Cincinnati. When his 5-megabits-per-second Road Runner broadband connection from Time Warner Cable proved too sluggish for his needs, Hesler, 22, upgraded to the company's top-of-the-line 8-mbps service. For him, the reduced latency times and 512-kilobits-per-second upload speed (up from 256 kbps) paid off.

"My roommate and I play a lot of video games, like World of Warcraft. We switched to get our latency times down a little bit on the games," says Hesler, who now has the ability to download a 1GB document in just 20 minutes.

That's fast, perhaps, but not fast enough—especially when it comes to uploads. Like many broadband users, Hesler craves more bandwidth: "I wish they'd increase the upload speed to at least a meg."

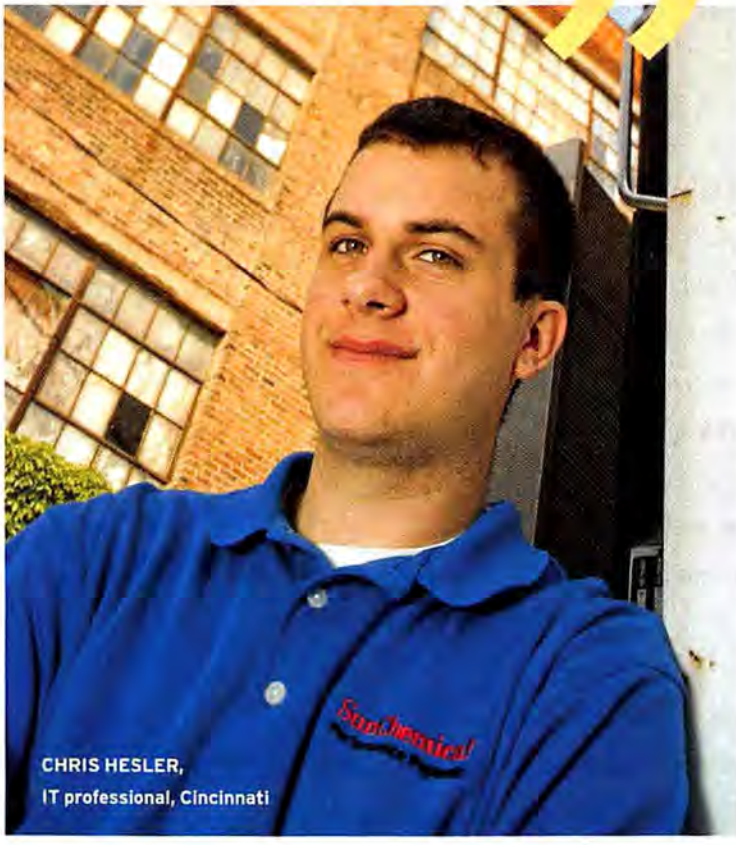
What else do *PC World* readers like and dislike about their Internet service ▶

ILLUSTRATION BY HARRY CAMPBELL

providers? Our ISP survey asked more than 6400 readers to rate their home broadband providers—and this year, for the first time, their small-business and mobile service—on performance, reliability, support, and features. Some key findings:

- As in last year's survey, most respondents are happy with their current ISP, though there's room for improvement. About two-thirds of home users say they're satisfied or extremely satisfied overall with their Net service. Satisfaction ratings are a bit lower among business users (see "Broadband for Business: Going Beyond E-Mail," page 86) and significantly lower for mobile broadband services (see "Mobile Broadband: Up and Coming," page 88).
- Cablevision, Cox Communications, and Verizon (fiber) are respondents' favorite home ISPs. (We did not receive sufficient responses about business and mobile ISPs to draw statistically significant ratings for individual carriers.)
- Verizon's FiOS fiber-optics-based service is the overall home favorite, earning above-average rankings in all nine of our major categories, which include upload and download speed, reliability, tech support, and customer service, among others.
- Cablevision, last year's winner, finished in a tie for second place with Cox Communications, with six above-average scores. Both cable Internet service providers earned above-average marks in speed, reliability, customer satisfaction, and other areas.
- As for the low end, readers are most dissatisfied with Charter Communications, giving it below-average scores in seven of nine categories. AOL is second-worst, with six rankings in the cellar.
- Cable and DSL remain the overwhelming favorites for Internet access, accounting for 84 percent of surveyed readers' connections; cable is slightly more popular in homes, while DSL has the edge at work. Dial-up use continues to slide among our readers, with only 8 percent of respondents saying that they use dial-up at home.
- Fiber, satellite, power-line, and wireless services are still marginal players, used by a combined 7 percent of respondents. But that's a notable increase from last year, when only 1 percent of surveyed readers reported using these technologies.
- About two-thirds of respondents get two or more services, such as phone, Internet access, and TV, from their home ISP—roughly the same proportion that reported purchasing a service bundle last year. Half of these customers pay between $90 and $150 for their bundle.

> "I play games... I wish they'd **increase** the upload speed to at least a meg."



CHRIS HESLER,
IT professional, Cincinnati

PHOTOGRAPH: ANDY SNOW

In short, the big picture is changing slowly. Internet bandwidth is improving, but the speed boost isn't reaching every city and town—not yet, anyway. In some regions of North America, superfast Net connections with download speeds of up to 30 mbps are common. But other areas, typically rural ones, remain dial-up backwaters. And like Hesler, many customers continue to experience a wide gap between upload and download speeds.

PERFORMANCE BOOST AHEAD

ON THE HIGH end, a 30-mbps link is downright pokey compared with what's on the horizon. According to a recent study by The Information Technology & Innovation Foundation, a nonprofit Washington, D.C., think tank, U.S. broadband speeds are rising, in part due to the growing use of fiber-optic connections to the home.

Verizon, for instance, is spending billions to run fiber to homes in its 30-state territory. Its FiOS (Fiber Optic Service) network could easily bring 100-mbps broadband to homes, though current service tops out at 30 mbps. Some, but not all, FiOS customers can opt to receive TV services through this big pipe, too, which enables interactivity that most cable and satellite services cannot match.

Fiber may play a role in Verizon's high customer-satisfaction score. Says Charles Spivey, 60, of Richmond, Virginia: "This thing smokes, let me tell you." A retired sheet-metal fabricator, Spivey pays $137 a month for an all-FiOS phone-TV-Internet bundle from Verizon (which also sells bundles that use a mix of technologies). Spivey says his bandwidth tests indicate that he is getting 15 mbps downstream and 8 to 10 mbps upstream.

What does he do with all that speed? He downloads some music and video, but mostly "I like to mess around with satellite photos, and the Weather Channel's site offers an interactive satellite weather map that you can zoom in on," he says.

The cable guys may eventually catch up with fiber: Comcast recently demonstrated a cable modem capable of 150-mbps downloads. The higher bandwidth, however, will be rolled out slowly and in selected areas, analysts say. And the blistering speed? "It's more of a theoretical maximum rather than what a consumer might expect to experience while surfing the Internet," says JupiterResearch broadband analyst Doug Williams.

3 out of 4 respondents say they're **unlikely** to switch ISPs.

SOURCE: PC WORLD SURVEY

Certainly, few (if any) home and small-business broadband users have connections that run anywhere close to 150 mbps—or 100 mbps, or even 30 mbps. Most people would be thrilled with 8 mbps.

Net connection speeds varied considerably for our survey participants. About 40 percent reported download speeds ranging from 768 kbps to 3 mbps. Broadband performance is getting better, though, as nearly 30 percent of respondents said that their advertised speed was 4 mbps or faster, up about 5 percent from last year. (Surprisingly, 20 per- ▶

ISPs

FIBER AND CABLE PROVIDERS CONTINUE TO IMPRESS HOME USERS

VERIZON CAME OUT on top with its FiOS ISP service; last year's favorite, Cablevision, came in a close second, tied with Cox.

ISP	Connection type	Overall satisfaction	Connection reliability	Download speed	Upload speed	Customer service	Technical support	E-mail service	Spam blocking	Antivirus/ security
Verizon	Fiber	Above Average	Above Average	Above Average	Above Average	Above Average	Above Average	Above Average	Above Average	Above Average
Cablevision	Cable	Above Average	Above Average	Above Average	Above Average	Above Average	Above Average	Average	Average	Average
Cox	Cable	Above Average	Above Average	Above Average	Above Average	Above Average	Above Average	Average	Average	Average
Insight Cable	Cable	Above Average	Average	Above Average	Above Average	Average	Average	Average	Average	Average
EarthLink	Cable	Above Average	Average	Average	Average	Average	Average	Average	Above Average	Average
EarthLink	DSL	Average	Average	Average	Average	Average	Average	Above Average	Above Average	Average
AT&T Yahoo (formerly SBC Yahoo)	DSL	Average	Above Average	Below Average	Below Average	Average	Average	Average	Above Average	Above Average
Time Warner Cable (Road Runner)	Cable	Average	Above Average	Above Average	Above Average	Average	Average	Average	Below Average	Below Average
Verizon	DSL	Average	Above Average	Average	Average	Average	Average	Average	Average	Average
Comcast	Cable	Average	Average	Above Average	Above Average	Below Average	Below Average	Average	Below Average	Above Average
Qwest	DSL	Average	Average	Average	Average	Average	Average	Average	Average	Average
EarthLink	Dial-up	Average	Average	Below Average	Below Average	Average	Average	Average	Above Average	Average
BellSouth (now AT&T)	DSL	Average	Average	Average	Average	Average	Average	Average	Average	Below Average
MSN	[1]	Average	Below Average	Below Average	Below Average	Average	Average	Average	Average	Average
AOL	[1]	Below Average	Below Average	Below Average	Below Average	Below Average	Below Average	Average	Above Average	Average
Charter	Cable	Below Average	Below Average	Average	Average	Below Average	Below Average	Below Average	Below Average	Below Average

CHART NOTES: Services are ranked by total number of negative and positive ratings, and in the case of a tie, alphabetically. All ratings reflect survey respondents' satisfaction with the given aspect of service. Source: Survey of 6463 *PC World* readers and PCWorld.com visitors from April 26 to May 10, 2007. **FOOTNOTE:** [1] Rating reflects more than one connection type. We received insufficient responses to rate this ISP's connection offerings separately.

cent of our survey respondents said that they did not know what their connection speeds were.)

Some users are even starting to see faster DSL. Steve James, 54, of Watsonville, California, subscribes to AT&T's $35-a-month Elite DSL and averages download speeds of about 5.2 mbps. He has had the Elite package for six months now, and so far his impressions are favorable. "I've been really happy with the speed, and the dropped connections are almost nonexistent," says James, a police sergeant and part-time network administrator.

James's local cable provider is Charter, and in his view switching ISPs is out of the question. "I have a friend who has high-speed Internet through Charter, and his connection is really slow," he says.

FIOS AND FIBER

A FIBER-OPTIC CONNECTION is great—if you can get one. Problem is, most people can't, at least not yet. Just 18 percent of small-business and 12 percent of home respondents in our survey reported having fiber connections available in their area, numbers that should grow slowly as Verizon expands its (currently) 16-state FiOS network. But despite fiber's technological advantages—its thin strands of glass are capable of carrying virtually unlimited amounts of data—Verizon is the only major ISP installing fiber to the home.

The reason is cost. Verizon is spending $18 billion through 2010 to run fiber to 18 million homes and businesses. By comparison, cable providers are trying to squeeze every last megabit out of their current infrastructure, as exemplified by Comcast's 150-mbps cable modem.

AT&T, meanwhile, is taking a cautious, money-saving approach, laying fiber to the curb and completing the hookup using existing copper phone wiring. Called U-verse, AT&T's next-generation broadband is available in 15 markets, but had only 26,000 subscribers as of mid-May. The company expects to offer the service to some 8 million customers in 13 states by year's end, with another 10 million customers slated to gain access by the end of 2008.

Unlike fiber and cable, DSL is doomed. Says IDC broadband analyst Matt Davis: "DSL will be around for a long time, but will ultimately be replaced by fiber." Phone companies will offer DSL for another decade, while moving an increasing number of users to fiber.

For now, though, DSL-level speeds are fine for many users. As was the case last year, the most popular online activities are non-bandwidth-intensive Web browsing, e-mail, and instant messaging, which 97 percent of respondents do daily.

TECHNOLOGIES

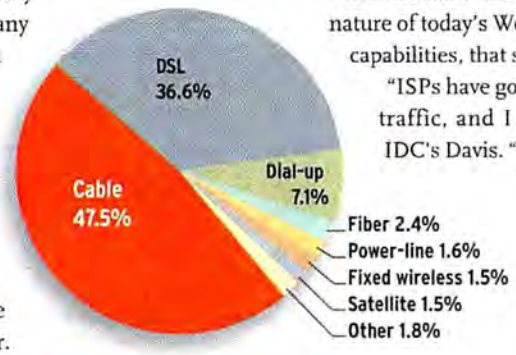
MOST SATISFIED: FIBER-OPTICS USERS

THOUGH FIBER-OPTICS USERS are happiest, they don't pay the most for their service. Cable users are generally satisfied, but express the most disparity in satisfaction regarding their ISPs' download and upload speeds.

CONNECTION TYPE	Average monthly bill	Percentage satisfied or extremely satisfied with:			
		Overall service	Connection reliability	Download speed	Upload speed
Broadband power-line	$35	64	63	69	65
Cable	$47	66	68	75	61
Dial-up	$15	44	57	16	16
DSL	$32	65	70	64	54
Fiber	$37	87	89	92	82
Fixed wireless	$39	61	63	60	50
Satellite	$65	40	49	33	33

Source: Survey of 6463 *PC World* readers and PCWorld.com visitors, between April 26 and May 10, 2007.

Cable was the **most popular** technology among the 6400 readers who took our survey.



SOURCE: PC WORLD SURVEY

UPLOAD IN SLOW LANE

IN CONTRAST, ONLINE data backup, video uploads, and other applications dependent on speedy upload connections aren't very popular. Three-fourths of home users polled, for instance, have never tried online backup, and about half told us that they haven't tried online file storage, free Web hosting, or entertainment services such as game, video, and music channels.

Why? Poky upload speeds. Faster speeds would likely make services such as online backup and two-way videoconferencing more appealing to users. Today's broadband networks were built asymmetrically—far faster downstream than up—which makes sense given the download-intensive nature of today's Web use. But to expand the Net's capabilities, that situation has to change.

"ISPs have got to do a better job in upstream traffic, and I think they know that," says IDC's Davis. "That's one of the things they're paying attention to when deciding what to do next."

A high-quality Net experience involves more than an uptick in bandwidth, however. Connection reliability, strong customer support, spam and virus blocking,

bundled services, and, of course, a reasonable price all play a part. And when it comes to price, the overwhelming majority of survey respondents felt that they were best off getting a bundle of services.

BUNDLING UP

"CONSUMERS ARE DEFINITELY interested in bundles," says JupiterResearch's Williams. "People are always looking to save a few dollars."

Phone and cable companies love bundles even more than their customers do: If you subscribe to a bundle, changing providers for a specific service later, such as switching from DSL to cable, is more difficult. And you usually must pay a penalty for backing out of a bundle before the contract—often a minimum of 12 months—is up.

Comcast's Triple Play, a typical bundle, delivers cable or satellite TV, local and long-distance telephone, and broadband Internet for about $100 a month for the first year of service. Caveats abound, however. (See "Buying a Bundle: What to Ask Before You Order" on page 82 for a closer look.)

A bundle can be as simple as a TV/Internet combo, or it can be a multiservice package with Internet, TV, and home and mobile phone service. The benefits to you: one bill (not that paying two or more bills is a great hardship), and possibly a slight discount over à la carte service prices.

11% of ISP customers who've had a **billing problem** say it was never resolved.

SOURCE: PC WORLD SURVEY

Given that service providers pitch their bundles relentlessly—go on, check today's mail—it's no surprise that two-thirds of our survey respondents have one. Of those who subscribe to bundles, about half told us they do so because the services cost less; a little less than a third cited the convenience of dealing with a single bill.

Bundles aren't for everyone, though. "I'm afraid if I dump all my eggs in one basket, I may find myself eventually paying more for these services," says Arthur Robinson, 55, a software instructor in Locust Grove, Georgia. Instead, Robinson gets DSL from EarthLink, phone service from AT&T, and satellite TV from Dish Network. He pays $130 a month for all three—comparable to what survey respondents said they pay for their bundles. "I like having people compete for my business—the phone, cable, and satellite companies," Robinson says. ▶

SPEED TWEAKS

WHAT YOU CAN (AND CAN'T) DO TO BOOST BANDWIDTH

YOUR INTERNET CONNECTION is slow, or perhaps it's down completely. What should you do to get it back to top speed?

1 Before doing anything else, contact your ISP to see if there is a service problem. Then power-cycle your DSL or cable modem: Turn it off, wait about 15 seconds, and turn it back on.

2 For troubleshooting tips, check your ISP's support site. AT&T DSL users, for instance, can download a free Self Support Tool that checks e-mail, connectivity, and PC settings. If it discovers, say, that your browser cache is smaller than the recommended setting, it'll increase the size (with your consent).

3 Multiple firewalls can affect connection speed too. If your router has a firewall, don't run the one that comes with Windows XP or Vista, Norton Internet Security, or the like.

4 Line filters, which prevent noise from disrupting a DSL signal, can be troublesome. Make sure not to plug a phone or fax machine into the DSL modem port on the filter; doing this can slow your connection. If you're using a wireless router, download and install the latest firmware from the vendor's site.

5 If everything appears to be working normally with your connection but you're still dissatisfied with the performance, upgrade to a faster connection or find another ISP that offers the level of bandwidth you crave. *–Jeff Bertolucci*

BEWARE OF SPEED PROBLEMS

WHAT ABOUT WEB SITES and software that promise to turbo-charge your broadband? Justin Beech, owner of the popular site BroadbandReports.com, is skeptical. "Sites claiming to improve connection speeds are largely snake oil, or at least they overstate the marginal benefit. Your maximum speed is determined by your ISP. Without illegally hacking your cable modem, that is the end of the story."

As an informal reality check, we ran the optimization tool in Unisoft's $30 SpeedUpMyPC 3 program, which promises to "boost your bandwidth," and performed a Web-based bandwidth speed test. The verdict: no connection speed increase. We saw the same results from Dr. TCP, a free utility that makes tweaks to Windows' RWIN (TCP Receive Window) setting and in some cases boosts download speeds.

Finally, we tried Google's free Web Accelerator, which claims to improve performance by Web surfing through Google's servers. Again we noticed no boost, though the app's toolbar said we saved 0.8 second connecting to PCWorld.com.



Speed and **price** were top reasons for choosing an ISP.

SOURCE: PC WORLD SURVEY

Sometimes a service bundle is the only game in town. Take DSL, for instance. At first glance DSL appears to cost less than cable Internet does. AT&T—the nation's largest Internet service provider, with 12.9 million broadband subscribers—offers 768-kbps DSL for $15 a month. But to receive DSL in many areas, you must also sign up for landline phone service—even if you don't want it. Voilà! An instant bundle and a higher monthly bill. Not only does this forced double-play pad the ISP's bottom line, it also discourages customers from using third-party Internet phone (VoIP) services such as Vonage, which typically charge less for local and long-distance service than the landline giants do.

The landline/DSL marriage may be on the rocks, though. In order to win Federal Communications Commission approval of its merger with BellSouth in early 2007, AT&T agreed to offer stand-alone DSL—no landline service necessary—to its existing customers for $20 a month by the end of this year. The deal is even sweeter for new customers, who can pick up DSL for $10 a month. The drawbacks: Internet bandwidth is capped at a relatively slow 768 kbps, and the cut-rate price expires after 30 months.

BIG BUNDLES

THE LATEST BUNDLES, often termed quad- or multi-plays, add mobile phone service to the mix. The AT&T Quad Pack, for instance, includes DSL, landline phone, AT&T (formerly Cingular) mobile service, and Dish Network satellite TV for $135 a month. Verizon's similar Ultimate Freedom plan ranges in price from $135 to $145 a month; it combines Verizon's landline, mobile, and Internet services with DirectTV satellite TV.

Unlike the vendors' fiber-based bundles ▶

SHOPPING TIPS

BUYING A BUNDLE: WHAT TO ASK BEFORE YOU ORDER

BUYING SEVERAL CONNECTIVITY services—a bundle—from one ISP may sound like a bargain. But is the deal right for you? Before ordering, grab a calculator and your monthly cable or satellite TV, home phone, and Internet bills (find your cell phone bill as well if you're contemplating a so-called quadruple-play). If you're paying, say, $130 a month for three services, and the bundle costs $100, a switch may make sense.

Be sure to read the fine print, however. How long a commitment is required? And after the promotional period expires (usually 6 to 12 months later), how much more will you pay? Time Warner Cable offers a $99 "All the Best" bundle in some markets, but after 6 months the price jumps by about $30, and penalties may apply if you drop the bundle (at the very least, you'll lose the discounted rate on the remaining services). Cable companies typically require shorter commitments and don't offer long-term discounts: They might figure that you're unlikely to bolt once you're hooked up, since going back is such a hassle.

Next issue: What features do you get? Does the phone service include unlimited local and long-distance calling? How much are international calls? Is the telephone service VoIP-based (in which case reliability and quality may be important issues)? Is the broadband speed similar to or faster than what you currently have?

On the TV side, does the channel lineup include your favorites? Check prices for the channels you want, including premium services such as HBO and Showtime. Remember that cable and satellite companies sell channel bundles, so adding a single service may mean upgrading to a different service tier.

Don't forget reliability. If your ISP suffers a service outage, you might be without three services. (We say "might" because some bundles include services from multiple firms—a satellite TV and landline phone/DSL combo, for example.)

Service may vary by region, so read what subscribers in your area have to say about a provider you're considering. BroadbandReports.com (also known as DSLReports.com) carries lots of user reviews. Go to www.broadbandreports.com and choose *Review Finder* in the left column. Use the down arrows to narrow the search to, for example, 'Show DSL reviews from CA'. Better to do your research now than to post your own broadband sob story later on.

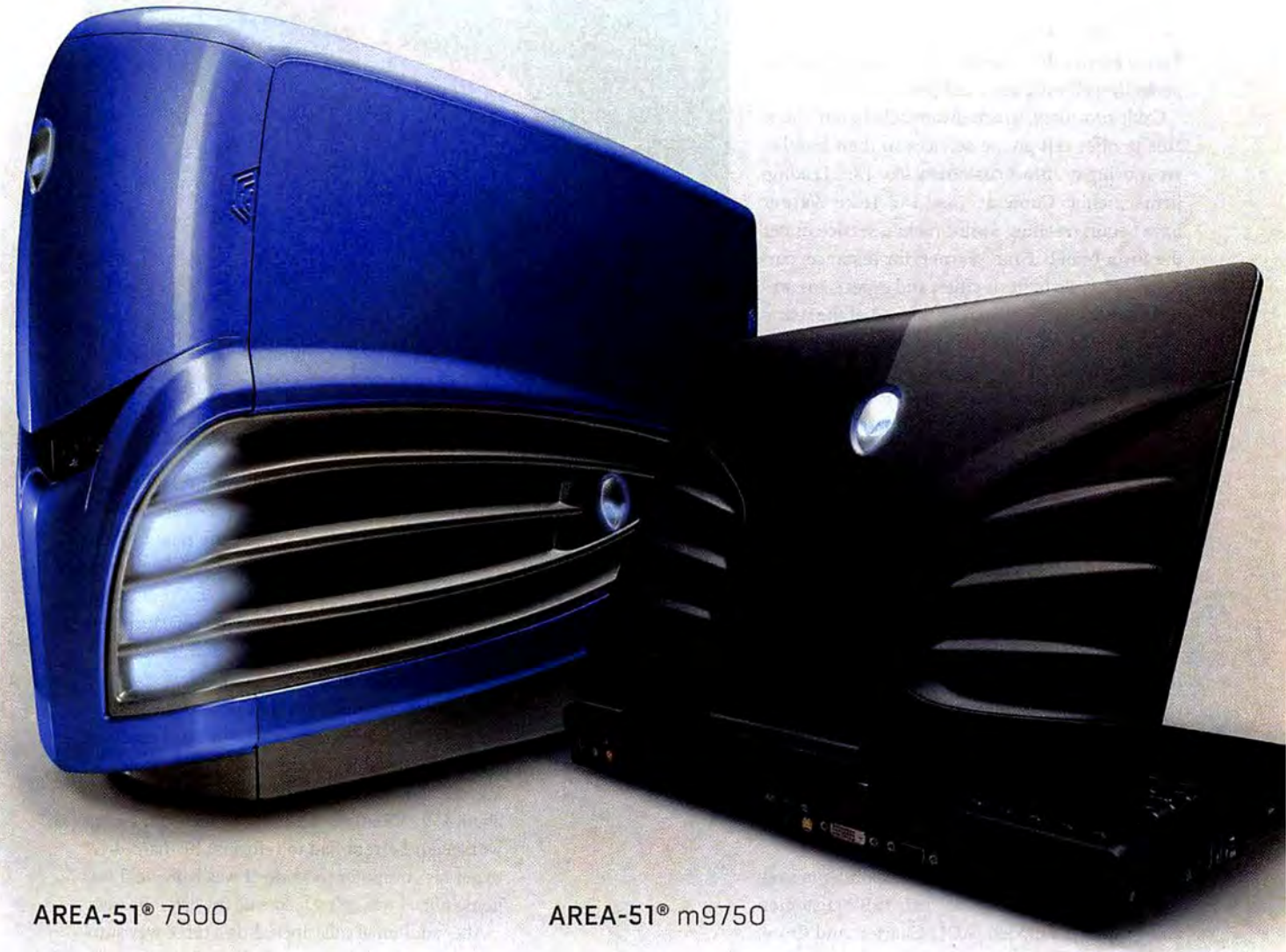
–Jeff Bertolucci

VENDOR	Features	Monthly price
AT&T Quad Pack	Landline and wireless phone, satellite TV, 1.5-mbps DSL Internet	$135
Comcast Triple Play	VoIP phone service, cable TV, 1.5-mbps cable Internet	$99
Time Warner All the Best	VoIP phone service, cable TV, 256- to 768-kbps cable Internet	$99
Verizon Ultimate Freedom	Landline and wireless phone, satellite TV, 3-mbps DSL Internet	$135 to $145

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(AT&T's U-verse and Verizon's FiOS), Quad Pack and Ultimate Freedom use a mix of technologies to deliver services to the home.

Choosing a wireless carrier isn't exclusively about price, however—quality of service is equally important. An inexpensive quad-play bundle that delivers subpar cellular coverage isn't a great deal. In addition, you may get services you don't want.

Andy Tart, 39, of Raleigh, North Carolina, gets his Internet and cable TV from Time Warner. But when it comes to a triple- or quad-play bundle, he'll pass. "I quit having a home phone in 2000," says Tart, a service-department worker who functions perfectly well with just a cell phone.

Cable providers, which historically haven't been able to offer cell phone services in their bundle, are moving to attract customers like Tart. Leading firms such as Comcast, Cox, and Time Warner have begun reselling Sprint mobile service under the Pivot brand. Time Warner, for instance, currently offers Pivot in six cities, and expects to complete a full 33-state rollout by the end of the year.

Wireless bundles are relatively new, and thus far only 12 percent of mobile customers have signed up for one, according to IDC's Matt Davis. Nevertheless, integration between cell phones and the home opens a host of possibilities, Davis says.

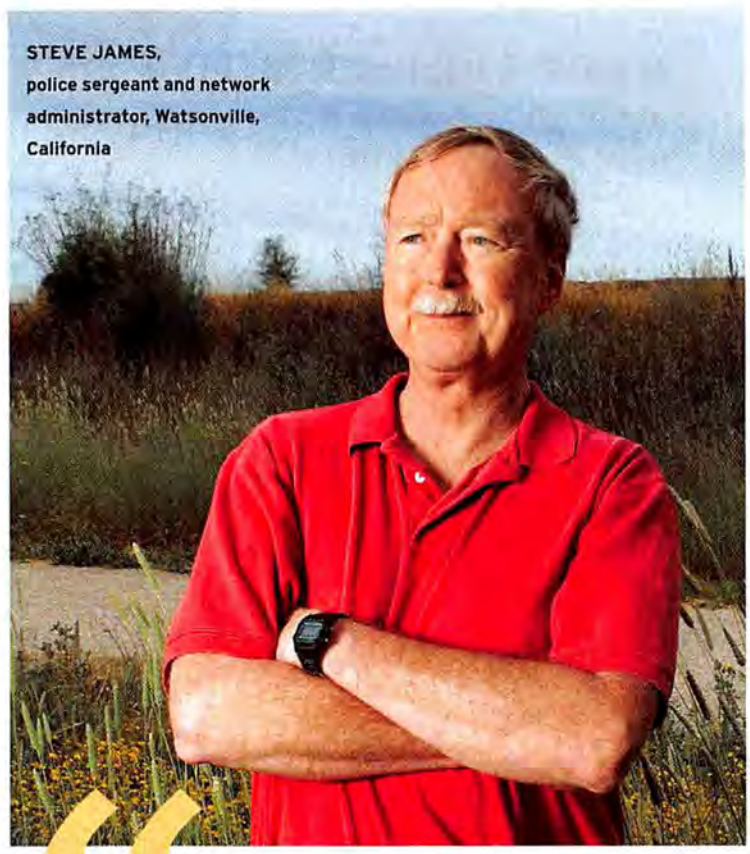
"There are a number of applications that fuse the wireless and wire-line world," he says, "like having more features that interact with one another." For example, you might use your mobile phone to program your DVR, or have one voice-mail system that supports all of your phones.

Verizon residential customers located in the mid-Atlantic states and in parts of New England can already sign up for One Point Voice Mail, an $8-per-month service that provides a single voice mailbox for a home number and up to four additional landline or wireless phones.

SOME SUPPORT GRIPES

THE MAJORITY OF our survey respondents said that they were satisfied with their ISP's customer and technical support. (AOL, Charter, and Comcast were the only ISPs to receive below-average customer service scores.) And less than 20 percent of respondents reported ever experiencing a billing problem with their ISP. People who have had billing problems, however, tended to be dissatisfied with how the problem was resolved.

Customer service mishaps can include technical issues too. Just ask David Ferrera, 58, a Comcast customer in Halethorpe, Maryland. When his cable modem died last December, Ferrera received a new one from Comcast. But the new modem wouldn't connect to the Internet. When Ferrera phoned Comcast support, he says, Comcast instructed him to call Dell, his PC manufacturer. He did. Dell told him Comcast was to blame.



STEVE JAMES,
police sergeant and network administrator, Watsonville, California

> "I've been really happy with the **speed** [of AT&T's Elite DSL]."

At one point during the two-day ordeal, Comcast came up with a solution that proved disastrous. "They walked me through a procedure that made my computer unstable," says Ferrera, a dispatcher for an intermodal transportation company who pays about $50 a month for a 5-mbps connection. Things worsened; Ferrera had to reformat his hard drive to get his computer to work. "I was ballistic, I was going nuts, I was going to lose all my data," he says.

After additional calls, including a three-way summit connecting Comcast, Dell, and Ferrera, the source of the problem was revealed: "The people at Comcast's customer service center hadn't registered the new modem, so I couldn't access the server," he says. "That was the only thing wrong." Luckily, he was able to recover much of his data, but only because he had recently upgraded from an older PC, which still had most of what he ▶

PHOTOGRAPH: ROBERT CARDIN



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needed. (Comcast earned a rating of below average for its technical support.)

Comcast officials, citing customer privacy issues, declined to comment on Ferrera's case. However, they did state that Comcast is working to improve its customer relations by hiring new support personnel, extending service hours on both weekdays and weekends, and adding new support features such as online chat.

Despite his support woes, Ferrera is mostly satisfied with his Comcast broadband service, which he has had for seven years. Then again, his options are limited: DSL and FiOS aren't available in his area.

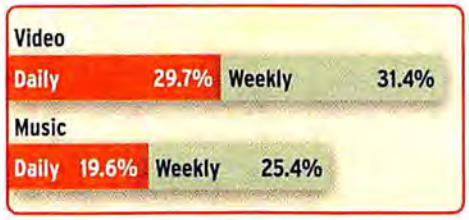
Overall, about half of our small-business and home respondents reported being satisfied or extremely satisfied with the quality of their service provider's technical support, indicating that there's room for improvement on the vendor side.

EarthLink user Robinson says his view of his ISP's customer support is "less than admirable," even though he praises the reliability of his broadband connection. "When I run into a situation where I've got a little problem, like I can't access my DSL line for whatever reason, my frustration begins to build," he says. (In our survey, EarthLink DSL received average ratings for connection reliability and tech support.)

"I feel like I am being walked through a preprogrammed list of let's-check-everything-on-your-computer," Robinson adds.

In contrast, Carol Falconer, 64, an Omaha, Nebraska, customer of the highly rated Cox, says she's had very few problems. "And when I have, I call them up, and they don't make you feel stupid. They answer your questions and, bingo, it's taken care of."

Customer support is not the only area in serious need of improving: Only a third of small-business and home respondents gave their ISPs high ▶



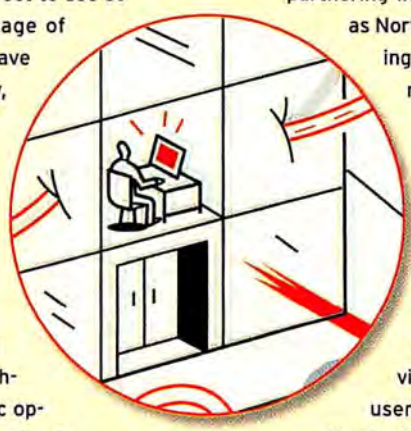
Media downloaded or streamed daily or weekly by home users

SOURCE: PC WORLD SURVEY

BUSINESS TIPS

BROADBAND FOR BUSINESS: GOING BEYOND E-MAIL

IT'S NO SURPRISE that broadband use is surging among small businesses: JupiterResearch reports that 58 percent of all small businesses will use broadband Internet this year, up from 47 percent in 2005. But while the business users we surveyed all reported using services popular with general users—e-mail, Web browsing, and the like—we didn't expect to see so few business customers taking advantage of other broadband services that can help save money or improve productivity—namely, VoIP, videoconferencing, and virtual private networks (VPN) for sending encrypted data over the public Internet.



Why the lag in use of these features? Slow upload speeds can seriously impact Web-based apps such as online backup. But even where bandwidth isn't an issue, shopping for and implementing advanced features can be a challenge without an IT whiz to help. You have two basic options: Seek assistance online or hire a consultant.

ISP availability can affect your choices as well. Cable companies are late to the small-business market, partly because of their consumer-oriented TV focus. That's changing, however. Comcast plans to roll out VoIP service for small businesses this year. Similarly, Sprint's Pivot wireless service lets cable ISPs bundle mobile broadband with their wired service.

Finding and installing the right hardware is also tricky. A wireless router intended for home use might work fine for a two-person office; but as your business grows, you may want better security as well as a larger number of ethernet ports.

Some ISPs are expanding their small-business offerings by partnering with enterprise networking companies such as Nortel, and home-networking vendors are selling products for small and medium-size businesses. Buffalo Technology's Nfiniti Dual Band Gigabit Router & Access Point, with support for 802.11n/a/b/g wireless and gigabit ethernet, made our list of the top products of 2007. Newer products bundle VoIP and remote-access capabilities (find.pcworld.com/57489).

Microsoft (find.pcworld.com/57406) and Yahoo (find.pcworld.com/57407) provide free Web pages to small businesses (but users should expect upsell pitches as part of the deal). For VoIP, ISPs such as Packet8 have small-business calling plans starting at $50 a month.

For more about using broadband in your business, check out PCWorld.com's *Tech at Work* by columnist Richard Morochove (find.pcworld.com/57491), who often covers Web-based apps such as contact management and search-engine advertising.

–Jeff Bertolucci

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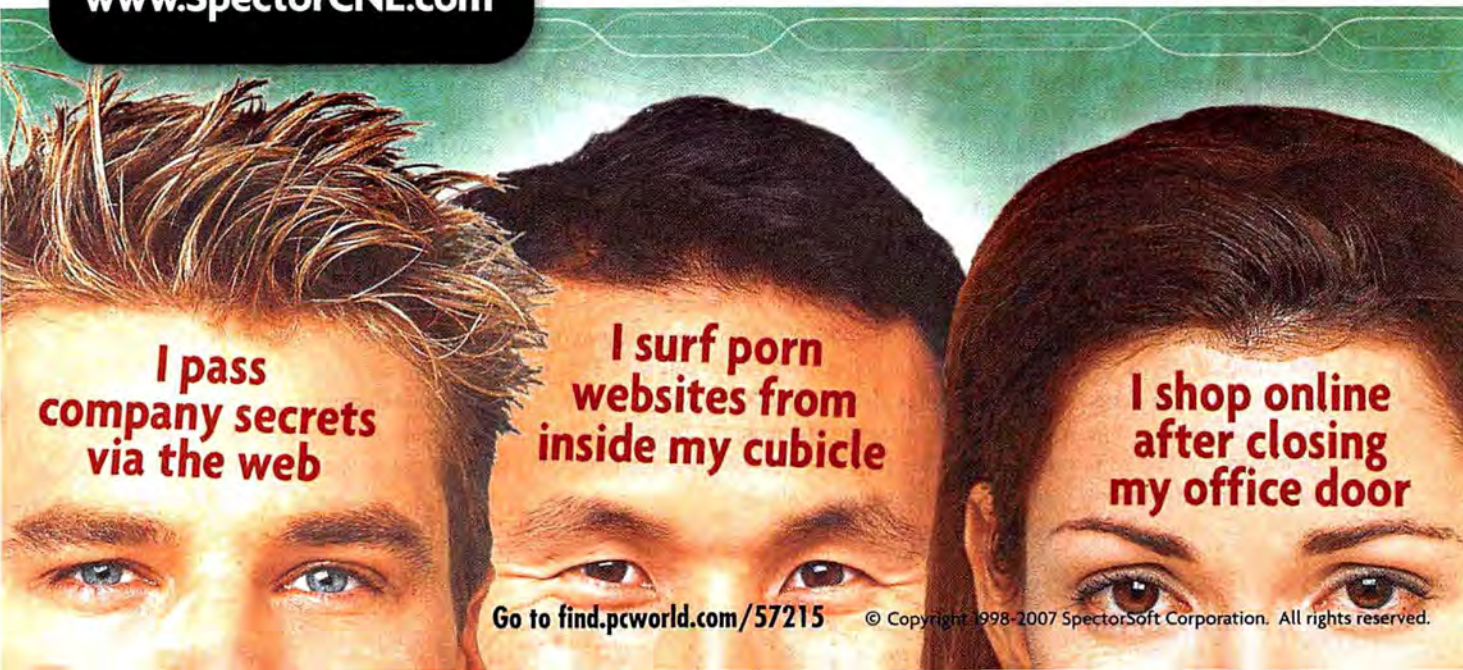
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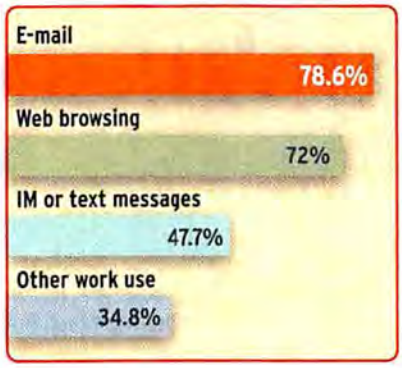


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satisfaction marks for blocking spam.

Despite problems, about three-fourths of home and small-business respondents said they're "not very likely" or "extremely unlikely" to switch ISPs within the next six months.



Accessing **e-mail** is the most popular mobile app.

SOURCE: PC WORLD SURVEY

SMALL-BUSINESS NEEDS

SMALL BUSINESSES pay their ISPs only slightly more than home users do: Roughly 60 percent of business respondents pay less than $49 per month, whereas about 83 percent of home users pay less than $49 per month.

What do business owners want from an ISP? "Best value for the money" and "Fast upload/download speed" were the most popular replies in our survey. Business use of the Internet doesn't vary greatly from home use: The most popular applications are Web browsing, e-mail, and IM, followed by downloading and uploading files. Interestingly, only 15 percent of our business respondents said they use online backup, and a mere 11 percent operate a Web-based store.

In addition, for small businesses reliability is very important—and 68 percent of respondents reported being satisfied with this aspect of their ISP.

"I'm an Avon representative and I do about 90 percent of my business online," says Cox subscriber Falconer. "Mostly I need a dependable connection. It doesn't have to be superfast." She doesn't know the exact speed of her service, but she says it's fast enough. "I wish it were cheaper, but you get what you pay for," says Falconer, who pays $45 a month. "I figure, if they do a good job, you pay for it." ■

Jeff Bertolucci is a freelance writer based in Southern California. Yardena Arar is a senior editor for PC World.

CELL SERVICES

MOBILE BROADBAND: UP AND COMING

COMPARED WITH OVERALL broadband use, high-speed mobile services are clearly in their infancy: Less than 8 percent of the 6400-odd *PC World* readers who responded to our survey said that they used these services. Most are buying them from the major nationwide carriers (AT&T, Sprint, T-Mobile, and Verizon), but our sample was too small to produce statistically valid ratings for individual providers.

As a group, though, mobile-broadband users are distinctly less happy with their services than home or business users: 45 percent said they were satisfied or extremely satisfied with their mobile-broadband providers, compared with 64 percent and 57 percent sharing those opinions for home and business ISPs, respectively.

Similarly, less than half (45 percent) of the mobile-broadband users in our survey described themselves as satisfied or extremely satisfied with the reliability of their service, compared with roughly two-thirds of the landline (home or business) broadband users in our poll.

Mobile-broadband satisfaction ratings were marginally lower for download speeds, and only about a third of polled users expressed high satisfaction with upload speeds. But those satisfaction levels may at least partly reflect a rapidly changing landscape with regard to service availability (true high-speed wireless networks are still rolling out), prices, and applications.



The overwhelming majority (62 percent) of surveyed readers who subscribe to mobile-broadband services (such as EvDO on Sprint and Verizon, or UMTS/HSDPA on AT&T) use them with a cell phone, compared to the less than 30 percent who reported using a notebook adapter to connect a laptop to the Internet.

Prices are all over the map. While nearly a quarter of those polled said that they were paying over $50 a month for high-speed data services, a good one-third reported paying $15 or less.

But price ranked only third on the list of factors prompting choice of carrier. The most frequently cited reason was coverage area, followed by reliability. Only 13 percent said that they chose a service to get a specific handset (which could bode ill for any hopes that AT&T might entertain about its exclusive iPhone offer attracting tons of new customers).

Predictably, e-mail and Web browsing topped the list of popular applications, followed by instant and text messaging. At the bottom of the list, downloading music and watching streaming video or TV were the choice of only 18 and 17 percent of survey participants, respectively. But broadcast-style television for cell phones (which doesn't go through the Internet) is a relatively recent phenomenon, and we expect that its usage will rise during the next few years.

–Yardena Arar



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Broadband HELP ON THE WEB



Check out these sites for user forums, tools, and tips on making the most of high-speed service.

Broadband Reports.com: Also known as dslreports.com, this site is a good source of end-user reviews of ISPs. Wondering if the cable broadband service in your area is reliable or suffers from too many outages? You can find out here. The site also includes news stories and links to all things pertaining to Internet access. www.broadbandreports.com

SpeedGuide.net: This site focuses on ways to improve your broadband performance. You'll discover Windows Registry tweaks, reviews of routers and other broadband-related hardware and software, general how-to advice, and industry news. www.speedguide.net

Broadband.com: Here's a good place to look for broadband deals. Enter your phone number in the 'Find Broadband Now' window on the home page, click *Search Now*, and the site lists current ISP plans, including special offers, for your area. www.broadband.com



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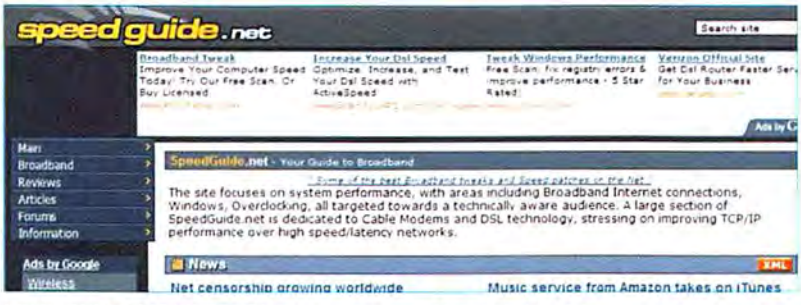
Yahoo Small Business: Like Microsoft's small-biz site, Yahoo's mixes the hard-sell with the how-to. The 'News and Resources' section on the home page is a terrific source of business tips and tricks, including the ten-step StartupNation tutorial with audio instructions, articles, and tools for entrepreneurs. smallbusiness.yahoo.com



THE BROADBAND SPEED TEST presents your results in easy-to-read graphs.

Dan Elwell's Broadband Speed Test: The Net is littered with meters to assess high-speed connections, but this is one of our favorites. The Broadband Speed Test rates your download speed, ping times, and other essentials. It presents its findings in colorful, easy-to-read bar graphs, too. The tool is free to download, but you'll have to pay $18 to check your upload speed, run scheduled tests, and use other advanced features. www.broadbandspeedtest.net/download

—Jeff Bertolucci



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ILLUSTRATION: HARRY CAMPBELL

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Entertainment Everywhere

Want to watch your movies in the bedroom or listen to your albums in the kitchen? We identify which devices do the best job of streaming PC-based video and audio all over your home.

BY LINCOLN SPECTOR

PHOTOGRAPHS BY MARC SIMON

IT'S EASIER THAN ever to liberate your collection of audio, video, and photo files from the confines of a PC—so you can enjoy it at the level of comfort and quality that your home theater setup provides. Streaming media players, also known as digital media receivers, connect to your TV and surround-sound speakers and, via an interface on your television, let you stream multimedia files from networked PCs, hard disks, and (in some cases) the Internet. ▶



THE APPLE TV ships with either a 40GB or a 160GB hard disk.





BIG-SCREEN MENUS: The Netgear player's main screen (left); Apple TV's YouTube interface.

I examined seven media streamers in all—from Apple, Buffalo Technology, D-Link, Mvix, Netgear, Ziova, and ZyXel—to determine which are easy to set up and use, which play your favorite formats, and which please the eyes and ears.

I conducted most of my tests with Windows XP, but I also performed some compatibility testing with Windows Vista. I tested each device's support for wireless and ethernet networking, but I used ethernet to score performance because 802.11g Wi-Fi lacks the bandwidth and reliability necessary to manage many videos (especially HD content)—even though draft-802.11n routers like the D-Link Xtreme N Gigabit router I employed can improve the performance of 802.11g devices.

To gauge picture quality, I ran several short films and trailers at standard definition and high definition (720p, 1080i, and 1080p). I played them on a 1080p-capable Sony KDS-50A2000 LCoS 50-inch HDTV. When possible, I connected the media receivers via an HDMI connection (for the Mvix I used a DVI-to-HDMI converter, and for the Buffalo Technology model I employed a D-4 to component conversion cable). For my audio appraisals I relied on an optical S/PDIF connection, except to evaluate the ZyXel, which uses coaxial S/PDIF output only for digital sound. Audio tests included 320-kbps .mp3 and 128-kbps unprotected .wma files (I converted the .wma file into a 128-kbps .m4a file for my tests of the Apple TV).

Our Best Buy goes to the Netgear Digital Entertainer HD EVA8000. Though it was the priciest option at $350, it went way beyond the competition in versatility. It supports a wide range of video formats, can play both Apple and Windows Media

FEATURES COMPARISON

TEST Center

VERSATILE NETGEAR STREAMER OUTPERFORMS APPLE TV

THE EVA8000 HAS unique features like Flickr photo streaming, Apple and Windows Media DRM support, and DVR capabilities.

	DIGITAL MEDIA RECEIVER	PCW Rating	Performance and usability	Features and specifications	Bottom line
1	Netgear Digital Entertainer HD EVA8000 Best BUY $350 find.pcworld.com/57428	82 Very Good	• Ease of setup: Good • On-screen interface: Very Good • SD/HD video quality: Very Good/Very Good • Audio quality: Superior	• Networking: Ethernet, 802.11g Wi-Fi • HD video: Up to 1080p • Internet radio: Shoutcast, Radioio • Hard disk: None	The pricey EVA8000 offers versatile features and DRM support that you won't find anywhere else.
2	Apple TV $299 find.pcworld.com/57109	79 Good	• Ease of setup: Superior • On-screen interface: Very Good • SD/HD video quality: Superior/Good • Audio quality: Very Good	• Networking: Ethernet, 802.11n (draft) Wi-Fi • HD video: Up to 720p; upscales to 1080i • Internet radio: Needs unofficial plug-in • Hard disk: 40GB	Apple's video receiver is stylish and easy to set up, but you're confined to iTunes-supported content.
3	D-Link DSM-520 Wireless HD Media Player $210 find.pcworld.com/51936	76 Good	• Ease of setup: Good • On-screen interface: Good • SD/HD video quality: Fair/Good • Audio quality: Superior	• Networking: Ethernet, 802.11g Wi-Fi • HD video: Up to 1080i • Internet radio: Live365, vTuner, and more • Hard disk: None	The DSM-520 delivers great sound. Standard-definition video, however, was sometimes a little blocky.
4	Ziova Clearstream CS510 High Definition Network Media Player $249 find.pcworld.com/57429	73 Good	• Ease of setup: Good • On-screen interface: Fair • SD/HD video quality: Good/Good • Audio quality: Very Good	• Networking: Ethernet, 802.11g Wi-Fi • HD video: Up to 1080i • Internet radio: Shoutcast • Hard disk: None	The CS510 has nice sound and extras like weather info, but suffers from awkward slide-show viewing.
5	Mvix Wireless HD Media Center MX-760HD $300 find.pcworld.com/57427	69 Fair	• Ease of setup: Poor • On-screen interface: Fair • SD/HD video quality: Good/Very Good • Audio quality: Good	• Networking: Ethernet, 802.11g Wi-Fi • HD video: Up to 1080p • Internet radio: No • Hard disk: Optional extra or user installed	This player handles many formats but calls for plenty of tech savvy. You can also add your own hard drive.
6	Buffalo Technology LinkTheater Wireless A&G Network Media Player $249 find.pcworld.com/57425	68 Fair	• Ease of setup: Poor • On-screen interface: Fair • SD/HD video quality: Good/Poor • Audio quality: Very Good	• Networking: Ethernet, 802.11a+g Wi-Fi • HD video: Up to 720p; 2.5 mbps streams • Internet radio: None • Hard disk: None	This is a great audio server that happens to connect to your TV. Other products stream video better.
7	ZyXel DMA-1000 Digital Media Theater $180 find.pcworld.com/57430	67 Fair	• Ease of setup: Very Good • On-screen interface: Good • SD/HD video quality: Good/Very Good • Audio quality: Good	• Networking: Ethernet only • HD video: Up to 1080i • Internet radio: None • Hard disk: None	This compact, easy-to-set-up streamer lacks Wi-Fi, and rival streamers provide better audio output.

CHART NOTES: We conducted our scored performance tests over an ethernet connection. See the introduction of this article for full details of how we tested. SD = standard definition; HD = high definition. Visit find.pcworld.com/57471 for more-detailed specifications and file-format-support listings. Prices and ratings are as of 6/6/07.



CLOCKWISE FROM TOP: D-Link DSM-520 Wireless HD Media Player; Mvix Wireless HD Media Center MX-760HD; Ziova Clearstream CS510 High Definition Network Media Player.

DRM-protected files, works as a digital video recorder, and even lets you check your e-mail and watch YouTube videos on your television. It also outputs up to a full 1080p resolution for HD content.

The Apple TV, which placed second in our group, was the only other device capable of playing back iTunes purchases. It's extremely easy to set up, and it returned great-looking video (though only at resolutions up to 720p). It can play anything iTunes can, but that means it won't play Windows Media or formats popular with online file sharers, like DivX and Xvid. By the time you read this, the Apple TV will stream specially converted YouTube videos directly, as well.

Six of the seven players support HD video to some degree, but as yet there really isn't much true, legal HD video out there. You can download movie trailers, some video podcasts, and a few short films (usually designed to show off the technology), or you can convert recorded HD content yourself—but that's about it so far, unless you happen to own an Xbox 360 (see "You May Own a Streamer, and Not Know It" on page 106).

Each unit can create photo slide shows, usually with an option to use one of your music files as a backing track. And speaking of music, fans of Internet radio—audio streamed directly from the Net, sans PC—will have to settle for the services, such as Shoutcast (used by the Netgear and the Ziova), that your device supports. The D-Link works with such services as Live365 and vTuner, and the Netgear model permits you to enter the address of an .mp3 or .wma music stream manually.

Beyond streamed content, most devices include USB ports for playing back files stored on external hard drives and thumb drives. The Mvix even lets you connect a USB DVD-ROM drive and install your own internal 3.5-inch IDE hard disk, or you can pay extra to have one preinstalled. The Apple TV comes standard with either a 40GB or a 160GB internal hard drive (I reviewed the 40GB model), and you can copy music, video, and photo files to that drive, using iTunes. Unfortunately, however, the Apple TV won't play media from flash drives or hard drives that are connected to its USB port.

Other than the ZyXel DMA-1000, which lacks Wi-Fi, each device supports 802.11g wireless networking. But if your home's geography allows it, a wired ethernet connection gives the best results. What looks smooth when viewed over an ethernet connection can stutter and pause without the cable. The already-out-there-but-not-yet-finished 802.11n Wi-Fi spec promises some improvement, but the Apple TV was the only draft-n device in our group.

GETTING IT ALL TO WORK

YOU'LL FIND A huge number of audio and video formats floating around, and no player can handle them all. That said, .mp3 audio support is universal, and support for unprotected iTunes music (.m4a files using the AAC codec) and unprotected .wma music is common, too. Video is trickier. Many devices support Xvid video, for instance, but some require the accompanying audio to be in .mp3 format, while other players may support Xvid video using AAC audio as well. If you have a preference, consult the online version of our chart (find.pcworld.com/57471) for detailed info on video-, audio-, and photo-file format compatibility.

The Apple TV handles compatibility problems in a simple and convenient, but limiting way. It uses iTunes, on either a Mac or a PC, as a proprietary media server (software that organizes content and sends it to your streaming device). If iTunes can play the file, so can the Apple player. If iTunes can't do it, neither can Apple TV.

Every other product (except the ▶

Mvix) comes with software—usually Universal Plug and Play (UPnP) media servers that organize media, send it to the streaming device, and control what folders get presented to it. Nevertheless, you don't have to use this software, since the devices can see shared folders on a network and play files from them. But if you use this method of accessing your media, the streaming device's on-screen menu will probably just show you files in folders, whereas music and video accessed through a server will be organized by genre, performer, and so on.

Windows Media Connect (WMC), Microsoft's UPnP server, is built into Windows Media Player 11; it's a download for XP users, but standard in Vista. WMC adds a very nice feature: It allows some players, including the Buffalo Technology, D-Link, and Netgear models reviewed here, to play protected .wma files bought from services like Napster and MSN.

Netgear Digital Entertainer HD EVA8000

Best BUY NETGEAR'S DIGITAL Entertainer is a feature-packed product, but setting it up entails visiting too many menus. Fortunately, the menu screens are eye-pleasing and easy to read. Also, the remote feels right in the hand, and it has large, well-placed buttons. The EVA-8000 scans your PC or PCs and organizes your media, making the video or song that you seek easier to find, even if you don't use the supplied server software.

The device played almost every file I threw at it: DivX, Xvid, and .mp4 (MPEG-4 video with .aac audio). It was one of only three players that could play protected .wma files, and it and the Apple TV were the only two units that could play copy-protected iTunes Music Store files.

The Digital Entertainer has impressive Internet streaming capabilities. It supports the free Shoutcast Internet radio service, and you can add your own .mp3 and .wma audio streams. Besides permitting you to view photos stored on your computer, the device lets you browse photos at Flickr. You can also get news (from RSS feeds) and weather from the Internet. The EVA8000 also streams videos directly from YouTube (your PC must be on, and Netgear's software must be installed).

Not surprisingly, YouTube videos look like bad surrealism on a 50-inch HDTV. Netgear's tendency to stretch 4:3 standard-aspect images to 16:9 wide-screen dimensions exacerbates the problem. If you set your TV to display a 4:3 frame, pillarboxed with black or gray bars on the sides, YouTube videos at least become watchable.

On the flip side, the Digital Entertainer handles video shot at a good resolution quite well. I spotted a very slight visual stutter at the beginning of one 1080p trailer, but otherwise the image quality reminded me of why I purchased a 1080p HDTV in the first place. Sound was excellent: Pink Floyd had depth and great tone. I could even hear fine details (such as a very slight analog tape hiss) beneath an Itzhak Perlman performance.

The EVA8000 has some unique extras, too. You can use it to check your e-mail or to browse the Web; and with a TV-tuner-equipped PC and the Electronic Programming Guide option ($5 to activate), it can act as a DVR, letting you schedule, watch, and time-shift TV show recordings.

Unlike any other player, Netgear's high-definition Digital Entertainer transforms your TV into an extension of your home network, and of the Internet. ▶

AUDIO STREAMERS

BEAM MUSIC AROUND YOUR HOME

NETWORK MUSIC PLAYERS specialize in sending .mp3 and other music files from your PC to any stereo in the house. In most cases, you install server software on a PC, set the streamer to work with your Wi-Fi network, and then simply plug it into your stereo. Many streamers also play Internet radio directly from your broadband link—no PC required.



THE SONOS BUNDLE 130 multiroom music system.

Sonos's ZonePlayer products are among the fancier audio streamers. You can set up multiple ZonePlayers, each one plugged into a different stereo located in a different room. To manage them, you use a remote control equipped with a 3.5-inch LCD screen.

The $1000 Bundle 130 consists of two ZonePlayers—one with a built-in amplifier—and a controller. But one of those ZonePlayers must connect to the network via ethernet, which means that only one can stray far from your PC or router. Cheaper yet still stylish options include Roku's $200 SoundBridge M1001 and Slim Devices' $300 Squeezebox (reviewed at find.pcworld.com/57473). Less expensive again are Apple's $99 AirPort Express Base Station with AirTunes and Linksys's $70 Wireless-G Music Bridge (find.pcworld.com/57474). Both use software to divert music wirelessly from your PC to the devices themselves, which in turn connect to your stereo—a very simple way around DRM and compatibility issues. The only problem is that you have to run to the room where your computer is to change your playlist.

The cheapest solution of all? Use a $7 Y-adapter audio cable with a stereo miniplug (like the one on your earbuds) on one end, and left and right RCA connectors on the other. Plug the RCA connectors into the back of your stereo; when you want to listen to music, plug the other end into your audio player or notebook. *—Lincoln Spector*

PHOTOGRAPH: COURTESY OF SONOS; PHOTO-ILLUSTRATION: MARC SIMON

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PC WORLD

Apple TV

THE DIMINUTIVE 8-inch-square and 1-inch-high Apple TV works a like a charm and is a cinch to set up. Just plug everything in, note the five-digit code that it displays on the TV screen, and enter that number into iTunes on your computer. Things get a bit more complicated with Wi-Fi, but even here the Apple TV's setup is easier than most—if you stick to the established 802.11g standard. Interoperability issues between some current draft-n products forced me to use Apple's own AirPort Extreme Base Station to get the Apple TV to operate over an 802.11n network (it's the only 802.11n media streamer in the group reviewed here).

If you can play a file in iTunes on your PC, you can play it through the Apple TV. But that means no .wma music or Xvid videos, without converting them first. Aside from a few video podcasts, 720p movie trailers are about the only HD content currently available for the Apple TV. Most iTunes Store videos are encoded at what the company describes as "near-DVD" quality. They still looked pretty darn good in my tests, but as Apple says, they are not quite at DVD level.

The Apple TV uses iTunes to transfer selected video and music to its built-in hard drive (40GB on our $299 review unit, or 160GB on the $399 model). You can transfer photos by directing iTunes to a folder on your PC, or by using software such as Adobe Photoshop Elements 5.0.

The Apple TV connects to wide-screen TVs only, via an HDMI, component, or analog connection. Apple TV decodes movie files at up to 720p resolution, and it can up-convert them to 1080i, the maximum resolution it can display.

The minimalist but easy-to-use remote has a ring-shaped section for playback control and a Menu "go back" button.

Test files that the Apple TV could play looked great. I saw no blockiness in the streaming video, and images looked naturally sharp without any signs of artificial edge enhancement. Using 802.11g Wi-Fi produced some unwanted video pauses, but everything moved smoothly with ethernet or 802.11n wireless. Soundwise, I detected a very slight harshness in Pink Floyd, but nothing I was likely to notice with the volume set at a regular listening level; Itzhak Perlman sounded perfect.

Apple plans to improve the Apple TV's features over time (as evidenced by the YouTube streaming update); meanwhile, a number of unofficial hacks (including keyboard/mouse support, the ability to install OS X, and DivX and Xvid file playback options) have surfaced online. See find.pcworld.com/57441 for more details.

If iTunes and an iPod are the beginning and end of your PC-and-Internet media world, the Apple TV is a great choice. But if you dislike those limitations, keep looking.

D-Link DSM-520 Wireless HD Media Player

D-LINK'S DSM-520 HD provides exceptionally beautiful sound. It also comes through with a wide selection of music-listening choices. Not only can it stream protected .wma files purchased from subscription services like Napster (using Windows Media Player 11), but it can ▶

NAS DRIVES

STREAM FROM NETWORKED HARD DRIVES

THE MEDIA STREAMER concept has an obvious flaw: For true convenience, you must keep your computer on and networked at all times. This wastes power, and if your media is stored on a notebook, your family may be disappointed when you take it to work. Plus, lots of media files can make even huge hard drives seem small.

The solution: network-attached storage (NAS)—an external hard drive that plugs into your router via an ethernet port so that any computer in your house can access it. Such drives consume less electricity than a PC running continuously—less than 20 watts for some NAS models, versus roughly 120 to 400 watts for a typical PC. And if you turn the drive off, it comes back online much faster than a PC when you power it on again.



BUFFALO TECHNOLOGY'S $200, 250GB LinkStation Live.

Many modern NAS drives function as UPnP-compatible media servers. If the box says the media server is DLNA (Digital Living Network Alliance) certified, that means it's UPnP compatible.

An example is Buffalo Technology's $200, 250GB LinkStation Live. Once it's connected to your network, it becomes accessible to any computer and compatible streaming device. You configure it by using a browser, as you would a router.

One limitation: It can't serve protected iTunes or Windows Media files to any device except a computer already licensed to play them. Still, the LinkStation Live also works as a USB print server, and it comes with a backup program.

Several NAS drives in our most recent Top 5 chart (find.pcworld.com/57447) have built-in media servers and software for organizing music, photos, and movies. Our top pick is Infrant Technologies' ReadyNAS NV, a 1TB model. *–Lincoln Spector*

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transmit audio from sources such as AOL Live, Live365, Napster, Rhapsody, and vTuner. Free sample versions of both Live365 and vTuner are included with the player. The DSM-520 HD isn't able to play back AAC iTunes music, however, whether the files are protected or not.

The D-Link's video capabilities, though, are less impressive. Standard-definition clips looked a bit blocky, while HD videos (which can include .wmv, MPEG-2, and MPEG-4 files) came through somewhat better. The DSM-520 can output video at resolutions up to 1080i over HDMI.

The DSM-520 was the only player that gave me absolutely no Wi-Fi setup trouble. D-Link assured me that using the DSM-520 with a D-Link router provides no advantage. The player permits you to enter the password via a point-and-select screen or a remote-control phone pad. Or you can skip these two options and set up the network with a flash drive prepared in Windows' own Wireless Network Setup Wizard—an excellent method that no other player I looked at offered.

Setting up the DSM-520 to take full advantage of my TV was another matter. With my input choice (HDMI) selected, I couldn't alter the resolution at which it output video to my TV; the unit simply grayed out the option. To work around the difficulty, I changed the output to component, altered the resolution, and then changed the output back to HDMI—but having to go through that routine didn't inspire confidence. (D-Link is working on a fix.)

Once set up, the D-Link sports a promising, eye-pleasing menu system. But despite its large, colored buttons and comfortable fit in the hand, the remote seemed unresponsive. Sometimes I had to press <Enter> a second time because the first press accomplished nothing.

Besides supplying the unit's own server software, the D-Link CD contains an excellent 122-page .pdf manual with one of the best guides to cables I've run across.

Ziova Clearstream CS510 High Definition Network Media Player

THE ZIOVA IS a pretty competent digital media receiver. Physically, it's an attractive gadget—bigger than an Apple TV but smaller than the wide Netgear and D-Link boxes. The front-panel LCD, which displays one line of scrolling text information such as ID3 tag data and current activity, is big enough to be legible from across the room—a welcome exception to the rule.

Navigating around the Ziova can be both pleasing and annoying. Its colorful home screen is big, bright, and easy to read. The remote control's navigation buttons are big and well situated, but playback buttons are very small and awkwardly placed.

When you watch a slide show, all of the players I looked at will occasionally make you wait a few seconds for the next slide. But whereas the other players keep the last picture on the screen until the next one is ready, the Ziova tells you with its hourglass that you'll just have to wait.

Standard-definition videos were a bit fuzzy, and high-definition ones looked the tiniest bit blocky; but both were perfectly acceptable. The sound was excellent, with only a very slight muddiness preventing it from ranking among the best. Like Netgear's player, it comes with the free Shoutcast Internet radio network and can display weather information.

The Ziova supports 1080i HD and a range of video formats like .iso DVD images and .ifo DVD files. Although the device can work with UPnP servers, it can't stream protected files from Windows Media Player. And like most of the other players that I looked at, it can't play protected iTunes music files.



ZYXEL'S DMA-1000 DIGITAL Media Theater lacks Wi-Fi, but it streams good-looking video (up to 1080i) over ethernet, and it has an HDMI connection.

BUFFALO TECHNOLOGY'S LinkTheater Wireless A&G Network Media Player produced sharp and vibrant photo slide shows.



Mvix Wireless HD MX-760HD Media Center

MVIX'S PLAYER BOASTS some very nice capabilities. Besides supporting mainstream video formats like .mp4, DivX, and Xvid, it plays unusual formats such as .iso DVD images, DVD files (including .vob and .ifo), VCD files (.dat), .ts (streaming MPEG-2 DVD) files, plus .tp and .trp (used by some PVR/DVR devices). You can upgrade it with an internal 3.5-inch IDE hard drive. And it supports full, 1080p high-def video.

Unfortunately, it's an absurdly difficult device to set up and use. Nothing will help you with initial setup—not the on-screen menus; not the dense, overly complex documentation printed in a tiny, eyestrain-inducing typeface; and not the software on the CD (there isn't any).

The documentation can be unreli- ▶

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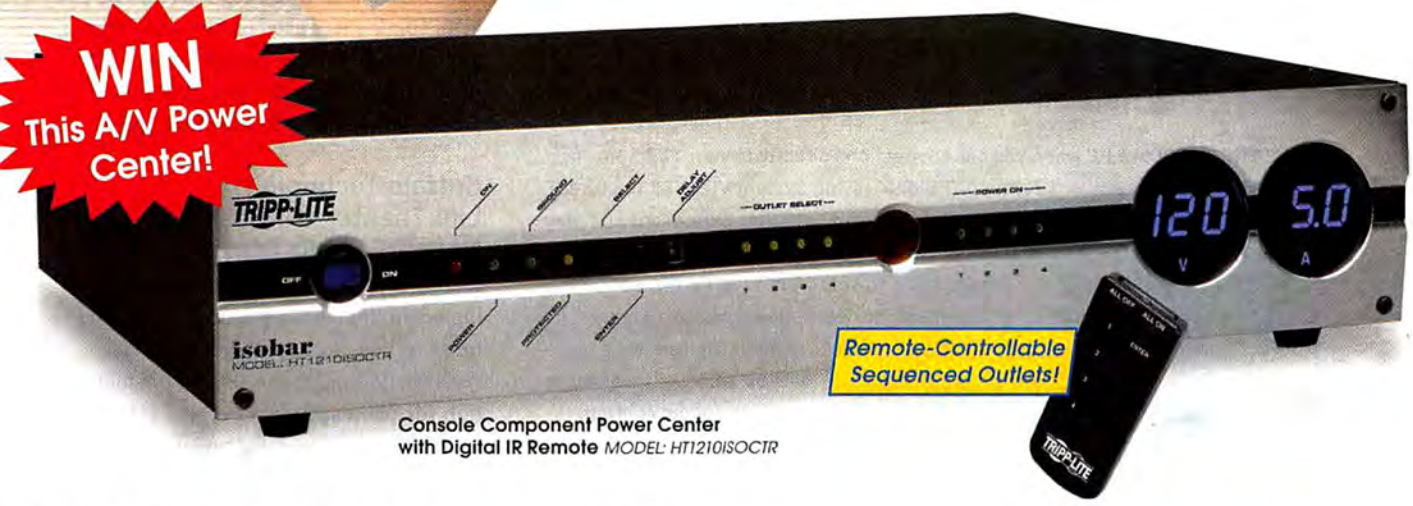


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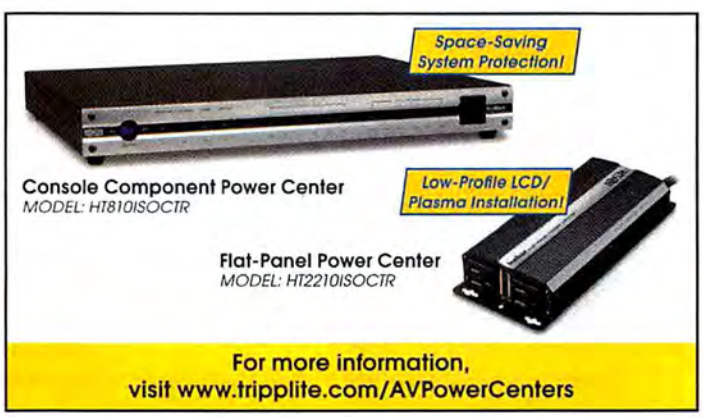
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able; at one point it tells you to turn a screw clockwise when you should do the opposite. This is followed by information for Windows XP—but not Vista—setup. Vista instructions on Mvix's site either do not work in Vista Home Premium or involve editing the Registry.

If you're sharing your media folders with plain-old Windows networking, the Mvix will find them. But it lacks support for UPnP servers, which mars otherwise good format support and exacerbates already poor usability. Without UPnP support, the streamer can't use Windows Media Player to play any type of protected music files. And without the organizing capabilities of a server, you must drill through folders to find the videos and songs that you want to play—all identified exclusively by file name.

If you can't bring an ethernet cable into your home theater, you'll have to configure the MX-760HD for Wi-Fi, which entails entering your network ID manually and your WEP password in hex.

Menus are functional but the text they contain is presented in an ugly, monospaced font. Thankfully, video output looked good, though standard-definition files suffered from some blockiness (HD content showed practically none). Sound had a very slight harshness. The Mvix is one of only three players in this review that supports full 1080p high definition.

The MX-760HD comes with a four-line LCD screen that displays scrolling text, menu data, and song details. This screen is aligned for reading when the unit is standing upright; but I found the device unstable in this orientation, except when I propped it up with something heavy.

I liked being able to install my own hard drive, however. You can transfer, edit, rename, or delete files on the Mvix's drive from your PC, over the network. By copying files to it, you can avoid network problems and free up space on your PC's hard drive. But in the end, despite the MX-760HD's very good picture and audio quality, wide format support, and hard drive option, design issues make it an iffy proposition for anyone but a true geek.

MEDIA CENTER PCs

RESTRICTIONS ON CABLE TV RECORDINGS

WHY STREAM FROM A PC when you can connect one directly to your TV? Some new Media Center PCs, such as Sony's VAIO Digital Living System VGX-XL3 (pictured), can play anything that a home media streamer can, and they can record and play back premium cable TV content without requiring a cable set-top box.

The $3300 VGX-XL3 is one of the first PCs to ship with ATI's TV Wonder Digital Cable Tuner, which has a slot for a CableCard for decrypting premium content (like HBO or Showtime) and recording it. Media Center PCs without the card (or a cable set-top box) can't display or record premium content.



CABLECARD READY: Sony VGX-XL3 Media Center PC.

But Sony product manager Xavier Lauwaert warns that you can stream protected recorded content only to the Xbox 360. Moreover, once you've installed a CableCard in the PC, the content restrictions will prevent you from recording TV shows to the VGX-XL3's Blu-ray drive.

Any PC that uses the ATI product carries the same set of restrictions. The ATI card works exclusively with PCs that run Windows Vista, and it's the only PC-based TV tuner that's approved for use with a CableCard. "A content protection layer has been built around [ATI's] solution," says Lauwaert. "We're definitely locked into that card."

Like many other Media Center PCs, the VGX-XL3 has Intel's Viiv certification, meaning that it can share certain content among Viiv-certified devices (like Buffalo Technology's LinkTheater Wireless A&G Network Media Player). But Viiv has no relation to CableCard, so forget about bypassing the restrictions associated with the ATI tuner to stream HBO shows from your living room to your den. *–Alan Stafford*

Buffalo Technology LinkTheater Wireless A&G Network Media Player

SINCE THE LINKTHEATER can handle high-definition video streams only at 2.5 mbps or less, it's not really an HD video receiver (though it can use that resolution for photos). It lacks digital HDMI and DVI connections, too, so I used component video to connect it to my TV. But to tell the device that I was using component video, I had to plug in the composite video cable, navigate the menus until I found the right settings, select a component video option, and watch the screen go blank. I then had 10 seconds to switch cables so that I could see what was on the screen and confirm the new setting before the player reverted to composite.

Setting up Wi-Fi was no picnic, either. Like many rival players, the unit has you enter your password in text-message style via buttons on the remote that resemble a telephone keypad. But the LinkTheater is overeager; if you pause even briefly after pressing the 9 key four of the nine times needed to get a capital Z, you'll get a lowercase z and a 9. Another snafu: The bundled software wouldn't install on my Vista PC (Buffalo is working on a fix), but Vista's own UPnP server worked just ▶

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fine. Unlike the other non-Apple players, the Buffalo can't see files on a networked PC if media server software isn't used.

On-screen menus lacked the good looks and fun animation of many competing players, but they were responsive and reasonably easy to read and follow.

Videos had some pixelation, but not too much, and music played exceedingly well. Over an optical-audio connection, sound was clear, clean, and powerful. Photos looked sharp and vibrant, too.

The LinkTheater provides no Internet radio support, but if you use Windows Media Player 11 or a Viiv PC as a server, it supports protected .wma music.

ZyXel DMA-1000 Digital Media Theater

THE DMA-1000 MAY be easy to set up, but that's chiefly because it lacks Wi-Fi, the tricky part of a streaming setup. (ZyXel says it's working to add the feature to future versions, but you'll still see a nonfunctioning option for it in the setup screens.) The DMA-1000 doesn't play DivX files or anything at a definition higher than 1080i, but it can play video formats such as .mp4 and Xvid, as well as unprotected .wma files and unprotected iTunes music (.m4a files). It produced a very good HD picture but failed to accompany it with first-rate sound.

Indeed, the ZyXel had worse sound than any other device I looked at. But let me put that in context: The other six players delivered very good to spectacular audio, while the DMA-1000's was merely acceptable. It was the only streamer that lacked an optical audio output, though it does have a coaxial S/PDIF connection (which I used). Nevertheless, it didn't sound as good as the others.

This is a very nice-looking player—small and sleek, with only a row of status lights to make its outside any more communicative than an Apple TV. In fact, the DMA-1000 resembles a well-designed router minus the antenna.

Though the remote control fits well in your hand, little thought seems to have gone into button placement. The bottom, hard-to-reach section of the remote groups 20 identical-looking small buttons, including Play, Pause, Video, Music, and Rotate. Trying to pause or rewind quickly can be a pain; by the time I found the right buttons, the moment I wanted to reexamine would be long gone. The remote control does have one very appealing touch: a Tools button that behaves like the right-mouse button in Windows. If you are watching a video, listening to music, or watching a slide show, clicking the Tools button will bring up a small, activity-appropriate menu in the upper-left corner. For instance, if you hit the Tools button while examining photos, the ZyXel will display a menu of slide-show options, so you can pick the background music and the length of time each picture will be displayed.

The ZyXel DMA-1000 delivered pleasing video, despite its slight pixelation of difficult-to-render movements, such as dissolves and swirling fog.

Despite nice video and a low price, the DMA-1000 is our least favorite streamer in the this group, mostly due to its lack of Wi-Fi and its average sound. ■

Lincoln Spector is a contributing editor, Alan Stafford is an executive editor, and Danny Allen is an associate editor for PC World.

ALTERNATIVE IDEAS

YOU MAY OWN A STREAMER AND NOT KNOW IT



MASS APPEAL: The Nintendo Wii console.

IF YOU OWN a game console or TiVo box, you're ready to start streaming media from your PC today.

TiVo's free Desktop software for Windows lets your TiVo box stream .mp3 and photo files, but to send movie files to your TiVo, you'll need additional software like TiVo's $25 Desktop Plus (find.pcworld.com/57494) or the unofficial but free TiVo.Net package. The latter is trickier to install, but it can transcode video formats on the fly. Series2 and Series3 TiVo boxes can search for, and download, movies from Amazon's Unbox service, too.

Nintendo's Wii can play .mp3 files and display photos via its SD Card slot, but the alpha version of Red Kawa's free Wii Media Center X server software (find.pcworld.com/57499) streams files from your PC wirelessly. The company also provides free tools for converting videos into the Wii's preferred .flv (Flash) format. Though Red Kawa, Orb Networks, and other developers have equivalent software for Sony's PlayStation 3, a recent firmware update for that console now lets it stream nonprotected music, movies, and photos from networked PCs running a DLNA media server such as Windows Media Player 11. And this is cool: PlayStation Portable (PSP) owners at a Wi-Fi hotspot can now use the PSP's Remote Play feature to stream content from their PC at home, via their Internet-connected PlayStation 3.

Then there's Microsoft's Xbox 360, including the new HDMI-equipped Elite model reviewed on page 57. The 360's own Media Center interface mirrors and seamlessly syncs with Windows Media Center–equipped PCs, allowing you to stream music, video, and photos—and to schedule and stream TV recordings if the PC has a TV tuner. The revamped Xbox Live Marketplace even has some TV and movie downloads in high definition. Finally, Microsoft plans to let partners offer Xbox 360 users live and on-demand, high-definition Internet TV (IPTV) by early 2008. *–Danny Allen*

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In this issue:

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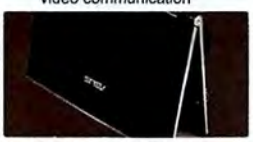
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- WLAN 802.11 A/B/G/N, 1.3 megapixel webcam, Bluetooth V2.0+EDR, gaming backpack and gaming mouse, Super Multi DVD/RW dual layer with LightScribe



G1S-A1: $1,999

G2S is powered by Intel® Centrino® Duo Mobile Technology

- Intel® Core™2 Duo T7500 2.20 GHz
- Windows Vista Home Premium
- 17.1" Color Shine widescreen display with dual lamp high brightness & 8 ms response time (1920x1200 WUXGA)
- NVIDIA GeForce 8600M GT 256 MB
- 160 GB hard drive 5400 RPM eSATA
- 2 GB DDR2 667 MHz main memory, expansion up to 4 GB
- WLAN 802.11 A/B/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



G2S-A1: $2,099

A8 Series Incredible Graphics in a Thin-and-Light

The A8 Series' cutting edge graphics bring a new standard of visual experience to the mobile user. See twice as much detail as you can on a standard display. A8 series laptops also offer built-in webcams for video communication without wires.



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- Built-in webcam, Splendid Video Enhancement Technology, Power 4 Gear+, Instant Fun, Color Shine, Bluetooth V2.0+EDR, WLAN 802.11 A/B/G, Super Multi DVD/RW dual layer

A8JS-4S050E: $1,649

A8SC is powered by Intel® Centrino® Duo Mobile Technology
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- Windows Vista Home Premium
- 14" Color Shine widescreen display (1280 x 800 WXGA+)
- NVIDIAGeForce 8400M G 128 MB
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- 1 GB DDR2 667 MHz main memory, expansion up to 4 GB
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A8SC-A1: $1,299



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With its 512 MB dedicated graphics engine and brilliant 14-inch widescreen, the 5.25-pound ASUS A8 series has your graphics needs covered. You have all the power you need for graphics-intensive assignments or easy and smooth multimedia presentations. The built-in webcam is good for wire-free video communication or igniting the next YouTube phenomenon.



F3SV Power, Innovation and Performance, All in One

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F3SV is powered by Intel® Centrino® Duo Mobile Technology
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- Windows Vista™ Home Premium
- 15.4" Color Shine widescreen display (1680 x 1050 WSXGA+)
- NVIDIA GeForce 8600M GS 256 MB
- 160 GB hard drive 5400 RPM
- 1 GB DDR2 667 MHz main memory, expansion up to 4 GB
- 1.3 megapixel webcam with 240° swivel, fingerprint authentication and TPM, DirectX 10 support, WLAN 802.11 A/B/G/N, Bluetooth V2.0+EDR, Super Multi DVD/RW dual layer with Lightscribe

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TECHNOLOGY

Truth or Fiction

Some of what you've always heard about PCs just isn't true. We examine a dozen pieces of conventional wisdom to see which ones are bogus.

We hate to break it to you, but Bill Gates is not going to give you money just for forwarding an e-mail. And that story about Richard Gere and his pets? We don't even want to go there. But these are not the only misconceptions going around: Many intelligent PC users believe things about technology that simply aren't true. We hope our research into 12 common myths will make you a little wiser when you encounter future tech tales.

BY DAN TYNAN

Myth 1

You have to partition a large hard drive or defrag it often to eke out the best performance.

TRUE ----|----|----|----| FALSE

THIS IS THE type of myth that can result in a bar fight at a geeky watering hole. According to Mario Apicella, technology analyst and storage guru for Infoworld.com (a sibling site of our own PCWorld.com), defragging a large hard disk will boost performance on a Windows machine. Just how much of a boost depends on the number of files you change or delete each day.

"The OS has a silly habit of trying to reuse every free cluster, even if it's in the middle of a large occupied area and there's a lot of free space at the end of the volume," says Apicella. "So new files end up being scattered all over the drive, which means having to do several seek operations to bring them all together."

But in *PC World*'s tests, using a host of defraggers yielded no noticeable performance lift (see find.pcworld.com/57402 for more). Executive Software, which makes Diskeeper, a defragging utility, claims the practice can improve performance—if you have at least 20 percent of your hard disk free. In short: Your mileage may vary.

Partitioning your hard disk into two or more logical drives won't necessarily speed up your system either, but it will provide a host of other benefits. For instance, it will enable you to create a dual-boot system or to separate files that don't change much (like your operating system and apps) from files that do (your data and Internet cache). That in turn will reduce fragmentation problems and make it easier to back up your system or to replace the OS without endangering your data. (See out our instructions for partitioning your drive at find.pcworld.com/57403.)

Myth 2

The MPAA and RIAA can track downloads from a peer-to-peer network.

TRUE ----|----|----|----| FALSE

IT ALL SOUNDS very Big Brotherish. "If you are downloading movies, television shows, music, or video games using a P2P [peer-to-peer] network, the files that you have downloaded can be traced back to your IP address," says Motion Picture Association of America spokesperson Elizabeth Kaltman.

But BayTSP, which actually keeps watch on file-sharing networks like BitTorrent and eDonkey, is a tad less categorical in its assertions. When the company monitors these services for various clients, it can indeed capture a file swapper's IP address, the date and time of the download, the name of the file, and information on the individual's Internet service provider—but only for larger downloads.

"If the file is big enough—a movie or software application (not a single song)—it is highly likely that BayTSP can identify an individual before that person has completed the entire file download," says Jim Graham, a spokesperson for BayTSP. Still, the company "never claims to have complete insight into every downloader."

Connecting an IP address to an actual name or physical address isn't a sure thing either. Typically, attorneys for the record and movie industries approach ISPs or universities, armed with evidence of alleged copyright infringements. It is up to that organization to identify its users based on their IP addresses—and not all comply.

Copyright holders face other challenges as well. Peter Eckersley, staff technologist for the Electronic Frontier Foundation, says that using anonymous IP networks, anonymizing proxies (sites or servers that let people hide their IP address while surfing the Web), or open Wi-Fi connections can make tracing a person's identity much harder. On the other hand, using a dynamic IP address via DHCP (an Internet address protocol) offers no protection. ISPs still keep track of who used a certain IP address at a particular time—and if they're willing to cough up that information when asked, the downloader could be hosed.



Myth 3

Using third-party ink in your printer voids the warranty.

TRUE ----|----|----|----| FALSE

THIS TALL TALE has "bogus" written all over it—in any kind of ink. According to major printer (and printer ink) vendors Canon, Epson, and Lexmark, using another company's ink cartridge or refills doesn't automatically nix your hardware warranty.

The exception to this rule arises if the ink itself causes a problem with the printer. Epson spokesperson Cheryl Taylor likens it to the 50,000-mile warranty on a set of new radial tires. "Your car tire has a warranty on its tread life," she says. "If the tread wears out before it's supposed to, it's covered by the warranty. If you go out and slash your tire, well, something's wrong with your tire, but that's not damage covered by the warranty."

PHOTOGRAPHS: (ABOVE) COURTESY OF CANON; (NEXT PAGE) COURTESY OF PIONEER ELECTRONICS; PHOTO-ILLUSTRATIONS BY JEFF BERLIN

Myth 4

Adding a high-speed flash card to your digital camera means that you can take photos faster.

TRUE ├─────┼─────┼─────┼─────┤ FALSE

USING A HIGH-SPEED memory card allows your camera to save files faster, but that doesn't necessarily mean that you can snap photos more quickly. "When you take a picture, the camera has to capture and process the image, then save it to the card," says Mike Wong, PR manager for memory-card maker SanDisk. "A faster card will only improve the latter part of the process—the save-file-to-card part."

If you use a speedy camera with slower memory, you may notice a lag on the memory side. But using a fast memory card with a slow camera is like putting race-car tires on a Yugo—you'll end up spinning your wheels, says Wong. "[The difference] can be significant in digital SLRs but less noticeable in many of the point-and-shoot types."

Still, he adds, paired with a fast card reader, faster cards can reduce photo upload times to a PC. This may grow more important as megapixels and card capacities rise.

Myth 5

Images will burn into a plasma TV, so you can't leave them on the same channel for too long.

TRUE ├─────┼─────┼─────┼─────┤ FALSE

PLASMA BURN-IN IS not a myth, but most people don't need to worry. According to A/V review site CrutchfieldAdvisor.com, plasmas and some CRTs can suffer burn-in when "a static image such as a video game, stock or news ticker, or station logo remains on-screen for an extended period. Over time, these images can become etched into the phosphor coating, leaving faint but permanent impressions on-screen." Crutchfield product advisor Dallas Simon says that this is rare, since the TV image refreshes during commercials and when you change channels.

But it can be a problem for gamers, who may play the same first-person shooter for a number of hours at a stretch, notes Andre Sam, a sales specialist for Best Buy. For one thing, many titles display a static set of in-game statistics, such as scores, and radar.

Recent models are less likely to suffer from burn-in. Newer plasmas "have made significant improvements with things like the phosphors, cell structure, and filters to alleviate this issue," says Paul Meyhoefer, vice president of marketing and product planning for Pioneer Electronics.



Myth 6

Google finds everything—and once it has your information, you can't remove it.

TRUE ├─────┼─────┼─────┼─────┤ FALSE

ALTHOUGH IT may feel as if Google's invisible fingers are touching everything, that isn't really the case. Google will find something on the Web only if another site links to that page, notes Danny Sullivan, editor in chief of the Search Engine Land Web site.

"If you don't want information found, then don't put it on the Web at all, or ensure that it can be viewed only with a password," he suggests. "Google doesn't do passwords."

You can prevent Google's searchbot from indexing your site—or get it to remove pages it has already found—by following the instructions at Google Webmaster Central (find.pcworld.com/57401). If the site has already been spidered, however, the results won't flush from Google's cache immediately.

The trickier issue is how to remove personal information from Google if it's on a site you don't control. You can try politely asking the site owner to remove the page or to block Google from spidering it. If the owner refuses, and the site contains sensitive information like your Social Security number or copyrighted material that belongs to you, you can ask Google to delete it from its index. Otherwise you may need the services of a site like ReputationDefender.com, which tries to eliminate inaccurate, embarrassing, or offensive material about you for a $30 fee—but the site offers no guarantees.

For more about Google's reach, see "Is Google Too Big?" on page 18. ▶

Myth 7: If you type in the URL, you're safe from phishers.

TRUE ├─────┼─────┼─────┼─────┤ FALSE

THE SUREST WAY to have your identity misappropriated is to click a link in a phishing e-mail and naively hand over personal information. But typing www.yourbank.com into your browser doesn't guarantee that you'll foil the phishers.

You still face at least two lurking dangers, says Dave Jevans, chairman of the Anti-Phishing Working Group. The first is "pharming" or "domain name poisoning" attacks, which intercept legitimate URLs en route to their destination and redirect the requests to bogus sites. So far, a handful of pharming attacks have struck domain name servers, including one in February targeting the sites of at least 50 financial institutions. Jevans says that the only defense against pharming is to type or bookmark the URL of the site's secure log-on page (it should begin with *https:*), since pharming attacks tend to target the top-level page of financial sites. But you should be on the lookout, as well, for browser warnings that the page's security certificate is invalid, in case the attack has gone deeper.

Some malware can achieve the same effect as pharming by rewriting your PC's Hosts file or hijacking your browser. However, if you keep your system patched, your firewall running, and your spyware and virus scanners up to date, you'll greatly reduce your odds of becoming a victim, says Fred Felman, chief marketing officer for MarkMonitor, which provides brand and fraud protection for Fortune 500 firms. Programs like the free Spybot Search & Destroy (find.pcworld.com/57399) and WinPatrol (find.pcworld.com/57400) can help protect your Hosts file, too.



Myth 8: 'Unlimited' 3G broadband access really is unlimited.

TRUE ├─────┼─────┼─────┼─────┤ FALSE

WHEN A CARRIER promotes an unlimited high-speed data plan, it rarely gives you free rein over that bandwidth. But some carriers behave worse than others.

Until recently, Verizon Wireless advertised an "unlimited" broadband plan that really wasn't. Although EVDO subscribers could surf the Web and send and receive e-mail, Verizon's terms of service forbade their uploading or downloading files, accessing Webcam views, or using Voice over IP services. The company also placed an undisclosed 5GB cap on each account; if it detected that a subscriber had sent or received more than that amount in a given month, it would terminate that person's contract. After months of denials, the company quietly added information about the cap to its service agreements and stopped promoting its broadband access package as unlimited.

In Cingular's (now AT&T) terms of service, the company states that its unlimited 3G plans can't be used for video, music, or games. Unlike Verizon, it does not impose a hard data cap, though it may monitor subscribers' data usage to ensure that it's not too high.

Sprint's unlimited EVDO plans place no specific restrictions on data traffic or activities. But Sprint does "reserve the right to limit or suspend any heavy, continuous data usage that adversely impacts our network performance or hinders access to our network." We haven't heard any reports of people getting cut off by Sprint—at least not yet.

Myth 9: You're fully protected when you buy something at an auction on eBay.

TRUE ├─────┼─────┼─────┼─────┤ FALSE

THE WORLD'S BIGGEST auction site and its PayPal division offer users an arsenal of tools against con artists and against their own gullibility. But the protection isn't 100 percent.

When buyers use PayPal to purchase a physical item on eBay.com, they automatically get $200 of coverage on the transaction, says eBay spokesperson Catherine England. If the seller is PayPal Verified, buyers get up to $2000 of coverage.

Unfortunately, if you pay by some other method, all bets are off. Nor do the site's protections apply to nonphysical items, such as software or electronic files. And if you're fooled by a misleading or confusing item description, you may be out of luck.

For example, Greg P. thought he got a great deal when his $300 bid seemed to score him a Microsoft Xbox. If he had received a broken Xbox, Greg would have been covered. But what he really bought was a Word file listing discounted Xbox sale locations. Because the item (*a*) was electronic, not physical, and (*b*) was accurately described (though the auction entry misleadingly displayed an Xbox photo), PayPal's protection did not apply.

PHOTOGRAPHS: (ABOVE) COURTESY OF VERIZON WIRELESS; (NEXT PAGE) COURTESY OF APPLE; COURTESY OF HP; PHOTO-ILLUSTRATIONS BY JEFF BERLIN

Myth 10

Macs are safe from malware attacks.

TRUE ——— FALSE

TRUE BELIEVERS IN the Mac's inherent impregnability found their faith sorely tested recently, when security researcher Dino Dai Zovi took home a $10,000 prize for hijacking a MacBook Pro running Mac OS 10.4. It took Dai Zovi less than 10 hours to uncover the vulnerability within Apple QuickTime and set up a Web page to exploit it. (Windows versions of QuickTime are vulnerable to the hack, too.) In a subsequent interview with *PC World*'s sibling publication, *Computerworld*, Dai Zovi declared the Mac operating system to be less secure than Windows Vista. (That grinding you hear is the sound of Steve Jobs gnashing his teeth.)

This is by no means the only exploit known to afflict Macintosh computers. In January, security researcher Kevin Finisterre and a hacker identified simply as LMH completed the Month of Apple Bugs project, which revealed a new security vulnerability affecting different aspects of Macs every day. And in February, the first Mac OS 10 worm was identified. Though experts considered it relatively harmless, the OSX/Leap-A worm spread via Apple's iChat instant messaging application by forwarding itself to the user's buddy list.



Still, generally speaking, Mac users are much less likely than Windows users to encounter viruses and exploits, if only because Windows malware exists in far greater numbers.

Myth 11

If someone hacked your PC or turned it into a zombie, you'd know about it.

TRUE ——— FALSE

NOT NECESSARILY, says Lawrence Baldwin of MyNetWatchman.com, which tracks bot networks. If hackers have turned your computer into a spambot, for example, your system tray might warn you that your computer is sending hundreds of e-mail messages—but only if you have security software in place to scan your outgoing mail. Malware often shuts down your antivirus software, firewall, or Windows Update service so it can operate unfettered on your system.

In fact, says Baldwin, many users are oblivious until their ISP informs them that a bot has been detected at their IP address, or their e-mail starts getting rejected because their address is on a spam blocklist—or the FBI knocks on their door to ask why they've been launching DDoS (distributed denial of service) attacks. According to Baldwin, it's foolish to rely entirely on security software to protect your computer.

So how can you tell whether your PC has been compromised? If your machine suddenly becomes sluggish or takes too long to start up or shut down, it may be infected. "But," he points out, "these could also be symptoms of lots of different things that are potentially unrelated to malware." In most cases, users are to blame for allowing rogue software—such as files downloaded from a peer-to-peer network—to execute on their systems. As Baldwin puts it, "You need to either get smart or get off the Net."



Myth 12

Inkjets with combo color cartridges cost more to run than those having separate cartridges.

TRUE ——— FALSE

HERE IS a bit of common wisdom that appears to be entirely true. "With a combination color cartridge, the yellow ink could run out, and you would need to replace the remaining cartridges as well if you wanted to print with yellow," says Epson spokesperson Cheryl Taylor. According to her, individual ink cartridges maximize efficiency and lower the user's costs over time.

That's true, confirms Charlie Brewer, who writes the *Hard Copy Supplies Journal*, a monthly newsletter on digital imaging supplies. "It costs more to print with most tricolor cartridges than with individual tanks," he says. "Now, there could be instances where the individual tanks are way more expensive than a low-cost tricolor tank, but I can't think of any."

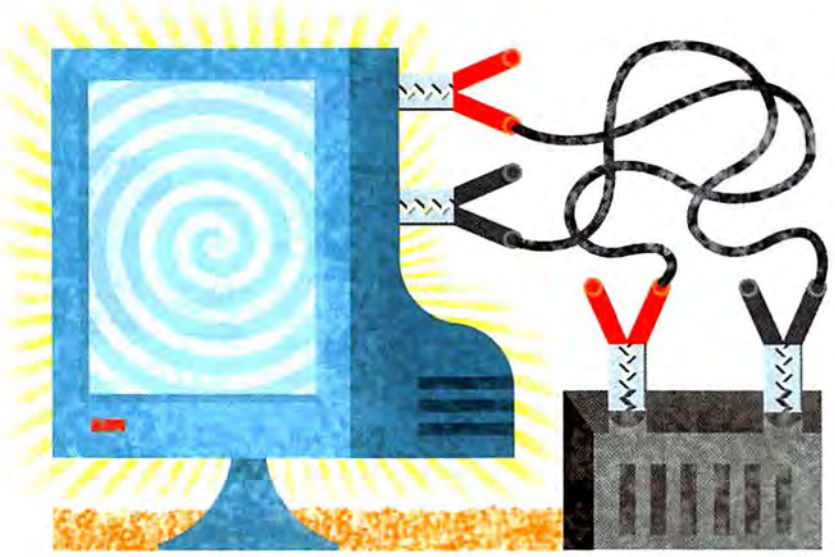
Even if your printer does use individual cartridges, it pays to make them last as long as possible. To learn how to get the most out of each cartridge, see *PC World*'s article at find.pcworld.com/57405. ■

Contrary to popular belief, contributing editor and Gadget Freak *columnist Dan Tynan is not a mythical creature, churning out endless lists for* PC World. *He is, however, a legend in his own mind.*

ONLINE EXTRA: Go to find.pcworld.com/57411 to learn the truth about more technology myths.

HERE'S HOW

EDITED BY ERIC DAHL AND DENNIS O'REILLY



HARDWARE TIPS

KIRK STEERS

The Cheapskate's Guide to Supercharging Your PC

YOU DON'T HAVE to spend a pile of money to give your system some of the cutting-edge features of superfast gaming and graphics PCs costing $5000 or more. A few frugal upgrades can bring your PC's performance to a new level.

For starters, you can get a no-cost speed boost by racing the clock—no, not on a quarter-mile track, on your motherboard. Overclocking boosts performance by pushing the CPU and the graphics chip to run faster than their factory presets. Most CPUs can operate comfortably at frequencies higher than PC vendors use.

If you're cautious, you can overclock a PC with almost no risk. Your CPU will run hotter, but monitoring and controlling your system's temperature is easy (see "Stay Cool" on the next page). Keep in mind, however, that overclocking usually invalidates your warranty. Also, you may not see any performance boost, in which case it's best to revert to the defaults rather than turn up the heat for no reason.

If you bought your motherboard separately or purchased a PC that uses an off-the-shelf motherboard (as in enthusiast systems and boxes from vendors such as CyberPower), you may have a Windows utility that lets you overclock without resorting to your PC Setup program. Otherwise, open PC Setup, usually by pressing the key you're prompted to use as your system starts but before Windows loads. Look for settings in your BIOS for the system clocks and frontside bus (FSB); the section may be labeled 'Advanced Chipset Features' (see **FIGURE 1**). Remember that names for settings and sections vary from BIOS to BIOS.

The only way to find your CPU's top speed is through trial and error. Still, you can learn a lot before you start by reading about the successes and failures of other overclockers. The forums at Extreme Overclocking (find.pcworld.com/57353) are an excellent place to start. EarthWeb Hardware's Sysopt.com has a database of users' overclocking experiences (find.pcworld.com/57354) that you can search by CPU and motherboard, as well.

OVERCLOCKING 101

YOU HAVE TWO ways to overclock your CPU: Increase the CPU multiplier to boost its frequency, or jack up the frequency of the system clock (or FSB), which controls the RAM and motherboard. Changing the multiplier is the easier method. For example, if your PC's FSB runs at 200 MHz and its multiplier is set to 14, the CPU would run at 2.8 GHz (see **FIGURE 2**). Crank the multiplier to 16, and the CPU runs at 3.2 GHz. However, except for high-end CPUs in AMD's Athlon FX or Intel's Extreme Edition line, all modern processors come

ILLUSTRATION: GORDON STUDER

120 HARDWARE TIPS
The quick and safe way to overclock nearly any CPU or graphics card; beat the PC heat; overclocking tools.

124 WINDOWS TIPS
Improve Windows' performance by tweaking your virtual memory settings; a Mac OS X skin freebie.

126 INTERNET TIPS
Get all the Web information you need in one place by creating a custom portal with Netvibes.

128 ANSWER LINE
Fine-tune System Restore settings; extend an LCD's life; turn off Windows Update's restart-now pop-up nag.

130 HDTV TIPS
Right out of the box, your high-def television set isn't ready for prime time. With these tweaks, you can bring everything into focus.



130

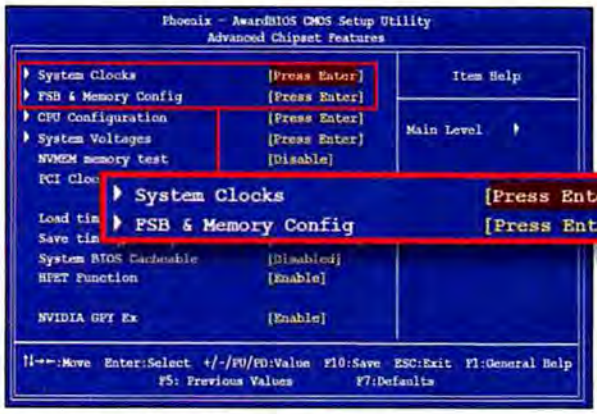


FIGURE 1: DOES YOUR MOTHERBOARD support overclocking? Look for overclocking settings in your PC Setup program.

with the multiplier locked. That's why most overclockers must instead raise the speed of the FSB, a trickier procedure.

Increasing the FSB speed affects not only the CPU rate but also how fast data moves between memory and the CPU. Tweaking this timing can cause your PC to crash, so you may have to adjust RAM and voltage settings in the BIOS as well. You'll find help at the forums mentioned above. Be careful with these settings, however—a mistake can be disastrous.

To find out how much faster your system can go, nudge the clock settings in its BIOS up one click and then use your PC for a while to see if it crashes. If it doesn't, increase the setting one more notch, and keep on until the system fails. At that point, push your clock back one (though you might want to give yourself a little safety cushion).

STAY COOL

HIGH-PERFORMANCE SYSTEMS usually have high-performance cooling. The stock CPU fan that shipped with your PC probably doesn't provide the cooling power that overclocking requires. Fan-based CPU coolers cost less than $30 online, but I recommend spending a bit more for one from a top-flight vendor such as Thermaltake or Zalman. In fact, Zalman's $50 CNPS9500 cooler (find.pcworld.com/57355) turned my noisy and red-hot overclocked Pentium D box into a cool, purring kitty cat.

Many gamers and power users opt for superefficient liquid-based PC cooling systems—smaller versions of the radiator that keeps your car from overheating. The devices include a simple pump, tubing, a radiator, and a "heat block" that draws heat from the CPU. One I recommend is Thermaltake's $100 BigWater SE (find.pcworld.com/57356).

If the thought of water coursing just millimeters from your PC's expensive circuitry makes you nervous, avoid the worry and install Vigor Gaming's $130 Monsoon II Lite cooler (find.pcworld.com/57357). The waterless Monsoon II provides excellent cooling by combining a fan with a powerful Peltier cooler; the device is easy to install, and it takes up less space inside your case than many high-powered CPU cooling fans do.

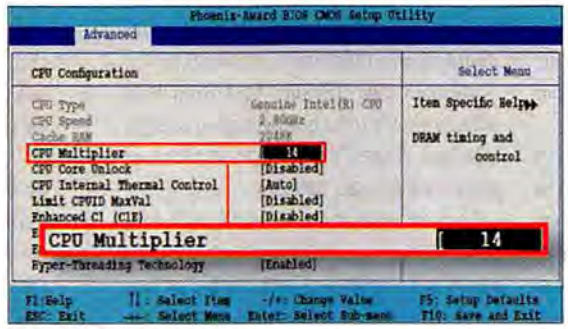


FIGURE 2: OVERCLOCKING CAN BE simply a matter of resetting the CPU multiplier in your system's BIOS incrementally.

OVERCLOCK YOUR GRAPHICS

GRAPHICS CARDS HAVE their own processor and RAM, each of which you can speed up via software utility programs. RivaTuner 2 from 3Dguru (find.pcworld.com/55274) has long been the overclocker's program of choice for easy graphics tweaking, but overclocking has become common enough now that leading graphics board vendors ATI and nVidia include overclocking programs with many of their graphics cards. In fact, in some situations, using ATI's Overdrive utility for overclocking doesn't even void the card's warranty. You may need to unlock nVidia's Coolbits utility; consult Jim Aspinwall's "Secret Tweaks" at find.pcworld.com/57358 for instructions (scroll to "Video Overclocking Made Easy").

Much of the advice that goes for overclocking your PC applies equally to graphics cards: Check the overclocking Web sites referenced earlier for the procedures for your card, always increase clock rates in small increments, thoroughly test a given speed before making further increases, and watch like a hawk for overheating.

If you're worried about your graphics card overheating, monitor its temperature with the $15 Digital Thermal Probe from HighSpeed PC (find.pcworld.com/56489). If the heat gets ▶

too high, dissipate it with a graphics card cooler such as Antec's $20 VCool (find.pcworld.com/57359; see **FIGURE 3**).

OTHER GRAPHICS BOOSTS

THE MOST EFFECTIVE way to improve your PC's graphics performance is, unfortunately, also one of the most expensive: Buy a faster graphics card.

Inexpensive PCs with their graphics processor built onto the motherboard can slow to a crawl when running fast-action games or editing videos and other big graphics files. Since many of these computers use your system RAM for both graphics and general processing, installing a graphics card into one of your AGP or PCI Express slots—if you have one in your PC—can vastly improve your video experience. To find out what kind of graphics your machine uses, look at the back of the case: If its VGA or DVI graphics port isn't located in one of the expansion card slots, your PC has integrated graphics.

Before buying a graphics card, make sure the system-board graphics can be disabled. On some PCs this happens automatically when you install a graphics card, but on others you have to change a setting in the PC Setup program. If you can't disable your machine's on-board graphics, consider buying a new system, or at least a new motherboard, to make the most of your favorite applications.

A two-year-old graphics card will choke on the latest games, especially at high or even moderate screen resolutions. While you don't need to drop $600 on an nVidia GeForce 8800 GTX, you should spend as much on your new graphics card as your budget allows. See "Best PC Upgrades" at find.pcworld.com/57366 and "How to Buy a Graphics Board" at find.pcworld.com/57367 for additional information.



FIGURE 3: KEEP YOUR GRAPHICS CARD cool with a fan designed specifically for it, such as Antec's $20 VCool.

Graphics card notes: Some AGP cards are still available, but that technology is on its last legs. Even if you find an AGP board you like, you probably won't be able to transfer it to your next PC (which will likely lack AGP slots), so consider buying a new motherboard that comes with the newer PCI Express slots. If the specter of Windows Vista hovers in your immediate future, make sure that the new graphics card has Vista drivers available, and that it supports DirectX 10.

Many $5000 gaming PCs include two SLI or CrossFire graphics cards—usually dual $600 boards—that operate in tandem. Cost-conscious upgraders, however, are better off purchasing a single SLI or CrossFire card first (as long as their motherboard supports the technology). If your motherboard does not support dual SLI or CrossFire, upgrading to one that does will permit you to add a second such graphics card when prices drop.

GET A NEW MOTHERBOARD

IF YOUR SYSTEM'S current motherboard doesn't support such modern technologies as PCI Express graphics, SATA hard drives, RAID, and dual-core CPUs, it's really time for a new machine. If you're not ready for that, you can see if swapping out your motherboard, CPU, and RAM will save you some money. Motherboards using nVidia's 650i chip set support the latest graphics cards, hard drives, and other components, all of which you can migrate to your next PC when you're ready to buy. For example, for less than $150 the Asus P5N-E SLI motherboard supports PCI Express and includes two SLI graphics slots, SATA hard-drive connectors, and on-board RAID support. If you don't need SLI, EVGA's nForce 650i Ultra motherboard is a bargain at only $120.

Both boards support Intel's speedy dual- and quad-core Core 2 Duo CPUs as well as Socket 775 Pentium 4 or Celeron chips. If you wait until Core 2 Duo prices fall a bit, you may be able to reuse that CPU in your new machine as well. ■

Go to find.pcworld.com/31511 for past Hardware Tips columns. Send your tips and questions to kirk_steers@pcworld.com. We pay $50 for published items. Kirk Steers is a PC World contributing editor and the author of PC Upgrading and Troubleshooting QuickSteps from McGraw-Hill, Osborne Press.

FASTER FOR FREE: THE OVERCLOCKER'S TOOL KIT

KEEP YOUR FINGER on the pulse of your overclocked PC with these free utilities.

Check your CPU's clock speed with CPU-Z (find.pcworld.com/57369), a handy tool that delivers all the important settings and specifications for your processor, motherboard, and RAM.

SpeedFan (find.pcworld.com/57370) from Alfredo Milani Comparetti is the favorite program of many overclockers for watching CPU and case heat and setting fan speeds for optimal cooling. Intel's Desktop Utilities for Intel-based PCs (find.pcworld.com/57371) displays both internal temperatures and voltages through a more user-friendly interface.

How far can you push your processor? Check your PC's stability at any clock speed with CPU Stability Test from Jouni Vuorio (find.pcworld.com/57372).

Veteran overclockers test their PCs with Prime95 (find.pcworld.com/57373) from the GIMPS Project (Great Internet Mersenne Primes Search).

Consult your motherboard manufacturer's Web site for tweaking utilities specific to your motherboard. SysTool (find.pcworld.com/57376) from Tech Power Up offers tools for overclocking both your PC and graphics card.

PHOTOGRAPH: ROBERT CARDIN



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WINDOWS TIPS

SCOTT DUNN

Accelerate Windows by Tweaking Virtual Memory

IF YOU POKE around tip sites, you'll find a lot of myths and harebrained theories about optimizing virtual memory (the hard-disk space Windows uses to supplement your RAM)—a few of them even perpetuated by me. This time I went to the horse's mouth for the Microsoft-approved ways to set Windows' memory management to full steam ahead.

If you have only one hard drive, just leave well enough alone. But if you have two or more internal or external hard drives (not just disk partitions), your PC will be peppier if you keep the default paging file (what Microsoft calls the virtual memory disk space) on your boot drive (the one that holds Windows) and add a paging file to the second drive.

To do so, log in to Windows as an administrator and verify that you have more than one hard drive in your computer: Click *Start*•*Run* (just *Start* in Vista), type **diskmgmt.msc**, and press **<Enter>** to open the Disk Management utility (click *Continue* in the User Account Control, if necessary). The bottom pane shows each disk on your system and the drive letter that corresponds with each partition (see **FIGURE 1**). To have only one new paging file, choose the fastest drive you have. Remember that an internal drive will be faster than an external drive in most cases. Note the drive letter(s) you'll use.

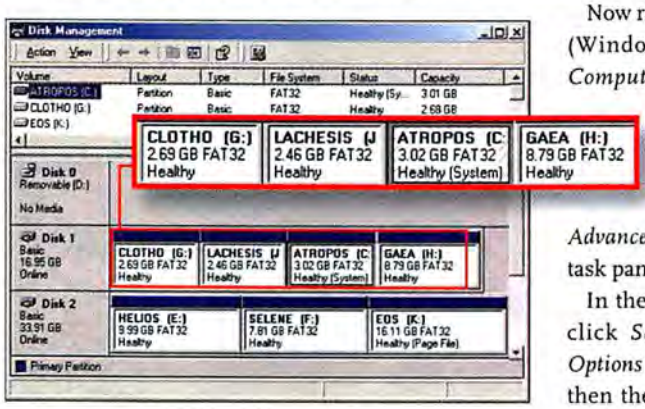


FIGURE 1: PARTITIONS OR DISKS? Find out how many physical disks you have in your PC, and the partitions on each, by using Windows' Disk Management utility.

Now right-click *My Computer* (Windows 2000 and XP) or *Computer* (Vista) and choose *Properties*. In Windows 2000 and XP, select the *Advanced* tab; in Vista, pick *Advanced system settings* in the task pane on the left.

In the Performance section, click *Settings* (*Performance Options* in Windows 2000) and then the *Advanced* tab (in XP and Vista). Under Virtual Memory, click *Change*. In Vista, uncheck *Automatically manage paging file size for all drives*. You'll see a paging file size already listed on your Windows drive; leave it alone, or Windows won't be able to create a memory dump file with debugging info in the event of a particular type of system error.

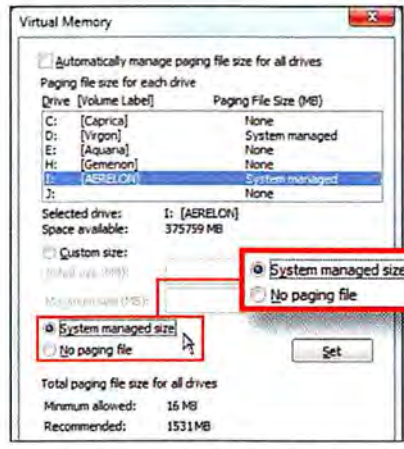


FIGURE 2: CONFIGURE your paging file size by selecting the 'System managed' option.

Next, in the drive list select a partition on a different drive where you want to add another paging file. Select *Custom size* if you want to set the size yourself and type in the initial and maximum size (Microsoft says making them the same amount is most efficient); Microsoft's rule of thumb is to make the file 1.5 times the amount of RAM in your system. Or select *System managed size* to let Windows determine the size (XP and Vista only; see **FIGURE 2**). Click *Set*, then *OK*. If the partition you selected contains another installation of Windows, you'll receive an error message warning that the file pagefile.sys already exists there. As long as the two operating systems are not running at the same time using virtualization software, it's safe for you to overwrite or delete pagefile.sys, since Windows will re-create the file automatically the next time you boot that partition's Windows installation. ■

Send Windows-related questions and tips to scott_dunn@pcworld.com. We pay $50 for published items. Visit find.pcworld.com/31607 for more Windows Tips. *Scott Dunn is a contributing editor for* PC World.

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INTERNET TIPS

SCOTT SPANBAUER

Create a Customized Web Portal With Netvibes

THANKS TO THE timeliness and ubiquity of addictive community sites such as Craigslist, Digg, Flickr, and YouTube, not to mention the Web versions of newspapers, radio stations, and TV networks, Internet-connected computers are quickly replacing broadcast and print media as our primary source of information on happenings around the world. Walter Cronkite, we hardly knew ye.

But the Web's wealth of offerings also presents a problem. Although tabbed browsers that support RSS permit you to stay current with a handful of feeds, the truly Web-addicted require more powerful resources to retrieve and present the latest updates of all their favorite Web sites. iGoogle (www.google.com/ig), My Yahoo (my.yahoo.com), Windows Live (www.live.com), and other personalized home pages do precisely that by combining RSS feeds, e-mail tickers, application widgets, and search tools into customizable screen layouts.

Personally, I prefer Netvibes, a service that allows you to share individual pages you've created with other people, and to publish multipage sites for the whole world to see. For a great example of how the Netvibes Universe service works, visit *PC World*'s Universe page, which you'll find at www.netvibes.com/pcworld.

Creating your own Netvibes page is a snap. Browse to www.netvibes.com, and click *Sign In*, then *Sign up now*. Enter your e-mail address (which the service uses as your log-in name) and create a password. Don't use your e-mail account's password; make up a different one for Netvibes. Your Netvibes page is now ready to customize as you wish.

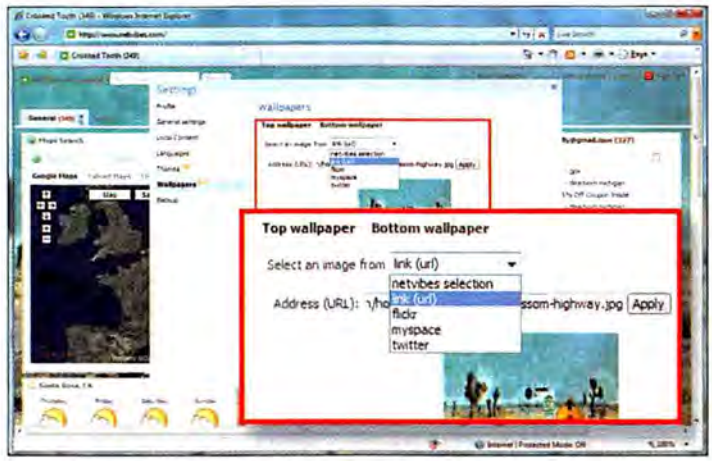


FIGURE 1: CUSTOMIZE THE LOOK OF YOUR Netvibes pages by adding a favorite background or making other changes via the options under the Settings tab.

If Netvibes doesn't list a feed you're interested in, you can add it manually: Visit the Web page containing a link to the feed, right-click the link, and choose *Copy Link Location* in Firefox or *Copy Shortcut* in Internet Explorer 7. Switch to your Netvibes page, click *Add a feed*, paste the feed URL into the Address field, and click *Add*. Individual feeds or modules may contain settings menus for adjusting how many story headlines are listed and other configuration details such as log-in name and password, if required.

Netvibes also lets you control the design of the overall page, and create additional pages. To maximize the space available for feeds and other content, disable your site's title and redundant search field: Choose *Settings* in the window's upper-right corner, select *General settings*, uncheck both *Display page title* and *Display search area*, and then click *Done*.

You can create your own Netvibes widgets if you know JavaScript, and those widgets will even work with iGoogle. Netvibes also makes it easy to customize the overall look of your page using the service's Themes and Wallpapers options. Choose *Settings•Themes* to select a predesigned theme, or click *Create my own theme* to choose from a palette of colors available for the various page and module header backgrounds. You can also select *Wallpapers* to configure your Netvibes page to use an image from the Web for its header or main body background images, and to adjust the height of the header to accommodate its wallpaper image (see **FIGURE 1**). ■

Send your questions and tips to nettips@spanbauer.com. We pay $50 for published items. Go to find.pcworld.com/31523 for more Internet Tips. *Scott Spanbauer is a contributing editor for* PC World.

FEELING CREATIVE? GO NUTS WITH YOUR NETVIBES HACKS

SERIOUS NETVIBES CUSTOMIZERS can create their own backgrounds for pages and feeds, as well as tweak other settings for their page layouts using the Netvibes Customize module. To install it, click *Get more modules* to open the Netvibes Ecosystem directory. Next, choose the *Modules* tab, and enter its name in the search field. While you're in the Ecosystem, browse the amazing clocks, calendars, games, cartoons, and other shared feeds, tabs, and Universe pages.


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ANSWER LINE

LINCOLN SPECTOR

Tweak System Restore to Perfect Your PC Protection

HOW DO I fix System Restore? My old restore points vanished, and Windows won't create new ones.

George Vipond
White Rock, British Columbia

SYSTEM RESTORE SHOULD back up the Registry and many important system files frequently and automatically in Windows XP and Vista. But various conditions can prevent System Restore from creating backups or (as it calls them) restore points:

Tight drive space: To create a restore point, you need about 200MB of free space on the system drive or partition (usually the C: drive). When this space is unavailable, your PC may stop creating restore points and may delete existing ones.

No Task Scheduler: System Restore uses Windows' Task Scheduler to create system restore points automatically every day. To make sure Task Scheduler is active, select *Start•Run* (or *Start* in Vista), type **services.msc**, and press **<Enter>**. Scroll to and right-click *Task Scheduler*, and choose *Properties*. If 'Service status' isn't set at 'Started', click the *Start* button. And make sure that 'Startup type' reads 'Automatic' before you click *OK*.

No rest for the OS: System Restore creates restore points automatically only when your PC is turned on but idle. If the system is always off, hibernating, or in use, you get no automatic restore points.

Even when System Restore works properly, not all restore points are usable. Restore points aren't complete backups. Each holds only the changes since the previous restore point, and System Restore may need to use all the restore points on your hard drive so as to revert to any one of them. In that case, if one restore point is corrupted, they're all useless.

If you can't get any of your restore points to work, remove all of them so you can start over; to do this, turn System Restore off and then on again. In Windows XP, select *Start•Run*, type **sysdm.cpl**, and press **<Enter>**. Click the *System Restore* tab in the System Properties dialog box, check *Turn off System Restore*, click *Apply*, uncheck *Turn off System Restore*, and click *OK*. In Vista, click *Start*, type **sysdm.cpl**, and press **<Enter>** (or select *System Restore* from the list of programs that appears as you type). Click the *System Protection* tab (or choose *open System Protection*), and uncheck *Local Disk (C:)*. (See **FIGURE 1**; the exact name of this option varies, but it should end with '(System)'. You may have to wait a few seconds for it to appear.) Select *Turn System Restore Off* in the System Protection pop-up, click *Apply*, recheck *Local Disk (C:)*, and click *OK*.



FIGURE 1: CLEAN OUT OLD restore points by turning System Restore off and then on again.

MAXIMIZE LCD LIFE

DOES REPEATEDLY TURNING my LCD monitor on and off wear out the light source, and thus shorten the life of the monitor?

J. Trent Corbett, Chesterfield, Virginia

ALMOST CERTAINLY NOT. The fluorescent light bulbs that are used to back-light LCDs continually pass through an on-and-off-like cycle while your monitor is in operation. The less time they spend cycling on and off, the longer they'll live.

But maintaining the screen at too bright a setting for a long time can leave yellow marks on the LCD itself. To extend its life, keep the display as dim as you can without causing discomfort as you work. Of course, your eyes are harder to replace than your monitor, so don't dim it to the point where it causes eyestrain.

Notebook LCDs, which are more expensive to replace, normally run with a dim light anyway to increase battery life. ■

TELL WINDOWS TO KNOCK OFF THE RESTART NAGS

IT SEEMS THAT every time Windows updates, it issues annoying reboot reminders every 5 minutes. To stop the pop-ups in XP Pro and Vista, select *Start•Run* (just *Start* in Vista), type **gpedit.msc**, and press **<Enter>**. Navigate in the Group Policy Object Editor's left pane to *Local Computer•Policy•Computer Configuration•Administrative Templates•Windows Components•Windows Update*. In the right pane, double-click *Re-prompt for restart with scheduled installations*. In the next dialog box, select *Enabled*, and set the number of minutes to something very high, such as **600**. Click *OK* and close the Group Policy Object Editor.

Send your questions to answer@pcworld.com. Answer Line pays $50 for published items. See find.pcworld.com/31577 for more Answer Line columns. You'll find Contributing Editor Lincoln Spector's humorous and other writings at www.thelinkinspector.com.







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HDTV TIPS

ROY SANTOS

Fine-Tune Your High-Definition TV's Settings

YOU JUST BOUGHT a big-screen high-definition TV. After installing it, you tuned in to an HDTV broadcast, expecting brilliant color and amazing resolution. But wait: Has your favorite team become the Boston Orange Sox? Do the *Gilmore Girls* look just a little bluer than usual? Are the *Friday Night Lights* shining so brightly that your eyes are starting to hurt? Maybe you're beginning to suspect that high-def isn't all it's cracked up to be.

Then again, maybe you need to tweak your TV's settings. Manufacturers often calibrate their HDTVs for the store showroom, emphasizing attention-grabbing brightness and cool, bluish colors. These settings may not work as well at home.

USE THE SET'S OWN CONTROLS

THE QUICK, FREE way to calibrate your HDTV settings is to use your TV's manual and its on-screen display controls for brightness, contrast, color, and tint. Look for a menu item called 'Picture Settings', 'Video Settings', or something similar. Take one of your favorite DVDs and pop it into your player. The PC World Test Center uses *Lord of the Rings: Return of the King*, among other videos, for HDTV color tests because that movie's many dark scenes provide opportunities to fine-tune brightness and contrast settings—but you can use any movie or TV series that showcases both dark and bright scenes.

Brightness actually controls the black level of the TV; so when adjusting it, look for detail in blacks and shadows. To alter the setting, pause the movie during a dimly lit scene that includes background scenery or shadowy areas. Turn the setting up or down until you can distinguish shadowy details without washing out the foreground. The contrast control is sometimes called the white setting. Find a sky scene or one with many white objects in it, and adjust the control until the lighter objects' edges don't blur into their surroundings but you can still make out the details and textures in the whites.

To tweak your color and tint settings, find a scene with lots of reds, greens, and blues. Move the color-setting slider until the colors pop without looking unnatural.



FIGURE 1: YOU CAN ENSURE that your HDTV's color and other settings are as accurate as possible by using Datacolor's Spyder2 color calibrator to assess them.

You may find that you need to nudge this setting a little above medium high to showcase your HDTV's color faithfully. Tint is sometimes called hue; this setting controls the amount of green and red in the picture—a particularly important factor in getting skin tones correct.

Many HDTVs permit individual red, green, and blue adjustments, and some higher-end LCD and DLP (Digital Light Processing) screens support even more-precise color tweaking by including magenta, yellow, and cyan controls as well.

CALIBRATE GOOD TIMES

GETTING YOUR HDTV'S colors right takes more than good eyesight, however. Mark Hunter, technical director at color-calibration vendor Datacolor, recommends that you use a DVD that contains test patterns to calibrate your TV's color and other appearance settings, such as Digital Video Essentials' $35 HDTV calibration disc (find.pcworld.com/57490). Datacolor's Spyder2 Suite (about $150 online; find.pcworld.com/57348) goes a step further by using a colorimeter to electronically measure the light emerging from your TV panel. Hunter says that this removes the subjectivity and emotion from the process. For example, he says, the human eye cannot match the amount of blue in white versus the amount of blue in blue when presented with test patterns to view. And you might calibrate your TV differently today than you would tomorrow, depending on the physical state of your eyes at different times.

I used the Spyder2 to calibrate a Philips 42-inch plasma HDTV. The billiard-ball-size colorimeter has three spokes that attach to the screen by means of suction cups (see **FIGURE 1**). The device takes several readings of image patterns from the included DVD and then determines the best settings for your television.

Since the TV I was testing would be viewed during the daytime and at night, I ran the tests under both conditions. Surprisingly, the device recommended nearly identical settings in both cases: a tint setting of 6 on a scale of –50 to 50, which was close to the middle of the range, and a 'Warm' color temperature setting. I was satisfied with the brightness and contrast recommendations, which made high-def shows look rich, pleasantly bright, and well defined. Nevertheless, I felt that the suggested color setting was too high, though the set's owner commented that the TV had never looked better. ■

Roy Santos is a freelance writer based in Northern California.



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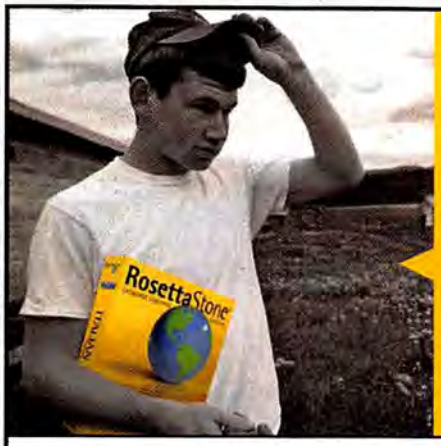
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Advertiser | Page Number	Find-It Address	Advertiser | Page Number	Find-It Address
1&1 Internet Inc. | 2-3	57218	Kingston Technology | 23	57198
ABS | 132	57190	LG Electronics | 85	57228
ABS | 133	57191	LG Electronics | C3	57227
Acer America Corp. | 33-40	57209	Linksys | 125	57240
Ajump | 131	57204	Moneual Lab | 99	57195
Alienware | 83	57212	Moneual Lab | 100-101	57197
American Honda | 10	57207	Motion Computing | 55	57199
Anthro Corporation | 25	57210	Net 7 Technologies | 45	57211
APC | 4	57244	OCZ Technology Group | 48	57232
APC | 73	57219	pcAmerica | 56	57200
APC | 134	57243	pcmall.com | 6-7	57239
Apple Computer, Inc. | C4	57237	Samsung Americas | 8	57230
ASUS | 107-114	57235	Samsung Americas | 21	57229
BitDefender Security | 5	57213	SANYO Digital | 27	57201
Buffalo Technology | 46	57192	Sena Cases | 127	57202
CDW | 1	57220	Siber Systems, Inc. | 75	57214
CDW | 69	57222	Soyo | 70	57236
CDW | 89	57221	SpectorSoft Corp | 87	57215
Crucial Technology | 74	57247	Spyware Terminator | 13	57217
CyberPower PC | 123	57193	Toshiba | 50	57206
CyberPower PC | 129	57194	Transcend Inc. | 71	57203
Dell | 16-17	57224	TRENDnet | 105	57196
Fujitsu | 30	57242	Tripp Lite | 103	57216
G7 Productivity Sys. | 32	57231	USB Implementers Forum | 91	57238
GE Sanyo eneloop | 43	57234	ViewSonic Corp. | 14	57208
HP | 29	57246	www.Ewiz.com | 72	57205
Jamster | 61	57226	ZyXEL | 44	57233

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STEPHEN MANES

Web Ads: A Cat-and-Mouse Game

YOUR BROWSER BLOCKS pop-ups? Big deal. Now that the main aim of technology companies like Google and Microsoft (both of which just spent billions to buy ad networks) is to get you to look at ads, you're still stuck watching banners that flash and jiggle, messages that suggest something terrible has gone wrong with your machine, overcaffeinated video with obnoxious audio, and animated announcements that plop down over the very material you're trying to read.

Of course, that's in part because you won't pay full freight for stuff you do need—like news. When I wrote more than two decades ago in another magazine with *PC* in its name that "the main reason for the low cost of most American software—newspapers, magazines, television, radio—is that it's subsidized by advertising," what paid for that statement was the ad next to it.

In that column from an era when software was wildly pricey, I wondered, "Would you use a free Dow Jones analysis package that popped a broker's spiel onto your screen every time you started it up? Would you be willing to have your bank waive its online service charge in exchange for making you watch a couple of dog food commercials?"

"Well, yes," I confidently answered myself back then. "You just might. Someday you might turn on your Tramielovision and tell it, 'Take a letter.' In a dulcet voice, the machine would reply, 'I'll be glad to. But, you know, dictation always seems to go better with a nice cup of Mountain Grown coffee...'"

Okay, I got that part wrong. So far. But I added, "And then you would activate your special third-party 'fast-forward' software, zap the commercial, and get down to your work."



Overrun by ads? New software is better at exterminating 'em.

Fast-forward, indeed. Today, ad delivery and ad blocking are an endless cat-and-mouse game. ReplayTV and TiVo have helped consumers zip past TV commercials, but they also begot a profusion of product placements in TV programs and "unskippable" ads in online and on-demand versions of shows.

On the Web, pop-up ads quickly became so oppressive that today you can't even give away a browser that doesn't block them. So advertisers have moved on to new, less easily blocked formats that are every bit as annoying—and improved ad-blocking software has mercifully cropped up to fight back.

I've been spending the past few weeks surfing with the help of a Firefox add-on called Adblock Plus (find.pcworld.com/57412), and the Internet has suddenly become a quieter, more civilized, less commercial place. ABP has dozens of geeky customization options, but the simplest way to use it is to subscribe to a couple of lists that have pretty much figured out what you don't want. The combo of EasyList & EasyElement (easylist.adblockplus.org) does a wonderful job of nuking ads and reformatting the rest of the Web page to eliminate the resulting holes.

Eliminating most of the blinky, flashy distractions pays big dividends in how quickly you can navigate Web pages and how rarely they'll bug you. The software isn't perfect—for example, it can shut you out of sites such as Salon.com that insist on your sitting through an ad before proceeding. But you can turn it off temporarily with two clicks on the browser toolbar.

Of course, if everybody used Adblock Plus, publishers (including PC World) would be out of business—until somebody figured out the next escalation. But you know what? If ads annoy you enough to make you install this kind of software, I don't think you're the sort of person the advertisers want to reach anyway. ■

Contributing Editor Stephen Manes was cohost of PC World's Digital Duo *(www.pcworld.com/digitalduo) on public TV. Visit find.pcworld.com/31595 for more* Full Disclosure *columns.*

ILLUSTRATION: JOHN CUNEO

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