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VIRUS KILLERS

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PC SECRETS!

15 EASY WAYS TO MAKE YOUR SYSTEM DO MORE

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➤ **Access
Files From
Anywhere**

➤ **Share Any
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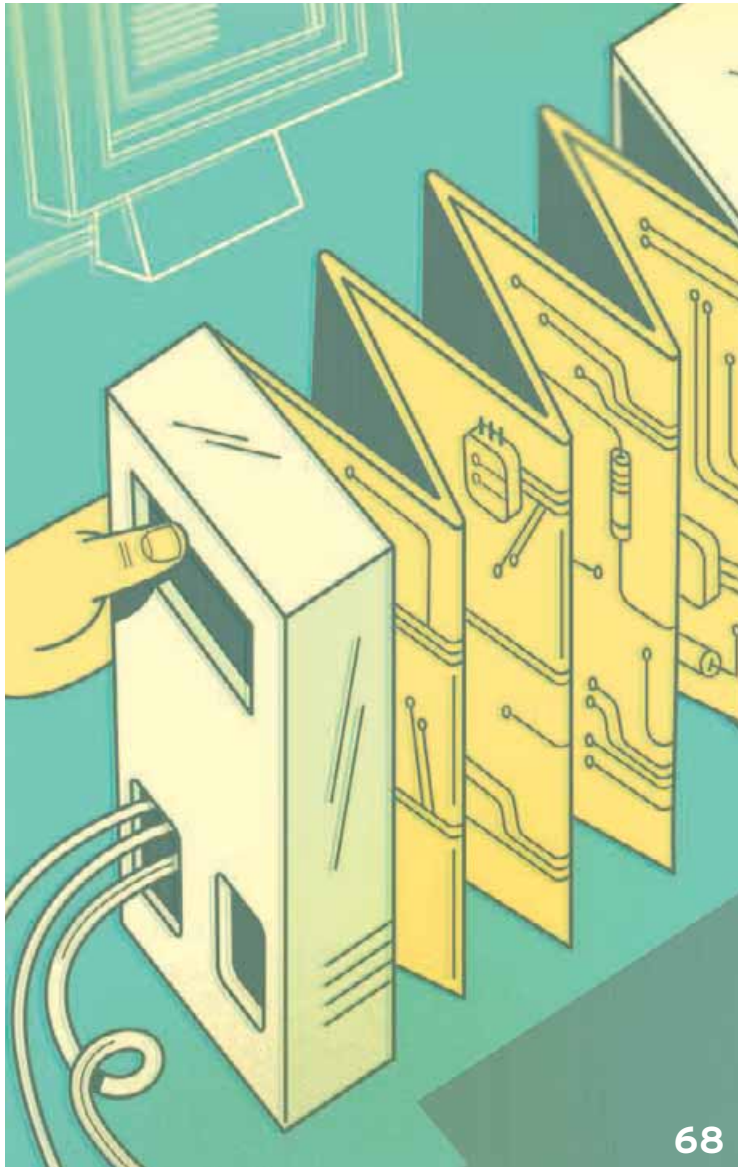
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DISPLAY UNTIL MARCH 13, 2006



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COVER STORY

68 Get More Out of Your PC

Your computer's talents don't stop at word processing. With the help of software or hardware add-ons, and by following a few simple steps, you can make your system send video to a TV, record radio shows, and back up your cell phone, just for starters. Learn how, and discover other ways to extend your PC's capabilities.

Cover photography by Marc Simon.



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Any antivirus app worth its salt can thwart threats it recognizes—unknown dangers pose the real challenge. We evaluate the leading programs, and reveal a new winner.



WIRELESS BROADBAND

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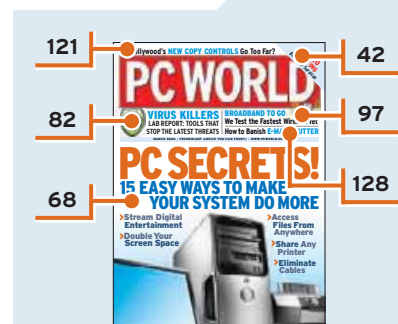
Third-generation wireless broadband services promise to connect your notebook to the Internet when you're away from power outlets. To assess the quality of these connections, our reporters did some road testing.

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Since we first looked at media copying issues several years ago, digital entertainment has exploded—as has the war over who controls such content. We look at how the battle lines are drawn today and what's at stake.

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TO ACCESS INFORMATION about any item in *PC World* with an accompanying Find-It URL, enter find.pcworld.com/xxxxx (where xxxxx is the appropriate five-digit number) into your browser's location field. You'll jump to a Web page containing the information you want.

COMING UP IN APRIL

Windows Hacks/Vista Preview: Bend your current OS to your will, and read our in-depth peek at Vista.

Battery Boosters: Tips and picks for generating more juice, conserving what you have, and recharging.

Get More From Wi-Fi: Expand your wireless net to bring in music, pictures, movies, and even phone calls.

Projectors: Versatile new models can make you look polished and professional—at work and at play.



The Next Internet Breakthrough(s)

Think the Web has already changed everything? Just you wait.

DON'T LOOK NOW, but another Internet revolution is on its way—several of them, actually, all adding up to one powerful idea. A dozen years after it began connecting the world's PCs, the Internet is effectively becoming the planet's biggest PC—a colossal, colossally rich environment that holds

the promise of putting unprecedented processing cycles, information, and storage at our fingertips, wherever and whenever we need them.

Our computing lives, in other words, are starting to slip-slide out of our stand-alone PCs and onto the Net. The current form of this new way of working is a rough first draft, yet it's already exciting and useful. And the revolutions I mentioned? Three are especially worth keeping tabs on:

Web services are beginning to act like software. Using the Web is called *browsing* for good reason: With its focus on consuming information rather than creating, managing, and sharing it, the Web has been pretty passive so far. In part, that's because browsers were never built to support anything as complex and interactive as traditional desktop programs. But clever Web developers are now building services that put desktoplike features right into your browser.

Consider Writely (www.writely.com), a free browser-based word processor that's built for the Net in ways that the 23-year-old Microsoft Word simply isn't. Writely isn't exactly packed with flashy features, but using it to collaborate on documents with coworkers couldn't be much simpler: Every file resides on the Internet, sharable with anyone you choose, so you never need to fiddle with file attachments.

True, this word processor exemplifies the drawbacks of browser apps as well as their virtues. If your Net connection is



sluggish, so is Writely; if the connection goes down, Writely goes AWOL. Even so, it's bursting with potential, as are lots of other free browser-based tools, such as the Meebo (www.meebo.com) IM client.

Files are venturing online. When it comes to data, I'm like an absent-minded squirrel: I have stuff stashed everywhere, from the photos and music on my home system to the documents on my office desktop to the hodgepodge of personal and professional items on my laptop. The more I bop between machines, the more I wish everything were available on every device.

That's not a radical concept—tools such as GoToMyPC have provided remote file access for years. But a new generation of services such as Avvenu (www.avvenu.com) and BeInSync (www.beinsync.com) aim to provide access to everything on all your PCs in a way that's nearly transparent.

(The basic versions of Avvenu and BeInSync are free, even.) Another intriguing approach: You can use a digital-locker service such as Streamload MediaMax (mediamax.streamload.com) to create an online mirror of all your vital data that's available from anywhere you can get online. (For more on some of these services, see page 70.)

Broadband is going new places. Of course, browser-based apps and online storage can't reinvent the way you work unless you can get to them. Ever tried using your cell provider's wireless data service with a laptop? It's been enough to prompt a flashback to the days of slow, flaky dial-up.

Enter new data services from Cingular and Verizon that truly deserve the moniker *high-speed*. These offerings aren't yet available everywhere—and at \$60 and up a month, they're relatively pricey. Still, try one for just a few minutes, and you might get seriously addicted. See "Broadband to Go" on page 97 for our hands-on review.

For broadband, the final frontier may be in the air. I've met one Lufthansa frequent flier who says that using Boeing's Connexion in-flight Net access is a life-changing experience. Too bad the entire U.S. airline industry remains too cash-strapped to roll it out.

Like I said, the Internet's latest iteration is still a work in progress—which makes it great fodder for *PC World*. Stay tuned for much more, and feel free to drop me a note at mageditor@pcworld.com with your take, whether you're already a believer or a confirmed skeptic. ■

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

NEWS & TRENDS

EDITED BY EDWARD N. ALBRO

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Programs in Peril

POPULAR APPS HAVE MORE SECURITY FLAWS THAN WINDOWS DOES. BY ANDREW SULLIVAN

WITH A SPIKING number of security flaws, the programs you run every day are now a more enticing hacker target than your operating system.

The Windows OS has become battle-hardened over years of trial by fire, enduring relentless hacker attacks. Although sometimes-critical flaws continue to surface, security patches applied via automatic updates have made Windows a tougher nut to crack.

If hackers were still just kids out to cause trouble and make a name for themselves, this might be enough to divert them to less destructive pursuits. But these days money, not mayhem, motivates a determined core of Internet attackers. (See the exclusive PCWorld.com series "Web of Crime" at find.pcworld.com/51240 for more on this new and unsettling trend.)



These hackers are looking for easier ways to break into your computer—and they're finding your applications.

POROUS PROGRAMS

IT COULD BE your antivirus application that leaves you exposed to online threats. It

could be the media player software that opens the door to your unsuspecting PC. Even playing a CD on your computer could prove dangerous, should the disc contain slipshod anticopying software.

And Mac users, wipe that smug look off your faces: Be-

cause these security flaws are found in applications rather than operating systems, you are at risk as well.

Desktop programs such as iTunes, RealPlayer, and even the security-conscious Firefox now account for more than 60 percent of serious vulnerabilities, according to the British security firm Qualys. See the chart on the next page for a tally of flaws in popular apps.

The trend has offset years of painstaking progress in improving Internet security, says Allan Paller of the SANS Institute, a Maryland cybersecurity research organization. "We're back to where we were six years ago," he warns.

Windows remains a popular hacker target simply because it's so prevalent on both consumer and corporate computers, and new, sometimes critical vulnerabilities still surface

KEEP AN EYE ON THESE APPS

THE MOST RECENT list of the top 20 Internet vulnerabilities from computer security research organization SANS highlighted a disturbing development: There are now more known security holes in desktop applications than in the Windows operating system. Here's a selection of programs from that report, with the number of total vulnerabilities (patched and unpatched) for each app as listed by Secunia, another research firm.

PROGRAM	Number of vulnerabilities
Internet Explorer 6.x	91
Firefox 1.x	26
RealPlayer 10.x	11
Winamp 5.x	5
QuickTime 7.x	3
iTunes 6.x	2

SOURCES: SANS, www.sans.org; SECUNIA, www.secunia.com

on a regular basis. One recent major Windows flaw involving .wmf image file handling could have given attackers remote control of your machine (Microsoft quickly released a patch, however; for more, see find.pcworld.com/51278).

Despite new holes, though, Microsoft products are still notably more secure than they used to be, according to John Pescatore, a security analyst at Gartner Research. The majority of security risks now surface in everyday apps like Web browsers, media players, and even must-have antivirus applications, according to SANS's recent report, "The Twenty Most Critical Internet Security Vulnerabilities" (find.pcworld.com/51242).

BROWSE WITH CARE

WEB BROWSERS appear to be the most vulnerable applications today, drawing dozens of security warnings from the research firm Secunia. Compounding their flaws are problems afflicting the programs responsible for much of the

Web's back end, including domain-name servers and the PHP scripting language that runs many discussion boards. A well-crafted attack could, for example, "poison" domain-name servers to redirect visitors from a legitimate Web site to a thieving phony site that takes advantage of browser holes to surreptitiously install malicious code on the users' computers.

Other browser vulnerabilities could allow Internet thugs to manipulate dialog boxes, for instance, so users might think that they're responding to an important system message when they're actually downloading malicious code.

Microsoft has blurred the line between Internet Explorer and the rest of Windows. Whether it's a deep-down part of the operating system or a distinct application, the dominant browser still has the most potential pitfalls. However, security holes in alternative programs such as Mozilla Firefox and Opera make them targets as well. Both IE com-

petitors tend to fix new-found holes with quickly released patches, but remember: If you don't keep up with the updates, you're in danger.

MUSIC TO HACKERS' EARS

BROWSER HOLES are like bull's-eyes for hackers, because most everyone surfs the Web. But those ubiquitous programs aren't the only popular applications to suffer from security risks. iTunes, RealPlayer, and other media players have multiple failings as well. Attackers could disguise their malicious code to look like a digital song or movie file, researchers say, or they could simply force the hapless media player to choke on an overly long Web address in order to take control of a vulnerable computer.

For the time being, however, flaws in media players are mostly a theoretical threat. Researchers have found viruses masquerading as MP3 files but have yet to put their finger on a serious attack against player programs. Don't wait for disaster to strike, though: If your media player has been alerting you about an available update, get it. Or check the software's version yourself (under the Help menu, usually) if your player doesn't give you a heads-up. Reducing the threat by uninstalling media players you don't use regularly is also a good idea.

Even must-have antivirus programs suffer from flaws. The number of vulnerabilities in antivirus and other security software is increasing at a faster rate than for Windows, according to a 2005 Yankee Group report that looked at government statistics. ►

Tidbyte



HARD-DRIVE MERGER:

Seagate's forthcoming \$1.9 billion acquisition of Maxtor will make Seagate the biggest hard-drive manufacturer, with 30 percent market share. However, the deal is more likely to help consumers than hurt them: Analysts say drive costs are unlikely to rise, and the merger will give Seagate resources to research and develop innovations such as drives for cars, home appliances, and portable devices.

Product Pipeline



SONY HARD-DISK CAMCORDER:

Sony enters the hard disk-based digital video camcorder market with the DCR-SR100 Handycam, which has a 30GB drive that the company says can hold up to 7 hours of DVD-quality video. The DCR-SR100 has built-in Dolby Digital 5.1-channel surround sound and supports Sony's new optional center-channel ECM-HW1 Wireless Bluetooth Microphone. The camcorder also has a 2.7-inch LCD screen and can take 3-megapixel still images. It is slated to ship in March with a suggested retail price of \$1100. The wireless microphone will cost about \$200. find.pcworld.com/51288

While most every antivirus program updates itself quickly to close any newly discovered holes, an old antivirus utility can be worse than useless, SANS's Paller says.

THREAT: OLD ANTIVIRUS APPS

"THE PROBLEM IS, a lot of people get a free version of those things, and they don't subscribe," Paller explains. "They install it on their computer and think they're okay, and then they're dead—what looks like a nice gift of a free antivirus tool becomes a threat," he says.

If your subscription has run out, upgrade to the latest version of the application, resubscribe to another year of updates, or shop around for a new program. No-cost alternatives include AVG Free (free.grisoft.com) and Avast Home Edition (find.pcworld.com/51244). We put these and eight other antivirus utilities to the test in "The New Virus Fighters" (see page 82).

One threat that didn't make the SANS list was Sony BMG's clumsy attempt to prevent its



"WORDS LIKE 'BE DILIGENT' ARE STUPID," says Allan Paller of the SANS Institute, a Maryland cybersecurity research organization.

songs from being distributed over peer-to-peer networks. Malicious software writers quickly developed a worm that exploited a file-hiding "rootkit" in the third-party copy-protection software used on 49 of Sony BMG's CD titles (see find.pcworld.com/51276).

So what to do? Though new vulnerabilities pop up seemingly every day, the oldest ones still present the greatest

threat, Gartner's Pescatore says. Taking even the most basic security precautions—namely, keeping your Web browser and your antivirus software up-to-date—can keep you ahead of the game.

EMPTY ADVICE?

PALLER IS LESS optimistic about the situation. Most Internet users have things other than online security on

their minds, and the boilerplate advice dished out by well-intentioned advocates doesn't help much, he says.

"I think words like 'Be diligent' are stupid. I don't think people are diligent," he explains, "[and it's] because they're busy. So I think they're just going to have a lot of machines taken over and used and filled with spyware."

The situation won't change until consumers pressure software makers to place a greater emphasis on security, Paller adds. That's already happening in the corporate world, as buyers are writing security requirements into big contracts. On the consumer front, the success of products like Firefox that concentrate on security could inspire other vendors to step up their game.

Paller believes that a heavyweight such as Microsoft will eventually find a way to bundle software updates from other vendors along with its own—a scenario that might make life easier for users but could upset rivals already concerned about Microsoft's dominance.

Stay tuned.

DEFEND YOURSELF

FIVE TIPS FOR SECURING YOUR PROGRAMS

HERE'S HOW TO STAY SAFE and keep your applications up-to-date without spending the time to become an IT expert.

Turn on automatic updates: If a program supports this crucial feature, enable it. Windows Update takes care of patching Internet Explorer, and Firefox 1.5 has its own automatic update. You should have the program ask you before it applies the change, though, just to stay on top of what's going on with your computer.

Lock down IE: Update your browser settings for maximum security. Select *Tools*•*Internet Options*, click on the *Security* tab, and choose *Custom Level* for the Internet zone. Disable ActiveX controls, set Java permissions to high, and disable 'access to data sources across domains'. Also disallow 'paste operations via script'.

Try a third-party service: VersionTracker's Web site ([www.](http://www.versiontracker.com)

versiontracker.com) lists available patches for a wide range of applications on PCs, Macs, and even Palms. For \$30 you can download VersionTracker Pro, which scans your installed programs and provides easy patch downloads for out-of-date apps. BigFix offers a free consumer program that looks for application flaws and other vulnerabilities; download it from help.bigfix.com.

Stay informed: Get the latest security news and analysis delivered to your electronic doorstep by subscribing to an RSS feed from antivirus software maker Kaspersky (find.pcworld.com/51246) or from Internet security company Sophos (feeds.sophos.com).

Do it yourself: Set a once-a-month calendar reminder to check for updates from within the program (if it allows that) or to look for patches at the maker's Web site. It's worth the nagging.

Vista Emphasizes Safety, Performance

IMPROVEMENTS—AND A FEW HEADACHES—ARE EVIDENT IN BETA OF MICROSOFT'S NEW WINDOWS.

WINDOWS VISTA IS assuming its final form. According to Microsoft, the latest beta, Build 5270, is nearly feature-complete, although some of Vista's interface (code-named Aero) isn't yet in place.

We took the beta for a spin and found that its focus on security and performance looks promising—yet still in need of much more polish.

SECURITY HIGHS, LOWS

WE EXPECTED Vista's firewall to address a major shortcoming in XP's built-in protection by alerting you to outgoing as well as incoming traffic. But the new firewall monitors only incoming connections by default. Microsoft contends that this is sufficient for most users. We continue to recommend that you replace it with a bidirectional product, such as Zone Labs' ZoneAlarm.

Vista's BitLocker feature adds security to notebooks and other PCs by letting you encrypt the entire hard drive. If your computer (or just the hard drive) is stolen, the thief can't access your data without your 48-digit encryption key. If your computer carries the not-for-profit Trusted Computing Group's Trusted Platform Module chip (see find.pcworld.com/51420), the key is retrieved automatically when you log in to Windows. Otherwise you can put the key on a USB drive, which you then use to unlock your hard drive every time you boot, or

enter the key manually whenever you start your machine.

FAST ON, OFF

IT'S TOO early to judge Microsoft's assertion that Vista will start more rapidly than other versions of Windows, but the new Superfetch feature might speed your work. Superfetch remembers the programs you use most often and keeps some of their components in memory for faster relaunching. Whenever you attach a drive to your USB port—be it a big external hard drive or a little flash thumb drive—Vista asks whether you want to use some of the drive's capacity to improve performance via Superfetch. If you agree, the OS shuffles files from your hard drive over to the USB-connected drive, potentially making access to those files



USE A THUMB DRIVE, external hard drive, or other USB storage to improve performance via Vista's Superfetch.

much faster. We didn't notice any speed difference in our tests, but it's still beta time.

Windows XP has difficulty going into and waking from hibernate mode or sleep mode on some computers, and your system hardware may override your power-saving choice. In Vista, however, you simply click the new Power Off button for the best of both worlds: Your data is saved to disk in case of a loss of power (as in hibernate mode), but it also

stays in memory for a short time (as in standby mode), so it revives faster.

A BETTER PLAYER

THE VISTA version of Windows Media Player replaces the previous release's boring text lists of song titles with album graphics, and the new WMP 11 main menu makes

finding tunes and accomplishing other tasks easy. The program's search box appears center stage, just where you want it; and it works better, as well, with partial-match results appearing as you type.

If you own Windows XP Media Center Edition, it almost certainly came bundled with a fancy new media PC (or via a media-extender device). In the future MCE will be part of Vista and may also be sold in a stand-alone version, making it easier to assemble your own media-oriented PC. MCE is undergoing tumultuous changes with each Vista release. Chances are the MCE in this build will change significantly by the time Vista appears on shelves late this year.

If Vista can live up to its promises, ship relatively bug-free, and smooth out this beta version's many rough edges, the OS may prove a worthy successor to Windows XP. Of course, that's a lot of ifs.

—Woody Leonhard



THE VISTA VERSION OF WINDOWS Media Player provides a more graphical view of your library, including album art in library listings.

PCs

Notebooks Rev Up With Dual-Core Tech

FIRST DUAL-CORE PORTABLES TESTED PROVE TO BE MULTITASKING POWERHOUSES.

NOTEBOOKS ARE receiving a power boost as Intel brings dual-core technology to its mobile processors. Like dual-core desktops, new dual-core laptops in our tests showed the biggest improvements when doing two tasks at once. And you still get good battery life.

Eschewing the Pentium M name, Intel's new chips come in two lines: Core Duo T for mainstream notebooks, and Core Duo L low-voltage CPUs for ultralight laptops. The T line will range from the 1.66-GHz T2300 to the 2.16-GHz T2600; the L line will have two variants, the 1.5-GHz L2300 and the 1.66-GHz L2400.

Core Duo chips, formerly code-named Yonah, sport a faster, 667-MHz frontside bus

(up from 533-MHz); support for faster memory matching the bus speed; a new 945 GM/PM chip set; and Intel's new wireless 802.11a/b/g chip set. Like the Pentium M line, the new CPUs provide a 2MB L2 cache. Additionally, with Intel's power-management technology, they can detect a light workload and shut down one core to improve battery life.

The PC World Test Center looked at two laptops carrying 2-GHz Core Duo T2500 CPUs and 1GB of RAM: a \$1923 HP Pavilion dv1000 and a \$2307 Dell Inspiron E1705. Each unit earned a WorldBench 5 score of 97, which puts them among the fastest portables we've ever tested. The highest-scoring model in our current Top 10



DELL'S INSPIRON E1705 (left) and HP's Pavilion dv1000 feature Intel's new Core Duo T2500 CPU.

chart (see page 46), the Acer Aspire AS9504WSMi, came with a 2-GHz Pentium M 760 chip and earned a score of 99, just 2 points higher than the Core Duo notebooks despite having double the memory.

The Core Duo systems really showed their mettle when juggling multiple jobs. In our multitasking test, where we browse the Web while converting a video file from one format to another, the two units completed the tasks about 30 percent faster than the Acer did. The new systems also performed very well in our Windows Media Encoder and Roxio VideoWave tests (see chart).

The portables ran fairly cool

and quiet. Using a nine-cell battery (a \$99 option), the 8.2-pound E1705 ran out of gas after 2 hours, 32 minutes—fairly typical for a laptop with a 17-inch wide screen. The 5.6-pound dv1000, a 14-inch wide-screen model, did better at 3 hours, 51 minutes, nearly matching the 4-hour battery life we saw from a single-core version of it last year.

If you work with multiple apps at once or edit digital media, you'll get a lot out of the new units. And they cost only about \$100 more than similarly configured single-core laptops. Core Duo systems should be available now.

—Carla Thornton

TEST REPORT

DUAL-CORE VS. SINGLE-CORE NOTEBOOKS

LAPTOPS WITH DUAL-CORE PROCESSORS complete digital media work and multiple tasks significantly faster than single-core systems.

TEST SYSTEM	Processor	WorldBench 5 score Faster	TIME IN SECONDS TO RUN				Battery life (hours:minutes)
			Multitasking test	Windows Media Encoder 9	Roxio VideoWave 1.5	Adobe Photoshop 7.0.1	
Dell Inspiron E1705	2-GHz Core Duo T2500	97	498	305	271	325	2:32
HP Pavilion dv1000	2-GHz Core Duo T2500	97	470	300	274	334	3:51
COMPARISON SYSTEMS							
Acer Aspire AS9504WSMi	2-GHz Pentium M 760	99	702	423	409	344	3:02
Average of three systems	2-GHz Pentium M 760	90	694	425	420	341	3:48

TEST Center FOOTNOTE: Unit came with 2GB of RAM; all others had 1GB of RAM. **HOW WE TEST:** We tested all PCs with WorldBench 5. The Dell and Acer units ran Windows XP Media Center Edition; the others ran Windows XP Professional. **CHART NOTES:** For WorldBench 5 scores and battery test times, higher is better. In application tests, lower is better. Bold denotes best score.

MOBILE

Gadgets to Go: The Latest in Tech Travel Toys

SMALL WONDERS FOR HITTING THE ROAD.

FASTER, SMALLER, SMARTER: The latest mobile gadgets promise to entertain, enlighten, or connect today's tech-savvy traveler. Due to arrive by midyear, these portable powerhouses include a phone fit for video sent via a high-speed network; a pair of USB flash drives with smarts; a durable yet small headset; and a monitor in an eyepiece.

Headset With Staying Power: Nokia wants to steer heavy-duty talkers to its new BH-900 Bluetooth headset. Due in spring for about \$100, the BH-900 is rated for an impressive 8 hours of talk time and up to 180 hours of standby time; in addition, the device supports noise cancellation and echo reduction.



Informative Flash Drive: Lexar's JumpDrive Mercury is a USB flash memory device for people who like to know just how much available storage they're packing in their pockets. Expected in April in 1GB and 2GB versions (about \$100 and \$170, respectively), the drive presents a built-in gauge that indicates how much space is still free.



See It All, Anywhere: If the image

on a video iPod seems small to you, eMagin's Eyebud 800 can blow it up—right in your face. Just plug the headset into any video-capable iPod or other personal video player and position its eyepiece close to your right or left eye for an experience eMagin likens to watching a 105-inch screen from a distance of 12 feet. For those who might find the outside world distracting, the Eyebud 800 comes with a rakish eyepatch for the other eye. We photographed a preproduction unit; look for the shipping product this summer with a price tag of about \$599.

Fast Phone: Samsung's zx20, due this spring, may look like just another clamshell phone, but it's expected to be the first commercially available handset to support Cingular's HSDPA (High-Speed Downlink Packet Access) Broadband-Connect service. The 3G speed (about 400 to 700 kilobits per second, according to Cingular) should come in handy when you try the phone's video- and music-on-demand capabilities. Pricing will be determined by carriers.



What's On:

Royal's EZVue Vista USB flash drive shows the names of stored files or directories on a scrollable two-line display. Versions will range in capacity from 128KB to 1GB, priced from \$50 to \$150.




PLUGGED IN

ERIC DAHL

Rise of the Entertainment PCs

VIIV EXPLAINED; 200 MBPS OVER CABLE; AND USB WITHOUT WIRES.

MEDIA PCs TAKE OFF


 **The Buzz:** Look for media-centric computers to take center stage this year, as AMD and Intel aim to put their stamp on the entertainment PC revolution. Intel is launching an initiative called Viiv (sounds like “five,” except that someone needs to explain how to pronounce it), and AMD has responded with an offering called (wait for it) “Live.” Intel is promoting an instant-turn-on feature that Viiv machines will take advantage of, but most of the real benefits will come from improvements Intel and AMD have been working on for a while. These include lower power consumption (good for quiet, small-form-factor living



room PCs) and dual-cores (since media machines often do several things at once).

Bottom Line: You’ll start to see Viiv and Live PCs later this year, but the significant boost to media machines will come near the end of the year when PCs get CableCard slots that let you connect and record digital cable without the box.

HOME CABLE NETWORKS

 **The Buzz:** Sharing videos over a home network gets a lot tougher once you start trying to throw large HDTV files around the house. That’s why a couple of new players want to use the coaxial cable already installed in most homes (you use it to watch cable TV) as a potential home network infrastructure. MoCA (the Multimedia over Coax Alliance) and TVnet 2X (a technology jointly developed by Coaxys and ST Microelectronics) each offer theoretical speeds of about 200 megabits per second over standard coaxial cable (today’s 802.11g wireless standard maxes out at a theoretical 108 mbps—but actually delivers much less). Of the two, MoCA has the speed advantage (its standard promises up to 270 mbps), as well as an impressive list of backers including Linksys, Motorola, and Panasonic, and a name that reminds tired journalists of coffee.

Bottom Line: Home networking over coax is certainly worth a shot. As wired standards, both of the coaxial networking schemes should be capable of coming close to their promised speeds, which means either of them could easily handle multiple HD content streams at one time.

HERE\NOW

1 MOGO MOUSE: Bluetooth optical mouse stows away in your notebook’s PC Card slot. find.pcworld.com/51270

2 GIGABEAT: Toshiba’s new video player is iPod-size and runs Portable Media Center. find.pcworld.com/51272


3 MEDIAMAX: Streamload’s updated service now lets you store up to 25GB of media files online for free. streamload.com

4 MAKEBOT: Make magazine’s intriguing stab at RSS-over-IM. find.pcworld.com/51268

5 BAEBO: Site lets you search Amazon.com, Yahoo Products, and eBay in a single stroke. find.pcworld.com/51274



WIRE-FREE USB

 **The Buzz:** Belkin hopes to clear some of your USB peripherals off your desk with its Ultra-Wideband-based four-port Cable-Free USB Hub. The hub transmits data at about 100 mbps over a distance of 10 meters or so. Expect a price of around \$150. **Bottom Line:** If real-world speeds work out as Belkin promises, this product will be a winner. Easier cable management is always welcome. ■

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.

JARGON EXPLAINER

What Is a Platform?



THREATENING TO SUPPLANT “solution” as the most overused bit of tech jargon, “platform” is today’s marketing term of choice. Companies use it when their product involves many different hardware and software components, or when they simply want to sell more stuff. Intel

famously (and correctly) used the term when it introduced its Centrino notebook platform a few years ago. A vendor could call its product a Centrino notebook only if it incorporated a specific Intel processor, chip set, and wireless networking card. While that’s great for Intel, many consumers found better deals buying PCs that used the Centrino chip set and processor, but not the wireless card.

LETTERS

LETTERS@PCWORLD.COM

AVOIDING APPS THAT NAG...

...AND AVOIDING APPS WITH ADD-ONS

DVD RECORDER REVIEWS



SAD STATE OF TECH SUPPORT

THE ARTICLE “The Best Companies to Buy From” [January] noted the reluctance of many companies to improve their tech support. This situation is particularly frustrating for power users like me who never contact techies unless we have exhausted all other options (manuals, online help, and so on). When I call, I’m subjected to the most rudimentary efforts at a fix, even though I have carefully explained all I have done to try solving the problem myself. They never listen, they just seem to go through a script.

That’s why I think companies are wrong not to provide e-mail support more often. To me, it is far better for both sides to have a complete explanation of the problem, the error messages, and the steps taken so far. They should then be in a better position to find a solution.

Geoffrey Orton, Carefree, Arizona

AUTHOR JEFF BERTOLUCCI states that companies are trying to move customers over to Web-based tech support instead of telephone support. If companies want to

do that, they should be more responsive to Web-based support requests. When I submit a question over the Web, I seldom receive an answer. A week after sending a question to one vendor, with no reply, I called; after 20 minutes on hold, the rep gave me the answer in 2 minutes. I am still waiting for the reply to the e-mail.

Don Glenn, via e-mail

LESS IMPORTANT to me than the time on hold with customer service is what happens while I’m on hold. I can live with background music. But if the music is interrupted every minute by a voice telling me to check the company’s Web site for help, as with Dell’s tech support, I have to stop what I’m doing to make sure a customer service rep isn’t speaking.

Shaun Breidbart, Pelham, New York

I CAN’T HELP BUT WONDER how much the mainstream usage of computers has changed the nature of technical support. When PCs first became common, most users were unfamiliar with their operation on any level. Today even my mother can diagnose problems and save me a trip to fix a simple issue. Meanwhile, the rollout of Windows x64 has caused me to make a few tech support calls myself, none of which the staff was able to handle. The days of calls about dirty mouse balls are pretty much behind us, and the real challenge is to answer much more technical questions than in the past. Wait until 64-bit Vista hits the streets!

W. J. Thompson, via e-mail

A CLEANER, FASTER PC

YOUR EXCELLENT PIECE “Gunk Busters!” [January] arrived in the nick of time. My brother-in-law had scheduled an annual tune-up for his laptop, which he uses for professional engineering work. Each year he complains that his system takes longer and longer to cold-start. Usually I remove some unwanted applications and clear his browser’s cache. But with the article’s help, I can go deeper into the sludge.

Richard Morris, Redmond, Washington

UPGRADE-OR SWITCH

HOORAY FOR “Upgrade That Application—Or Else!” [*Consumer Watch*, January]. I got so tired of Symantec’s pop-ups giving me the choice of renewing Norton’s antivirus software either now or later (but not never) that I uninstalled the program on my two computers and now use the free AVG application instead. It seems to work as well or better than Norton and doesn’t hassle me every year to renew!

Joseph Berlinger, Lake Worth, Florida

UNWANTED SOFTWARE ADD-ONS

READING “Software Surprises” [*News and Trends*, December], on apps installing toolbars or adware on a PC, I was reminded of other ways to avoid such situations. First, look up information about the new software before you install it. Then if you discover that it contains such unwanted utilities, check out OldVersion.com. The site has an extensive library of older programs free for download.

Gordon Diggs, via e-mail

DIGICAM TIP CONTESTED

ONE OF YOUR digital camera tips [in “Digital Photo Superguide,” January] recommends that users should never format their memory cards, and it recom- ►

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LETTERS

mends deleting the images instead.

This is bad advice. First, the tip says your camera will begin to store pictures numbered from 001, like when the camera was new. Most cameras do not do that; in fact, most now have a menu option to start the number sequence fresh.

Second, after prolonged use some memory cards will appear to be full or will become unreliable. Olympus strongly urges camera users to copy their files to a hard drive or other storage device and format the card before taking more pictures.

Mickey Maguire,

author of Frame That Shot, via e-mail

Author's response: Not all cameras work the way the reader implies, so not formatting is generally safer for novices. In my many years of working with cameras, I have never experienced the corruption issue he cites.

—Dave Johnson

DVD RECORDERS

I COULD NOT BELIEVE that you didn't include the granddaddy of all recorder vendors, Sony, in your review of DVD/HDD recorder/players ["Burn TV on DVD," *Digital World*, January]. Having just ordered a Sony RDR-HX715, I was very disappointed. Maybe next time you will examine a broader group of brands.

Russ Fallon, via e-mail

Editor's response: The RDR-HX715 didn't arrive in time for our testing, so we looked at a different Sony recorder, the RDR-VX515; however, it had limitations that kept it off our chart (see find.pcworld.com/51230).

—Melissa J. Perenson

PC World welcomes letters to the editor. We reserve the right to edit for length and clarity. Send e-mail to letters@pcworld.com. ■

CORRECTIONS

IN JANUARY'S "The Best Companies to Buy From," we should have identified reader Jerry Straub as being from Charlevoix, Michigan.

In February's "New Ways to Access Your Files Anywhere" (*News and Trends*), we should have indicated that Easy-Reach can search for keywords in a file.

PC World regrets the errors.



CONSUMER WATCH

ANNE KANDRA

**TIPS TO KEEP ONLINE
BANKING SECURE**

**CLEAR YOUR CELL PHONE
BEFORE DISCARDING IT**

**WHO SHOULD PAY FOR
TECH SUPPORT GOOF?**

Banking on the Web: Risky Business?

The reality behind the risks, plus how to keep your online transactions secure.



AS A PC WORLD READER, you know how the Internet can make your life easier. But when it comes to conducting sensitive financial transactions—such as applying for a loan, paying the mortgage, or trading stocks—are you inclined to close the browser and reach for the phone?

If so, you have lots of company. The TowerGroup research firm reports that only about one in four banking customers use online banking (numbers are a bit higher for customers age 40 and under). While online banking is clearly gaining in popularity—eMarketer estimates 40 mil-

lion U.S. households will bank online in 2006, with 5 million more coming on board each year thereafter—it's easy to see why folks might think twice. Every day brings reports about hacker attacks, customer-information thefts, and other security breaches. TV ads feature identity theft victims looking hapless as a stranger's voice crows about buying stereos and trips to Maui. It's enough to make you yearn for your old paper passbook.

The American Bankers Association says consumers cite identity theft as their top concern about online banking. And

both the Federal Deposit Insurance Corporation and the Gartner research firm say banks don't adequately educate customers about fraud prevention.

But before you log off your bank's Web site for good (or decide never to check it out at all), remember that most experts agree identity theft is still extremely unlikely to occur as a result of using online banking services. A study by Javelin Strategy and Research found that unsecured online transactions were responsible for fewer than 2.5 percent of identity theft cases. The report even recommends canceling paper bills and statements in order to reduce the risk of theft or loss.

SAFER THAN PAPER

BANK OF AMERICA e-commerce executive Sanjay Gupta says less than 1 percent of fraud at the bank occurs via online transaction. Online banking actually helps protect against fraud, he adds, since it allows customers to confirm transactions and check account balances quickly and easily. Still, Gupta says, "There's a perception that when money is in the vault, it's somehow more secure. We want customers to feel that [online banking] is just as safe—or safer."

To this end, Bank of America and other leading banks and financial institutions have recently introduced new security measures. Bank of America's program, called Sitekey, bolsters simple password protection by adding images and secret questions. The bank also touts a "zero liability" promise that protects customers against any unauthorized charges.

Meanwhile, banks are giving customers incentives to go online. Some banks ►

have eliminated fees for online services, while charging for things like sending cancelled checks. And financial software programs are increasingly tying features to online banking. For example, most new versions of Quicken let you attach electronic images of cancelled checks (available from some banks) to transaction records, even storing them in encrypted form. Sure beats digging through an old shoe box full of paperwork.

Still on the fence? Here are some tips on keeping financial transactions secure.

BEYOND THE PASSWORD

CHECK YOUR BANK'S online security for features that go beyond a single password. If its security seems bare-bones, ask about plans for improvement.

Make sure the banking site you visit is the real McCoy. Research shows that most online banking fraud now results from *phishing*—where you unwittingly give account and other personal data to a convincing copycat site, typically by clicking a link in an e-mail message. Many ISPs offer antiphishing tools; use them.

Never click on an e-mail link to enter a Web site; use a bookmark or manually enter the URL into your browser instead. And look for signs—such as a secure-encryption icon and working links to customer service—that the site is legit.

Clear your browser's cache periodically to delete the trail of Web sites you've visited. To do this in IE, go to *Tools•Internet*

Never click on an e-mail link to enter a banking Web site.

Options and click *Delete Files* under Temporary Internet Files. In Firefox, go to *Tools•Options*, click the *Privacy* icon, then click the *Clear* button next to History.

If you use a feature like Google Desktop Search, be sure it's set up to exclude secure pages (those with URLs that start with "https"). To find the setting, right-click the application icon, select *More*, and then click *Preferences*. Enabling the setting

will keep others from accessing sensitive Web pages—those holding account numbers, balances, and other information—by simply doing a desktop search.

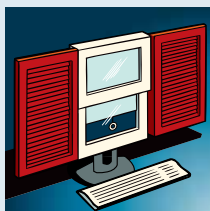
KEEP IN TOUCH

THE BEST WAY to ensure that all is as it should be with your bank account is to check in regularly. Print or save PDFs of key transactions. If you store electronic statements and payroll check stubs, it's more important than ever to back up your system regularly. Many banks let you set up automatic notifications when unusual transactions take place, if account balances go below a certain level, or for other circumstances. Consider taking advantage of this feature, if available.

While you're monitoring your bank balances, consider checking your credit report for mistakes, or clues to potential fraudulent activity. Federal law allows you to obtain one free credit report annually from each of the three major credit reporting companies: Experian, Equifax, and TransUnion. Download your report in minutes at www.annualcreditreport.com.

PRIVACY WATCH

Wipe Your Cell Phone's Memory Before Giving It Away



IN LAST MONTH'S *Privacy Watch*, I wrote about the best ways to clear data from an old PC's hard drive before you sell or donate it. But trading in a cell phone can pose an even greater privacy threat: People store PINs, passwords, and other sensitive information on

them, and are likely to trade them in more frequently than their PCs. Also, wiping data off a cell phone can be extremely difficult.

If your cell phone stores contacts and other information on a removable SIM card, start by taking the card out. The SIM card doesn't necessarily store all the data on your phone, though. It may store only your phone book, while call logs, photos, memos, and other information might reside in the phone's internal memory.

To get rid of everything, you may need to employ multiple reset commands—and those commands aren't always easy to find in a modern cell phone's complex menus. One Samsung phone I looked at requires you to enter ten different commands to delete all data, including text messages, phone numbers, call timers, and logs. But remember, if you want to keep the numbers stored in your SIM card, by all means remove it before you delete anything!

The folks at ReCellular—a cell phone recycling service—have a

great solution: The Cell Phone Data Eraser page (find.pcworld.com/50670) lets you choose the brand and model number of your cell phone, and then displays the precise commands you need to delete every piece of data from it. (If you don't know your phone's model number, try checking underneath the battery.) If you can't find the instructions on that Web site, you'll have to find your manual. What do you do if you've lost that page-turner? Fortunately, most cell service providers offer downloadable copies of the instruction manuals for the phones they sell.

If you think you can circumvent the privacy threat by sending your phone back to your service provider, you could be mistaken. According to one report, a Cingular customer who received a refurbished phone as a replacement for one that malfunctioned found the new phone was filled with the previous owner's private data, including account numbers, user names, and passwords. (For the full story, see find.pcworld.com/50674.)

Once you've taken the steps that are supposed to wipe all traces of data from your phone, double-check to make sure your address book, call logs, and other data stores really are empty. When you're sure everything is gone, you can donate your old phone with peace of mind. See find.pcworld.com/50668 for a list of organizations and companies that accept phone donations. —Andrew Brandt


Finally, you've heard it all before, but it bears repeating: Keep your virus protection updated, use a firewall, disable pop-ups, use passwords that contain both letters and numbers, and change the passwords periodically. Consider securing your PC with a biometric fingerprint reader, generally available for about \$30.

Crooks will always be out there, just waiting for a chance to mug you through the Web. But with a little education and some protection for your PC, you can safely bank through your browser. ■

Anne Kandra is a contributing editor, Andrew Brandt is a senior associate editor, and Amber Bouman is an editorial assistant for PC World. E-mail them 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

Who Pays for Tech Support Goof?

 AFTER WE PURCHASED a Logitech MX1000 Laser Mouse from ZipZoomFly.com, we found out it was not compatible with the Firefox browser. We called Logitech to try to get the problem solved, but the tech support representative we spoke to said the company had no fix for the problem—and he had no idea when one would be available.

We couldn't find any assistance on ZipZoomFly.com, or even an explanation of the incompatibility. But when we called to ask for our money back, the customer service representative said we would have to pay a 15 percent restocking fee. We feel we should not have to pay for a product that doesn't work properly.

Don and Rita Sutliff
Syracuse, New York

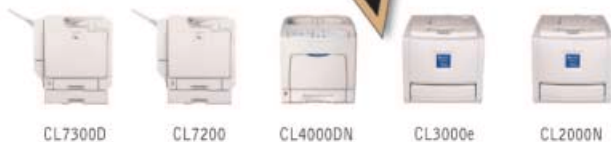
On Your Side responds: Logitech spokesperson Kate Brinks says that contrary to what the company's tech support rep told the Sutliffs, an update that fixes the Firefox incompatibility was available on Logitech's Web site at the time of their call. ZipZoomFly.com says that because of the unusual situation, it has agreed to refund the Sutliffs' \$15 restocking fee. However, a ZipZoomFly.com spokesperson pointed out that, like other retailers, it does not provide tech support, and its restocking fee policy is clearly stated on its site.

Bottom line: Be sure to check the product manufacturer's Web site before you phone tech support. That site is the first place to go if you think a product from a reputable vendor is defective.

—Amber Bouman



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HASSLE-FREE PC

STEVE BASS

Squash CD and Printer Annoyances

Burn CDs more efficiently and stop printer paper jams the frugal way.

I'M THE WORLD'S biggest cheapskate: I hate wasting anything, even a little bit of space on a 50-cent CD. And throwing away a perfectly good late-20th-century printer? I wouldn't dream of it. My quest for new ways to save a buck led me to the following tips, tools, and time-savers.

The Hassle: *I have a huge collection of videos and images and want to burn some of them onto CDs to share with a friend. I can never seem to fill the CDs to the max. Any ideas?*

The Fix: I was in the same boat, with videos ranging from small 8MB files to some that approach 300MB. For quickly burning a single CD, I would drag and drop files onto Nero's explorer window and watch the sliding bar to stay under the 700MB limit. Roxio's Easy Media Creator works similarly; read about both in "Nero and Roxio Put New Spin on Traditional Disc-Burning Suites" (find.pcworld.com/50414). But if I wanted to burn many files that collectively exceed the size of one CD, I had to remove files from the list manually for the best fit.

I've found a much better way to fill 'em up. It's a cool, free utility that examines all the files I've chosen to burn and figures out how to combine them to make the most of each CD, DVD, or Zip disk. Grab a copy of SizeMe at find.pcworld.com/50417. Here's how I use it: Click *Scan new*

directory in the right panel, and select the files you want to burn. The program then creates little CD icons in the middle panel. Drag and drop those icons onto your burning software. If you're using XP to burn CDs, first create a new folder in Windows Explorer, drag and drop the SizeMe CD icon into the new folder, and then burn as usual (by dragging files onto your CD-ROM drive icon). See SizeMe in action at find.pcworld.com/50452.



I have a more intuitive tool for burning big files onto CDs. Picasa 2 (www.picasa.com), Google's free image management software, has a spiffy little backup feature. It's easy to use, it can burn to a CD or a DVD (or even an external drive), and it fills up each disk automatically. From Picasa's Tools menu, choose *Backup Pictures*, and select *New Set* (you'll be prompted for the type of backup media you want to use). Choose a name for your backup set, the backup type, and the file types to include; click *Create*; and then click *Burn*.

The Hassle: *My notebook has a Wi-Fi card but the wireless connection is often flaky. When I lose connectivity momentarily, I get a pop-up alert from the system tray that says 'Wireless Network Connection is not connected.'*

The Fix: Windows is doing its job—but a little too diligently. Use Microsoft's free TweakUI (find.pcworld.com/50426) to fix the hassle. From TweakUI's taskbar and Start menu item, uncheck *Enable balloon tips*, and you won't get the alert anymore.

The Hassle: *I have a nine-year-old HP laser printer that often jams. It seems the rollers aren't gripping the paper. Should I upgrade?*

The Fix: Upgrade? Ha! My laser printer isn't as old as yours is, but its rubber rollers used to be as smooth as I'm guessing yours are. I sprayed the rollers on my printer (and fax machine) with a Rubber Roller Rejuvenator Can (find.pcworld.com/50430). It costs just \$10, and my equipment's grip is back. ■

TOOL OF THE MONTH

Free Taskbar Replacement

I'M USING THE free version of ObjectDock (find.pcworld.com/50442) to give my desktop a little pizzazz and to make reaching my favorite apps and tools easier. It's Mac-like (don't worry, I'm not switching), with animated buttons and icons; plenty

more are available on the ObjectDock site (find.pcworld.com/50432). Adding your programs is a snap: Just drag and drop an icon from XP's Start menu. You can configure ObjectDock's size and location, and kill some time trying out assorted skins.

Contributing Editor Steve Bass writes the Bass Blog (see find.pcworld.com/50264) and is the author of PC Annoyances, published by O'Reilly (see find.pcworld.com/43818). Contact him at hasslefreepc@pcworld.com. To read his previous columns and newsletters, go to find.pcworld.com/50268.



GADGET FREAK

DAN TYNAN

Four Simple Rules for Buying Used Gear

Buying previously owned gadgets can get you a good deal—if you shop smart.

I NEEDED TO REPLACE my aging VHS camcorder, and I'd dropped enough coin on the holidays to put me in hock for the rest of 2006, so I decided to hunt for a bargain on something used.

Crutchfield's "Scratch and Dent" store (www.crutchfield.com/scratchanddent) had a Canon Optura 300 Mini-DV camcorder listed for \$850. It certainly was tempting, but I thought I could do better. Just a little googling brought up the same model for \$500 at a New York-based electronics dealer, but it was refurbished and the warranty was a bare-bones 90 days.

I was at a loss. Was I about to enter a world of pain? It turns out buying used can be a good deal, but only if you follow the rules.

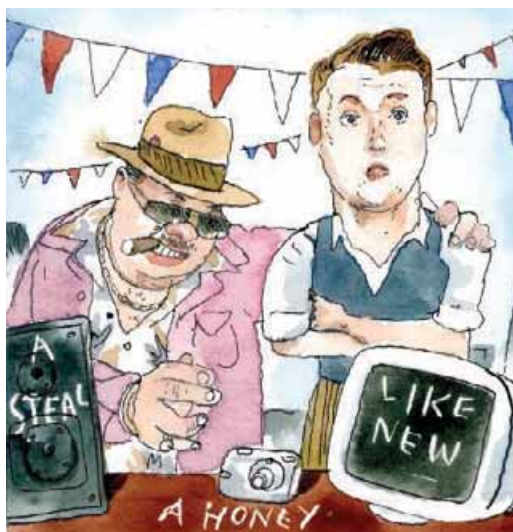
Know your stores: Some sellers have special sections on their sites where they offer gear that buyers have returned. Others present used gear alongside new goods but usually label it "refurbished" or "factory reconditioned." Different sites use different terms, and products vary in condition, so investigate before you buy. Inventory and pricing vary wildly day to day; if you're looking for something specific, check back often.

Separate used from abused: Some used electronics are best avoided. Buying anything with lots of moving parts, like a multidisc changer, is a bad idea, says Phil Jones, director of technical support for Crutchfield in Charlottesville, Virginia.

Another bad idea: TV sets and monitors. Tubes fade, bulbs burn out, pixels die—and it could happen at any time. On the other hand, amplifiers, AV receivers, and some single-disc DVD players will hold their value, even if they don't offer the lat-

est 6.1-channel home-theater experience. Used speakers can be a good choice, too, though they're generally not something you want to buy unseen—or unheard.

If you're purchasing a used computer, a handheld, or something similar, a smart cutoff is the device's age, says Gateway spokesperson Lisa Emard. Six months old is okay, but twelve months or more is not.



Scrutinize the warranty: The best protection is to buy reputable products from dealers who give you 30 days to change your mind, says Jones. Ideally, the product will come with the original manufacturer's warranty (usually at least a year), but many refurbished goods offer only 90 days. With the camcorder I wanted, if I had purchased it from the New York dealer, I could have added a four-year extended warranty from Canon for \$150 and still paid far less than list in total.

An extended warranty is a great idea, says David Slavitt, CEO of Audio Visual Solutions (www.avolutionsinc.net) in Montville, New Jersey. But if adding it brings the

price to within 10 percent of a new product's cost, buying used makes little sense.

Price it right: Don't go higher than 80 percent—or below 50 percent—of what the device costs new, Jones recommends. Ignore this guideline, and you're paying too much money or taking too big a risk.

Beware of online stores that advertise superlow prices but try to sell essentials like power cords as "extras." Before you do business with a lowball dealer, check out the store's reputation on sites like Epinions.com, PriceGrabber.com, and ResellerRatings.com. Look for telltale patterns such as reports from buyers who tried to get the advertised price only to find that the gear was now out of stock.

You'll get the best prices from private sellers, many of whom sell via auction sites. Stick with sellers who meet the requirements for being part of the PayPal Buyer Protection program, which will reimburse you for up to \$1000 if you get ripped off. The best strategy? Know who you're buying from—or, at least, know where they live—so you can try to work out a satisfactory deal if things turn sour.

I ended up not buying the camcorder. At \$650 with the warranty, the deal was so good it looked fishy—and the store's online ratings confirmed my suspicions. Besides, I have my eye on this handheld satellite radio, and there's this PDA I like, and the cutest MP3 player.... I may just have to put them on this year's Christmas list. That's the best deal of all. ■

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.



BUGS & FIXES

STUART J. JOHNSTON

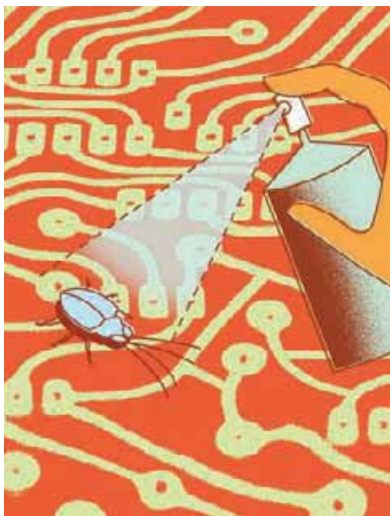
Prevent Attacks Aimed at IE and Windows

Plus: Clear up problems with seemingly corrupt Acronis True Image data backups.

MICROSOFT HAS fixed a nasty Windows security hole that could hand control of your computer to an attacker. The patch offers welcome relief, because dozens of exploits for this vulnerability have been in circulation for weeks. To download the patch, browse to find.pcworld.com/51263.

The problem lies in the way the Windows graphics engine handles Windows Metafiles (WMF), particularly when those files are displayed in Microsoft's Picture and Fax Viewer. Microsoft created the WMF image file format to simplify the exchange of images between various applications. (This bug is unrelated to a WMF hole that I reported on in last month's column; see find.pcworld.com/51262.)

If you view a booby-trapped WMF file on a Web page—say,



on a banner ad—or you click a link to a doctored image in an e-mail or instant message, your system could be infected, letting the hacker take over.

All Windows versions from Windows 2000 through XP are at risk. Moreover, XP and Windows Server 2003 are set to display WMF files automatically, according to security firm F-Secure. To change this

default, you would need to edit the Windows Registry, a potentially risky process. You are better off installing the patch in order to display such files safely.

TWO-IN-ONE PATCH FOR IE

MICROSOFT HAS also released a patch to take care of two dangerous holes in Internet Explorer that could leave you open to any number of diabolical actions. The flaws affect IE 5.01 through 6 running on Windows 98 SE through XP Service Pack 2. The first problem, similar to an earlier case (see my January column at find.pcworld.com/51148), involves IE's ability to run a type of software called a COM object, which wasn't designed to run in IE. Various Windows programs use COM objects to communicate with one another behind the scenes.

The one type of COM object that IE *can* run is called an ActiveX control. ActiveX controls enable IE to perform special tasks like playing a video in a browser window instead of, say, in a stand-alone media player. An attacker could take advantage of IE's ability to run this kind of COM object by creating one that, when run in IE, could commandeer your PC. You could launch an in-

fection merely by reading an HTML e-mail message or visiting a Web page that contains the malicious COM object.

The patch for the bug described in the January column prevented all attacks Microsoft was aware of at the time, by modifying the Windows Registry to keep a set list of COM objects from running. This new patch (at find.pcworld.com/51150) does much the same, except that it blocks a new list of COM objects.

Exploits that take advantage of the second IE hole concern the way IE processes the JavaScript Web programming language. With the patch just mentioned, you'll be able to protect your PC. The bug had been known for months, but everyone, including Microsoft, thought it could at worst result in an IE crash. A UK-based researcher, however, discovered a way to use the flaw to take over a computer.

Another patch benefit: It blocks Sony's now-infamous copy-protection rootkit. ■

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

BUGGED?

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

BACKUP SOFTWARE PROBLEMS

CAN YOU IMAGINE your panic if you tried to do a system restore on your PC and you suddenly got a warning that all of your backups were unusable? Many users of Acronis True Image 9 have reported that very nightmare. Although nothing seemed amiss at the time they saved their backups, when they needed to use the data, some people got messages saying their backups were corrupt.

Acronis confirmed the bug and said the corrupted-archives errors were just that—in error. The archives are good, the company says, and the problem has been fixed. To prevent mishaps, registered users should download the latest build of Acronis True Image (at press time, it was version 2323) at find.pcworld.com/51164.

REVIEWS & RANKINGS

EDITED BY DANNY ALLEN AND LAURA BLACKWELL

- 45 **H&R BLOCK TAXCUT DELUXE + STATE**
- 45 **INTUIT TURBO TAX DELUXE 2005**
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Online Photo Services Shootout

Plenty of Web-based companies will make prints of your favorite pics, but which service is the best?

PHOTO PRINTING

ONLINE PHOTO SERVICES let you upload your digital images, share them with friends and family, and order everything from standard prints to mugs, calendars, and T-shirts. To determine which of them offer the best combination of high-quality prints, price, and handy online tools, we looked at five prominent services: Kodak EasyShare Gallery (formerly Ofoto), Shutterfly, Snapfish, Wal-Mart Photo Center, and Yahoo Photos, rating everything from image-editing features to delivery options to print sizes. Our PC World Test Center jury also took a long hard look at the prints from each source to decide which service delivered the best quality. To establish a baseline for comparison, we used Canon's \$200 Pixma iP6600D, the top photo printer in our February chart (see

find.pcworld.com/51234) to print the same set of images.

Our findings: The Kodak EasyShare Gallery earned our highest marks, thanks in large part to its prints, which earned an overall print rating of Very Good from our judges. At the other extreme, mediocre print quality caused Wal-Mart's Photo Center service to finish last in our group, despite the service's remarkably low prices.

Meanwhile, our judges concluded that prints from the Canon printer looked just as good, on average, as those from Kodak. Canon estimates the iP6600D's per-print pricing (including ink and Photo Pro paper) for a 4-by-6 at 65 cents, a 5-by-7 at \$1.05, and

an 8-by-10 at \$1.12. *PC World* hasn't independently verified those per-print prices, but even if they're optimistic (as vendor estimates often are) you're likely to save some money with the printer if you tend to order lots of 8-by-10 prints. And let's not forget the immediate gratification

of making prints when you want them, without having to wait days for them to arrive.

PICKING THE PICS

FOR OUR JURY tests, we uploaded and ordered prints of three different sample photos. The resulting print quality scores made up 50 percent of each service's PCW Rating. Senior Associate Editor Melissa J. Perenson provided the images for our 4-by-6 print (a



PCW RATINGS



VISIT find.pcworld.com/49902 for a full explanation of our new rating system and for information about our test methodology. Read more on page 64.

PHOTOGRAPHS: MARC SIMON

- 54 ADOBE PRODUCTION STUDIO
- 58 NOKIA 770 INTERNET TABLET
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RANKINGS

- 50 TOP 10 NOTEBOOK PCs
- 55 TOP 5 MULTIFUNCTION PRINTERS
- 59 TOP 10 19-INCH LCDs
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woman in a traditional Japanese wedding kimono) and our 5-by-7 print (the Roman Coliseum). Test Center Senior Data Analyst Tony K. Leung shot the image for our 8-by-10 print—the standard still-life shot that we use for all digital camera testing.

Of the services, Kodak's service did the best job on both the 4-by-6 print and the 5-by-7 print. Judges awarded the 4-by-6 Kodak print high marks for color accuracy, skin tone quality, exposure, and overall quality. The lower-rated Wal-Mart and Yahoo images had oversaturated blacks that caused details in dark clothing to vanish.

Kodak's 5-by-7 print showed good color balance, exposure, and overall quality, despite a minor amount of noise in the ultrablue sky. Noise was a major distraction in the last-place Wal-Mart print, which also poorly reproduced details in features such as the flag perched atop the Coliseum.

Yahoo Photos' reproduction of our still-life image scored the highest of all the 8-by-10 prints, thanks especially to skin-tone accuracy and overall quality. Once again, Wal-Mart Photo Center brought

PHOTO SERVICE	PCW Rating	Overall print quality	Print pricing
Best BUY Kodak EasyShare Gallery www.kodakeasysharegallery.com	80 Very Good	4 by 6: Very Good 5 by 7: Very Good 8 by 10: Good	4 by 6: \$0.15 5 by 7: \$0.99 8 by 10: \$3.99
Bottom line: Kodak's easy-to-use site makes a good range of features available and earned the highest print quality ratings overall.			
Snapfish www.snapfish.com	77 Good	4 by 6: Good 5 by 7: Good 8 by 10: Good	4 by 6: \$0.12 5 by 7: \$0.79 8 by 10: \$2.99
Bottom line: This well-designed site came through with good prints and reasonable prices, plus the option of fast pickup at Walgreens.			
Shutterfly www.shutterfly.com	75 Good	4 by 6: Good 5 by 7: Good 8 by 10: Very Good	4 by 6: \$0.19 5 by 7: \$0.99 8 by 10: \$3.99
Bottom line: The interface is a joy to use and print quality is solid, but high prices and lack of pickup options hurt the final rating.			
Yahoo Photos photos.yahoo.com	74 Good	4 by 6: Fair 5 by 7: Fair 8 by 10: Very Good	4 by 6: \$0.15 5 by 7: \$0.59 8 by 10: \$1.99
Bottom line: This service's sparsely designed site offers numerous editing features and good prices, but print quality was inconsistent.			
Wal-Mart Photo Center www.walmart.com/photo-center	69 Fair	4 by 6: Fair 5 by 7: Fair 8 by 10: Good	4 by 6: \$0.12 5 by 7: \$0.58 8 by 10: \$1.96
Bottom line: Low prices and in-store pickup options don't make up for this service's lackluster site tools and dismal print quality.			
Canon Pixma iP6600D find.pcworld.com/51234	Not applicable ¹	4 by 6: Very Good 5 by 7: Very Good 8 by 10: Good	4 by 6: \$0.65 ² 5 by 7: \$1.05 ² 8 by 10: \$1.12 ²
Bottom line: This \$200 photo printer matched the print quality of the top-rated Kodak EasyShare Gallery service—without the wait.			
¹ This printer's PCW rating was derived from noncomparable test measures; see find.pcworld.com/51234 . ² Vendor's estimate of cost per print.			

up the rear, with its large-sized print exhibiting overexposure and poor sharpness.

PRICING THE PRINTS

PRICING MADE UP 20 percent of each service's PCW Rating. We calculated the costs

of our three prints together with the charge for the least-expensive method of shipping (we excluded taxes, however, since they can vary by state). On this measure, Wal-Mart was the clear winner, with a total cost of \$3.74, fol-

lowed by Yahoo at \$4.22 and Snapfish at \$4.89. Kodak's EasyShare Gallery was significantly more expensive, at \$6.62, but Shutterfly was the most expensive at \$6.89.

For the 4-by-6 prints, both Wal-Mart and Snapfish ►



SNAPFISH IS ONE OF ONLY TWO services that support batch image uploads using Mozilla Firefox instead of Microsoft Internet Explorer.



LIKE ALL OF THE OTHER SITES we tested, Kodak EasyShare Gallery offers customers a plethora of items they can place their photos on.

charged only 12 cents per print, while Shutterfly was highest at 19 cents each. Wal-Mart and Yahoo offered the lowest-priced 5-by-7 prints, at 58 and 59 cents each, respectively, while Kodak and Shutterfly charged the most at 99 cents. The 8-by-10 pricing ranged from \$1.96 per print at Wal-Mart to \$3.99 each at Kodak and Shutterfly.

The final two components of the services' PCW Ratings, with a weight of 15 percent each, related to specifications (print size selection, shopping features, and delivery options) and design and usability (ease of use, quality of online image-editing tools, multiple-browser support, and photo-sharing features).

All five sites have developed fairly easy-to-use interfaces, though Kodak's and Shutterfly's seemed the most intuitive. Nevertheless, we ran into various issues using the Mozilla Firefox browser on each service. For example, Snapfish (which was the only service besides Yahoo Photos

to allow batch uploads using the browser) didn't display its image-editing tools when we used Firefox. Yahoo Photos similarly failed to support image-editing in Firefox, but under Internet Explorer its tools were among the best.

Online photo sharing is a major draw for digital camera users, and all five services let you send e-mail invitations to multiple recipients to view your photos; Yahoo also permits you to share digital images through its instant-

messenger service). Wal-Mart lets you store and share your digital photos online for only 60 days; to keep them up longer, you can rent 10MB to 100MB of storage for 74 cents to \$7.40 per year.

Yahoo's service offered the greatest number of print sizes (11), including multiple poster-size print options, while Wal-Mart offered the fewest. All five sites scored well for non-print products such as mugs and T-shirts; there are very few items that these sites

won't let you slap a photo on.

Each offers shipping options ranging from standard postal service to pricey next-day delivery. Yahoo also offers in-store pickup at Target, Snapfish at Walgreens, and Kodak at CVS Pharmacy. And of course, you can elect to get your Wal-Mart pictures from your Wal-Mart. Each service charges a slightly different fee for pickup; Shutterfly doesn't offer the option.

An online photo service must offer excellent print quality, which Kodak's EasyShare Gallery does. Add to that a well-designed Web site, plenty of online tools, and a plethora of print and delivery options, and Kodak is hard to beat, despite higher prices than most of its competitors.

Kodak's strongest print-quality rival turned out to be not a service but the \$200 Canon Pixma iP6600D photo printer, an excellent choice for photographers who want a print of their masterpieces sooner rather than later.

—Tom Mainelli



SHUTTERFLY HAS A HANDFUL of editing tools, including one for changing a color photo into a classic-looking black-and-white one.

Intuit's TurboTax Retains Its Crown—Barely

TAX SOFTWARE

EVERY YEAR THE creators of the three major retail tax software packages (H&R Block's **TaxCut**, Intuit's **TurboTax Deluxe 2005**, and 2nd Story Software's **TaxAct**) sally forth with claims that they have made their products even easier to use. This year, TurboTax leads the gang of three, but TaxCut follows very close behind.

TURBOTAX

OUR SHIPPING COPY of the TurboTax Deluxe 2005 program (\$40) made working on different parts of our return at different times easier than ever; the new version also outdid its predecessor at eliminating questions that didn't apply to us. As usual, the Basic version (\$20) lacks a state return; the Premium version (\$70) includes one state return, as well as the ItsDeductible deduction-finding tool,

and has beefed-up aid for handling sole proprietorship issues and investment income.

Intuit dropped mail-in rebates this year, but its prices haven't gone down anyway: On top of laying out \$40 for the software, which includes a single state return, you have to pay \$15 each to cover state and federal e-filing. The included ItsDeductible was formerly a \$20 add-on, but otherwise Intuit is just pocketing the amount that it used to send in rebates.

H&R BLOCK

H&R BLOCK'S value-priced TaxCut products continue to edge closer to TurboTax in both level of tax help and ease of use. TaxCut's streamlined interface requires fewer clicks than before to perform the same tasks. The three main



versions of TaxCut—Standard (\$10), Deluxe + State (\$30), and Premium + State (\$50)—correspond to but cost less than TurboTax's Basic, Deluxe, and Premium editions. Unlike TurboTax, TaxCut includes state returns on the installation CD. The Deluxe + State version that we tested offered a mail-in rebate for the \$16 federal e-file fee, but you are on your own for the \$16 state e-file fee. Both Deluxe + State and Premium + State come with Deduction-

Pro, a donation evaluation tool that is not as comprehensive as ItsDeductible.

Block's tax software products come bundled with rebate offers that (depending on the edition) pay all or part of the cost of Micro-soft Money 2006 and Kiplinger legal software. In addition, Block promises TaxCut customers free audit support, in the form of an IRS-certified Block tax pro who will coach or even accompany (but not legally represent) you in an IRS audit—a nice security blanket for nervous filers.

TAXACT

ONCE AGAIN, PEOPLE who need minimal tax guidance will find a great deal in 2nd Story Software's TaxAct: The \$20 TaxAct 2005 Ultimate Bundle includes the Deluxe federal software (\$13 if purchased separately), software for one state return, and free federal e-filing; add \$8 for state e-filing, and you're all set for \$28 (compared to \$70 for the TurboTax package and \$62 for the prerebate Block equivalents). However, TaxAct comes up short on issues such as depreciation of specific business assets: Because categories are so broad, figuring out a cell phone's depreciation lifetime (for example) turned out to be unduly hard.

For complete reviews, see find.pcworld.com/51182; for a survey of Web-based tax preparation services, check out find.pcworld.com/51183.

—Yardena Arar and
Tony Lima

FEATURES COMPARISON

Pricier TurboTax Is Still Tops

Intuit drops its rebate without lowering its price, but this easy-to-use app is worth the extra cash.

TAX SOFTWARE	PCW Rating	Federal e-file fee	State	State e-file	Cost with state and federal e-file
Intuit TurboTax Deluxe 2005 \$40 find.pcworld.com/51200	91 Superior	\$15	Free download (one state)	\$15	\$70
► Bottom line: Best tax help and useful new navigation tools compensate for price premium and Intuit's marketing schemes.					
H&R Block TaxCut Deluxe + State \$30 find.pcworld.com/51204	88 Very Good	\$16 (full rebate available)	Free on CD (one state)	\$16	\$62 ¹
► Bottom line: A strong runner-up that's easier to use than ever, plus the company offers hand-holding in the event of an audit.					
2nd Story Software TaxAct 2005 Ultimate Bundle \$20 find.pcworld.com/51206	77 Good	Free	Free on CD (one state)	\$8	\$28
► Bottom line: This budget offering is a great deal for people with simple tax returns, but its tax advice is a bit limited.					

¹Prior to \$16 rebate.

TOP 10 NOTEBOOK PCs

New Media Center Laptops Make Waves

TEST Center A POWERFUL desktop replacement by Acer and an entertainment breakthrough from Dell crack our chart this month.

The reasonably priced Acer Aspire AS9504WSMi is a fast and well-stocked Media Center notebook that has 2GB of RAM, a 120GB hard drive, a sparkling 17-inch screen providing 1440 by 900 resolution, and instant-on TV. The portable would have grabbed our Best Buy honor were it not for the awkward keyboard and the distortion-prone speakers.

Dell's latest Media Center notebook, the XPS M140, is the best leisure portable from



DELL'S XPS M140 media unit has an outstanding keyboard.

the company that we've seen. The unit offers rocking sound and instant access to movies, music, photos, and even recorded (though not live) TV. The M140 is Dell's first 14.1-inch wide-screen model.

—Carla Thornton

ONLINE

FOR MORE information on the notebooks reviewed in this chart, including details on how we tested them, go to find.pcworld.com/50444.

	DESKTOP REPLACEMENT	PCW Rating	Performance	Features and specifications
1	Dell Inspiron 6000 Best Buy \$1799 find.pcworld.com/47230	86 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 89 Very Good Overall design: Very Good Tested battery life: 5:07 	<ul style="list-style-type: none"> 2-GHz Pentium M 760 15.4-inch wide screen 7.5 pounds DVD±R DL/DVD±RW
	▶ Bottom line: Big laptop combines strong performance, a superhigh resolution (1920 by 1200), and great speakers.			
2	Acer Aspire AS9504WSMi \$2299 find.pcworld.com/50884	85 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 99 Superior Overall design: Fair Tested battery life: 3:02 	<ul style="list-style-type: none"> 2-GHz Pentium M 760 17-inch wide screen 8.5 pounds DVD±R DL/DVD±RW
	▶ Bottom line: A fine Media Center unit with impressive features and performance is held back by an inferior keyboard and speakers.			
3	Asus W2U00VB \$2599 find.pcworld.com/50076	85 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 97 Superior Overall design: Very Good Tested battery life: 2:23 	<ul style="list-style-type: none"> 2.13-GHz Pentium M 770 17-inch wide screen 7.4 pounds DVD±R DL/DVD±RW
	▶ Bottom line: This pricey but lavishly equipped Media Center notebook includes a built-in TV tuner.			
4	Dell XPS M170 \$2749 find.pcworld.com/48974	84 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 93 Superior Overall design: Very Good Tested battery life: 2:18 	<ul style="list-style-type: none"> 2.13-GHz Pentium M 770 17-inch wide screen 8.7 pounds DVD±R DL/DVD±RW
	▶ Bottom line: Burly gaming notebook does a good job with media, largely thanks to its high-resolution screen, but its battery life is poor.			
5	HP Pavilion dv4000 \$1860 find.pcworld.com/50874	82 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 88 Very Good Overall design: Very Good Tested battery life: 4:27 	<ul style="list-style-type: none"> 2.13-GHz Pentium M 770 15.4-inch wide screen 7.3 pounds DVD±R DL/DVD±RW
	▶ Bottom line: A terrific choice for consumers, the dv4000 balances work and entertainment features for a reasonable price.			
	ALL-PURPOSE NOTEBOOK			
1	Lenovo ThinkPad R52 Best Buy \$1149 find.pcworld.com/47828	83 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 77 Very Good Overall design: Very Good Tested battery life: 3:30 	<ul style="list-style-type: none"> 1.73-GHz Pentium M 740 14.1-inch screen 6.1 pounds DVD-ROM/CD-RW
	▶ Bottom line: The R52 has a comfortable keyboard, and its modular bay accepts many optional drives.			
2	Dell XPS M140 \$1529 find.pcworld.com/50886	82 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 82 Very Good Overall design: Very Good Tested battery life: 6:53 	<ul style="list-style-type: none"> 1.86-GHz Pentium M 750 14.1-inch wide screen 5.8 pounds DVD±R DL/DVD±RW
	▶ Bottom line: This excellent Media Center laptop has a great design, long battery life, and plenty of easy-to-use entertainment apps.			
3	HP Compaq nx6125 \$1499 find.pcworld.com/49660	81 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 81 Very Good Overall design: Very Good Tested battery life: 3:25 	<ul style="list-style-type: none"> 2.2-GHz Turion 64 ML-40 15-inch screen 6.3 pounds DVD±RW
	▶ Bottom line: Business unit overcomes its slightly dull screen by doing everything else right. A six-in-one card reader sits up front.			
4	HP Pavilion ze2200 \$929 find.pcworld.com/49986	80 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 63 Fair Overall design: Good Tested battery life: 2:06 	<ul style="list-style-type: none"> 1.8-GHz Mobile Sempron 3000+ 15-inch screen 6.4 pounds DVD±R DL/DVD±RW
	▶ Bottom line: Big parallelogram-shaped unit hogs desk space but packs in lots of features at a good price.			
5	Toshiba Tecra A5-S416 \$1149 find.pcworld.com/49700	78 Good	<ul style="list-style-type: none"> WorldBench 5 score: 74 Good Overall design: Fair Tested battery life: 3:05 	<ul style="list-style-type: none"> 1.6-GHz Pentium M 730 14-inch wide screen 5.1 pounds DVD-ROM/CD-RW
	▶ Bottom line: Undistinguished business portable is rich in features but suffers from uncomfortable mouse buttons.			

CHART NOTES: Ratings are as of 12/12/05. Weight is of the notebook on its own, not including the AC adapter and power cord.

Rough and Tumble Ultraportable

NOTEBOOK

TEST Center BUSINESS travelers who tend to bang up their notebooks will appreciate the road-ready **Panasonic Toughbook-W4**, a semirugged ultraportable that's designed to take a few knocks. Thanks to its long battery life, the W4 should make a fine road companion, provided you can get used to its cramped keyboard.

Toughbook-W4

Panasonic

PCW Rating **74 Good**

Semirugged ultraportable is suited for travel, though its small keyboard is far from ideal.

List: \$2149

find.pcworld.com/51208

The W4 is encased in magnesium alloy, enabling it to handle the bumps and bangs of travel, and its hard drive is shock-mounted to protect your data. I looked at a shipping model of the W4, and though I didn't conduct any major torture tests, the unit felt durable and well made.

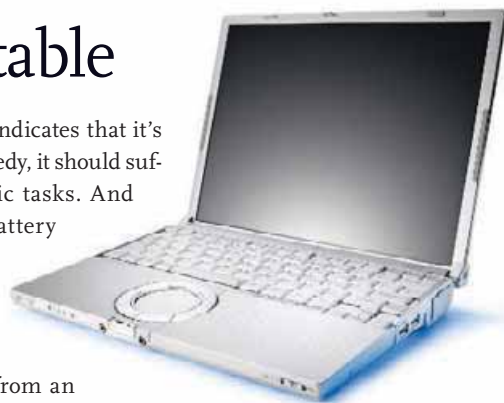
Because the W4 weighs just 2.8 pounds, it's a breeze to tote or stow in a bag. Its 12.1-inch standard-aspect XGA screen is bright and easy to read, and its ports and connectors conveniently line both sides of the notebook.

The W4 runs on a 1.2-GHz Pentium M ULV 753 CPU. Though its WorldBench 5

score of 63 indicates that it's far from speedy, it should suffice for basic tasks. And the unit's battery life of just less than 6 hours enables you to work away from an outlet for a sizable stretch.

Unfortunately, I had a hard time typing on the keyboard. Most ultraportables have small keyboards, but the W4's unusually small spacebar and odd key layout had me hunting and pecking.

That drawback aside, the Toughbook-W4 should please users who need a sturdy notebook capable of handling a



PANASONIC'S Toughbook-W4 is ready to hit the road.

cross-country flight on a single battery charge. And while it's a tad pricey (\$2149) compared with most notebooks, the premium might be worth the extra cost if you ever accidentally drop the W4.

—Kalpana Ettenson

PHOTOGRAPH: MARC SIMON

Ricoh color rocks, Stan.



You act like they gave you the award, Jerry.



ricoh-usa.com/itchannel



Ricoh is BLI's color printer line of the year. Ricoh dependability moves your ideas forward.

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Go to find.pcworld.com/50790

Tiny iRiver Does Video



IRIVER'S 1GB U10 lets you both listen to audio files and view video files.

MEDIA PLAYER

SMALL AND ULTRALIGHT, iRiver's new flash-based **U10** digital media player measures 2.7 by 1.8 by 0.6 inches (which are about the same dimensions as a small stack of business cards) and weighs 2.5 ounces. The 1GB shipping model that I tested sells for \$250; a 512MB version is priced at \$50 less.

The flash-based device's bright 2.2-inch display boasts the same 320-by-240-pixel resolution as Apple's \$299, 30GB video-enabled iPod. Easy to hold in the palm of your hand, the U10 has minimal surface controls (power, volume, screen orientation, and lock, all of which are located around the edge of the player) and a unique navigation system that permits you to press the margins of its smudge-prone screen to move through its menus.

This multimedia player supports up to 320-kbps MP3, WMA, and Ogg Vorbis music files, as well as MPEG-4 video playback; and it can record off its digital FM radio or via its built-in microphone. It can run Macromedia Flash Lite

games, too, and can display text files as well as photos.

Although iRiver recommends using Windows Media Player 10 for syncing your music and playlists, you can also drag and drop files, using Windows Explorer.

As much as I liked this media player, I was surprised by its lack of bundled video software. Instead, iRiver suggests that you try free alternatives such as *iriverter* (find.pcworld.com/51124). With this third-party utility, it took me about 5 minutes to transcode each half-hour Xvid and Divx test video (of recorded television shows) to the U10's specifications: 15 frames-per-second, 384-kbps video and 128-kbps audio (in a given video).

The audio quality was top-notch, and the video itself was quite watchable, with few artifacts and far less jerkiness than I had expected, given the player's rather low frame rates. And a 2.5-hour charge supported either 22 hours of audio listening or 4.5 hours of video watching.

If your main concern in a media player is video, I'd recommend looking elsewhere; but if you want a sleek, all-around performer that will easily fit in your pocket, the U10 is hard to pass up.

—Danny Allen

U10

iRiver

PCW Rating **80** Very Good

Compact and well made, the U10 is a versatile but pricey effort.

List: \$250 (1GB version), \$200 (512MB version)

find.pcworld.com/51122

outstanding... – and I still have no firm... One thing I... the brand, but outstanding... honorable designs. Without... d's personality, represent... es and (hopefully)... Another thing... discover... that leading companies always value design as a hard-hitting strategic tool. Why? Because a design works 24 X 7 – for years! It finds its way into products, promotional materials, packaging, Web sites, presentations, business cards – you name it. There's a certain immortality to a great design that speaks across cultures



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A Palm That Does Windows: The Treo 700w

PHONE/PDA HYBRID

PALM'S FIRST WINDOWS Mobile-based product, the **Treo 700w Smartphone** melds the popular Treo hardware with Microsoft's operating system for handhelds—and with Verizon Wireless's super-fast EvDO BroadbandAccess network. It's not great enough to convince me to give up my Palm OS-based Treo 650, but it's as good as a Windows Mobile smartphone gets.

Like the Treo 650, the 700w is small enough (4.4 by 2.3 by 0.9 inches) and light enough (6.4 ounces) to fit in a pants pocket, but big enough to let you read the display and type on the integrated QWERTY keyboard. The \$550 price tag (less if you renew or purchase new voice service and a \$50-a-month unlimited data plan) is typical for a full-featured PDA/cell phone hybrid.

SIMILAR TO THE 650

LIKE THE TREO 650, the 700w runs on a 312-MHz Intel XScale CPU, and it uses the same connectors. The 700w

has 128MB of flash memory, versus 32MB in the 650, but both have an SD Card slot for expansion. The 700w's screen is the same size as the 650's, but its 240 by 240 resolution is lower than the 650's 320 by 320. Nevertheless, the 700w's display was by no means unattractive, and I found its 1.3-megapixel camera a definite step up from the VGA camera that previous Treos used.

OK, START BUTTONS

THE BUTTON LAYOUT has changed slightly: A Windows Mobile Start button (which brings up the Start Menu) replaces the Calendar button to the left of the central navigation button; to the right, the Mail button has become an OK button, useful for shutting down memory-hogging Windows Mobile processes. The two buttons located directly beneath the display activate right- and left-hand on-screen options (a common cell phone navigation feature).

Pushing the 700w's phone button brings up Palm's vari-



SPEED-DIAL phone numbers by image with the Treo 700w.

ant of the Windows Mobile Today screen, which consists of a pair of text entry boxes. The first box is for entering a phone number or looking up a contact (so you can initiate a call quickly); the second is for Google searches, which produce results very quickly on the EvDO network.

Palm has introduced a few neat new phone features. You can create speed-dial buttons with text labels or thumbnail portraits on the Today screen, which certainly beats memorizing speed-dial numbers.

You can respond to an incoming call with a text message (in addition to the usual voice mail)—useful if you're stuck in meetings. A graphical voicemail management system lets you use the same interface for different voicemail systems by assigning the numeric keys (for, say, delete or replay) to the appropriate icons. You can also use a video clip as a ring tone.

E-MAIL WIZARD

THE TREO 700w's e-mail client falls short of the Treo 650's bundled VersaMail: You can't select multiple messages (for deletion or transfer to other folders), and you can't choose whether to delete downloaded mail from the server. The integrated Bluetooth capability supports hands-free car kits or headsets, but doesn't let you use the device as a modem.

While the Treo 700w should please corporate users standardized on Microsoft software, its best features owe little to Windows Mobile. So I'll just wait for them—and 3G network support—to appear on the next Palm-based Treo.

—Yardena Arar

Treo 700w Smartphone

Palm

PCW Rating **84** Very Good

Nice phone features and a decent camera, but e-mail disappoints.

Street: \$550

find.pcworld.com/51418

TECH TREND

Web Services Versus Microsoft Office

YOU DON'T NEED WORD, Excel, or PowerPoint to create and work on Microsoft Office files. If your PC has a browser and a high-speed Internet connection, you can use any of several new Web services offering free word processors and spreadsheets, and presentation templates.

Some services even let you save individual files in Office's .doc, .xls, or .ppt file format. ThinkFree Online (online.thinkfree.com) pro-



vides 30MB of free storage space and gives you the ability to create PDFs. Writely (www.writely.com) and Writeboard (www.writeboard.com) are free Ajax-based word processors that permit you to upload Word documents and other text files.

Num Sum (www.numsum.com) allows you to paste Excel data to its Web-based worksheet for all the world to see.

—Dennis O'Reilly

TOP 5 MULTIFUNCTION INKJETS

Versatile All-in-One Models Continue to Improve

USING A SINGLE, compact device to print, scan, copy, and in some cases fax can undeniably be more convenient than working with separate products. Aside from saving you desk real estate and money, purchasing a single machine means you have only to learn to use the one device.

Also, inkjet multifunction printer technology is maturing. For instance, all of the models we tested for this chart use pigment-black ink, which improves text print quality on plain paper because the paper absorbs it less, resulting in sharper, deeper prints.

But before you dive into this month's chart, it's important to understand the three types of inkjet MFPs: office-oriented



CANON'S PIXMA MP500 is good for everyday tasks.

models that frequently offer extra paper-management options; units with photo-centric features such as support for film scanning; and all-around performers that combine aspects of both. Examples of the last type include the third-place HP Officejet 7210 All-in-One and its fourth-place sibling, the Officejet 7410, which

at \$500 represents the high end of the inkjet MFP market.

The Officejet 7410's built-in ethernet and 802.11g Wi-Fi connectivity, 50-page automatic document feeder, fax capabilities, and quality text output make it ideal for the workplace, while its superior color prints on photo paper and its PictBridge support should appeal to photo enthusiasts.

Judged by our panel to have print quality equal to that of the 7410 is this month's Best Buy: Canon's five-ink Pixma MP500. Although it lacks such frills as faxing and film scanning, this is a very good and reasonably priced unit offering solid performance. For instance, we were able to copy (scan and then print) 4.3 pages per minute. The MP500 has a 2.5-inch LCD screen and a specified optical scan resolution of 1200 by 2400; however, more demanding users such as professional photographers might be better served by its bigger relative, the Pixma MP950 (find.pcworld.com/51042). Sitting just outside the Top 5, this \$449 powerhouse includes a gorgeous 3.6-inch LCD screen and has an optical scan resolution of 3200 by 6400 to accommodate its film scanning functions.

Epson's number-two-ranked Stylus CX7800 also features film scanning capabilities, and at \$180 is much more attractively priced. Although we liked this model's prints, it suffers from sluggish print speeds at its default driver settings, and a 1.5-inch display that's tiny compared with the 2.5 inches or larger found on most other units we evaluated.

—Danny Allen

ONLINE

FOR MORE information on the multifunction inkjets reviewed in this chart, including details about how we tested them, go to find.pcworld.com/51054.

	MULTIFUNCTION INKJET	PCW Rating	Performance	Features and specifications
1	Canon Pixma MP500 Best \$200 BUY find.pcworld.com/51040	86 Very Good	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Good Tested speed (ppm): 6.4 text/2.4 graphics 	<ul style="list-style-type: none"> 29 ppm text 19 ppm graphics 9600-by-2400-dpi maximum true-color resolution
▶ Bottom line: Dual paper trays, a built-in duplexer, and strong text and photos make the MP500 a good value even without fax capability.				
2	Epson Stylus CX7800 \$180 find.pcworld.com/51044	80 Very Good	<ul style="list-style-type: none"> Text quality: Good Graphics quality: Good Tested speed (ppm): 1.7 text/1.4 graphics 	<ul style="list-style-type: none"> 20 ppm text 19 ppm graphics 5760-by-1440-dpi maximum true-color resolution
▶ Bottom line: The affordable CX7800 redeems its tiny LCD, slow prints, and basic paper handling with quality scans and photos.				
3	HP Officejet 7210 All-in-One \$300 find.pcworld.com/47608	80 Very Good	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Good Tested speed (ppm): 6.8 text/2.2 graphics 	<ul style="list-style-type: none"> 9.8 ppm text 5.7 ppm graphics 4800-by-1200-dpi maximum true-color resolution
▶ Bottom line: This HP unit offers ethernet networking, high print quality, and good performance, including fast copying and photo printing.				
4	HP Officejet 7410 All-in-One \$500 find.pcworld.com/51046	80 Very Good	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Good Tested speed (ppm): 6.9 text/2.1 graphics 	<ul style="list-style-type: none"> 30 ppm text 20 ppm graphics 4800-by-1200-dpi maximum true-color resolution
▶ Bottom line: Integrated Wi-Fi and great paper handling justify this unit's price. It's well equipped with fax, an ADF, and a 2.5-inch LCD.				
5	HP PSC 1610 All-in-One \$130 find.pcworld.com/47610	79 Good	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Good Tested speed (ppm): 4.9 text/1.4 graphics 	<ul style="list-style-type: none"> 7.4 ppm text 5 ppm graphics 4800-by-1200-dpi maximum true-color resolution
▶ Bottom line: This model has a low price for high print quality overall. It's fast at printing photos, but slow at copying.				

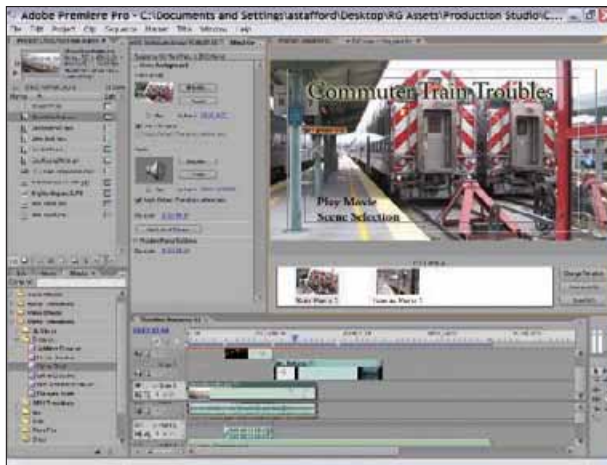
CHART NOTES: Ratings and prices are as of 12/12/05. Go to find.pcworld.com/43854 for our full test methodology.

Adobe Production Studio Produces Spare Time

VIDEO EDITING

EVEN THE BEST video and audio applications are huge time sinks. But innovations in Adobe's new **Production Studio** suite make working with multimedia far more efficient than it used to be.

Production Studio comes in two versions. The Standard bundle includes Premiere Pro 2, a video editor; After Effects 7, a motion graphics editor; and Photoshop CS2, an image editor. The Premium version adds Encore DVD 2, a disc-authoring tool; Audition 2, a sound editor; and Illustrator CS2, a drawing program. All components except Photoshop and Illustrator receive big updates. Among the most welcome improvements: Premiere Pro 2 adds a nifty multicamera editing mode,



PREMIERE PRO'S new DVD tool works okay, but Encore DVD is better.

in which you just click different windows to make camera cuts; After Effects 7's new graph editor gives you extremely fine control over key-frame editing; Audition 2's new spectral-frequency controls include a Photoshop-like

lasso selection tool; and Encore 2's new Flowchart panel gives you a graphical view of your DVD's navigational structure. (You can read full reviews of each application at find.pcworld.com/51184.)

BRIDGING THE GAP

TWO OTHER PIECES tie the applications within the suite together. The Bridge organizer, which first appeared in Adobe's Creative Suite imaging products, now works with Adobe's video apps as well. And Dynamic Link lets several of the applications share elements and, in some cases, permits you to delay time-consuming rendering until the last minute.

For example, Dynamic Link enables you to share elements between After Effects and Premiere Pro, and you don't have to save your project or render it to make it available in the other application; changes update automatically. Not all of the suite's applications are linked, though—most significantly, Premiere Pro and Encore DVD aren't—

and the Dynamic Link commands differ from app to app. But you can copy and paste or drag and drop some elements (such as timelines) between applications, and this process was actually easier to understand than Dynamic Link.

Premiere Pro, After Effects, Encore, and Audition now have Adobe's auto-adjusting interface. If you drag a corner to resize a window or palette, all the other windows and palettes resize themselves, so you never have to move elements out of your way. Also, every application relies more heavily than before on workspaces—predefined layouts for certain tasks.

But the biggest time-saver of all is the rock-solid stability of Production Studio's applications. Even though I was working with a late beta version, I never experienced a crash. On the other hand, the apps are power- and resource-hungry; I could comfortably run only two of them at the same time on a 3.4-GHz Pentium 4 PC with 1GB of RAM.

Every component of Production Studio is extremely useful and highly complementary. They could benefit from further integration, but the steps Adobe has taken with this version of the suite are impressive nonetheless.

—Alan Stafford

ASK OUR EXPERTS

64-Bit Virus Protection

I RUN WINDOWS XP Professional x64 Edition but don't yet have any antivirus software. Any suggestions?

Matthew Tucker, Leicestershire, England



Senior Associate Editor Narasu Rebbapragada responds: Only a 64-bit virus can infect the 64-bit version of Windows. Luckily, at press time, no real-world 64-bit viruses—as opposed to proof-of-concept creations

such as W64_RUGRAT.A and W64_SHRUGGLE.A—have yet emerged. Still, you should get antivirus protection. Several antivirus providers plan to offer 64-bit OS support in their next major releases. In the meantime, Eset's NOD32 and all editions of Alwil Software's Avast Antivirus support 64-bit Windows. We haven't tested NOD32 recently, but we can recommend Alwil's free Avast Home Edition. See "The New Virus Fighters," on page 82, for information on this app.

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

Production Studio

Adobe Systems

PCW Rating **90** Superior

A big, powerful, expensive suite whose apps work together well. Street: \$1699 (Premium), \$1199 (Standard)

find.pcworld.com/51194

Nokia's Small, Svelte, Internet-Savvy PDA

MOBILE COMPUTING

THE STYLISH NOKIA 770 Internet Tablet constitutes a bold gambit by the cell phone maker: The 770 is an Internet-centric PDA without cellular connectivity. Instead, Nokia designed the \$360 unit to connect to the Internet via either a Bluetooth cell phone or an 802.11b/g wireless network. The shipping unit I tested bears the earmarks of a first effort. The hardware is mostly good, but the software feels like an afterthought: The basics are there but they aren't well executed.

Physically, the 770 looks great: It's small (at 0.7 inch thick, 5.5 inches wide, and 3.1 inches high) and fits comfortably in a pocket. The 4.1-inch-diagonal, 800-by-480-

resolution touch screen (a stylus is included) is bright, with good color and definition. Nokia cleverly stashes a USB port on the bottom of the unit, along with a head-phone socket and a power port. The 770 carries a paltry 128MB of flash memory (half of which is available for storing data and additional apps), but you can add storage space through the unit's RS-MMC (Reduced Size Multimedia Card) slot. Nokia includes a 64MB RS-MMC in the box.

WI-FI CONNECTIVITY

IN MY TESTS conducted using both 802.11b and g networks, the unit's Wi-Fi connectivity worked quite well. However, the device had the annoying habit of often ask-



NOKIA'S 770 Internet Tablet has a bright, touch-sensitive screen.

ing which connection to use when switching between programs, even when a connection was already active.

The surprisingly long-lived battery held out for about 5 hours of casual Web browsing and music playing, and the battery kept the unit going overnight when set to operate in standby mode.

Though the hardware was well designed, the software was a big letdown. The 770 runs an open-source Linux-based operating system—which means that you can run certain adapted Linux programs—and it comes pre-installed with an e-mail program, a Web browser, an RSS reader, a video and audio player, and other software.

Unfortunately, none of the apps are particularly good at what they do. The e-mail program is rudimentary (it lacks a basic spelling checker, for example) and the video player is extremely fussy: Several files I tried to play refused to run, even though they were in the right format. The device can play streaming RealMedia audio and video, but it doesn't support other commonly used streaming video formats such as WMV.

The 770 also lacks IM software and gives you no way to

view or edit documents except as PDF files. (Nokia says that it plans to launch a software update that will include some of these features, plus VoIP support, by mid-2006.)

Other gotchas: Though the meager memory allotment was adequate for listening to music and browsing the Web at the same time, the unit often slowed to a crawl when it encountered complex Web pages. I found entering text bothersome, as well. In the absence of a QWERTY-style keyboard, I could enter text through an on-screen keyboard or via a handwriting recognition program, but neither was easy (or fast) to use.

Despite being an interesting device, the 770 lacks the features that might have made it a great one. It handles Web browsing and basic e-mail via broadband, but most modern PDAs can do more than those tasks—and they also have better included software.

—Richard Baguley

770 Internet Tablet

Nokia

PCW Rating **68 Fair**

A great screen and some nice touches, but a PDA or a smart phone is more practical.

Street: \$360

find.pcworld.com/27474

GOTCHA!

Beware of Double Drives

CONSUMERS WANT HIGH-CAPACITY STORAGE, and several companies are delivering—sort of. External hard drives with at least 1 terabyte of space appear to the user as a single drive volume, but they really combine multiple drives in one



case. LaCie's 1TB d2 Big Disk comprises two 500GB drives. Iomega's 1TB XL Desktop Hard Drive contains four. The drives are configured as RAID 0, which spreads data across multiple drives to maximize data transfer speeds.

Who cares? You should. If one of the drives fails, you'll have little chance of recovering the data

stored on the others. The solution: Schedule frequent backups or purchase an external drive that you can configure in a way (such as RAID 5) that allows you to rebuild your data. These drives tend to be more expensive, unfortunately.

—Narasu Rebbapragada

TOP 10 MONITORS

Impressive Screens Now at Affordable Prices

TEST TIP-TOP SCREENS
Center often belong to pricier models, but even a budget monitor can deliver excellent image quality. Of the seven new 19-inch LCDs we tested this month, LG's \$369 Flatron L1950B hits the sweet spot for value with good image quality; easy-to-tweak tilt, height, and swivel adjustments; and a reasonable price. Samsung's \$615 SyncMaster 970P and ViewSonic's \$500 VP930b also offer these features, plus physical pivoting and automatic screen pivot. Hyundai ImageQuest's \$390 Q90U and NEC's \$499 MultiSync 90GX2 add device connectivity with USB 2.0 ports (two and four,



THE LG FLATRON L1950B hits the right mix to become a Best Buy.

respectively). A dearth of features kept HP's \$329 L1906 and Soyo's \$339 Dymond DYLM019A off the chart, despite the latter's crisp text.

—Laura Blackwell

ONLINE

FOR ADDITIONAL information about the LCD monitors reviewed in this chart, including details about how we tested them, browse to find.pcworld.com/50966.

	19-INCH LCD	PCW Rating	Features and specifications	Performance
1	LG Electronics Flatron L1950B Best \$369 find.pcworld.com/50746	83 Very Good	<ul style="list-style-type: none"> Graphics quality: 71.0 Good Text quality: 83.7 Very Good DVD motion quality: Average 	<ul style="list-style-type: none"> Inputs: Analog and digital Adjustments: Multiple 8ms response time Response type: Gray-to-gray
▶ Bottom line: This slim-bezeled monitor delivers good image quality and an easy-to-work height adjustment.				
2	Dell UltraSharp 1905FP \$399 find.pcworld.com/45204	82 Very Good	<ul style="list-style-type: none"> Graphics quality: 73.3 Good Text quality: 77.8 Good DVD motion quality: Average 	<ul style="list-style-type: none"> Inputs: Analog and digital Adjustments: Multiple 20ms response time Response type: Rise-and-fall
▶ Bottom line: Three USB 2.0 ports and a full range of physical adjustments make this well-designed thin-bezel monitor a pleasure to use.				
3	ViewSonic VP930b \$500 find.pcworld.com/50872	82 Very Good	<ul style="list-style-type: none"> Graphics quality: 73.3 Good Text quality: 77.8 Good DVD motion quality: Average 	<ul style="list-style-type: none"> Inputs: Analog and digital Adjustments: Multiple 8ms response time Response type: Gray-to-gray
▶ Bottom line: A stable stand keeps this model in place even while you use the smooth physical adjustments.				
4	NEC MultiSync 90GX2 \$499 find.pcworld.com/50838	80 Very Good	<ul style="list-style-type: none"> Graphics quality: 78.8 Good Text quality: 84.4 Very Good DVD motion quality: Average 	<ul style="list-style-type: none"> Inputs: Analog and digital Adjustments: Tilt and swivel 4ms response time Response type: Gray-to-gray
▶ Bottom line: Glossy-screen model shows crisp text; eraserhead-like NaViKey makes scrolling through screen menus a breeze.				
5	Hyundai ImageQuest Q90U \$390 find.pcworld.com/50744	79 Good	<ul style="list-style-type: none"> Graphics quality: 75.9 Good Text quality: 82.5 Very Good DVD motion quality: Average 	<ul style="list-style-type: none"> Inputs: Analog and digital Adjustments: Tilt only 3ms response time Response type: Gray-to-gray
▶ Bottom line: The low response-time spec conferred no advantage on motion tests. The two USB 2.0 ports are easy to reach.				
6	Eizo FlexScan L768 \$775 find.pcworld.com/45206	77 Good	<ul style="list-style-type: none"> Graphics quality: 74.8 Good Text quality: 75.2 Good DVD motion quality: Average 	<ul style="list-style-type: none"> Inputs: Analog and digital Adjustments: Multiple 25ms response time Response type: Rise-and-fall
▶ Bottom line: Advanced screen settings and five fine-contrast modes make this a display for the demanding user—but the price is high.				
7	Samsung SyncMaster 970P \$615 find.pcworld.com/50840	76 Good	<ul style="list-style-type: none"> Graphics quality: 70.4 Good Text quality: 80.9 Very Good DVD motion quality: Average 	<ul style="list-style-type: none"> Inputs: Digital only Adjustments: Multiple 6ms response time Response type: Gray-to-gray
▶ Bottom line: With its one-button design, this semitranslucent white model has style to spare; however, its images looked pale.				
8	HP F1905 \$430 find.pcworld.com/47846	76 Good	<ul style="list-style-type: none"> Graphics quality: 78.0 Good Text quality: 80.6 Very Good DVD motion quality: Average 	<ul style="list-style-type: none"> Inputs: Analog and digital Adjustments: Tilt and height 16ms response time Response type: Rise-and-fall
▶ Bottom line: Matte-silver unit delivers excellent overall image quality. Detached 3-watt speakers could use a subwoofer.				
9	Sony SDM-HS95P \$550 find.pcworld.com/47845	75 Good	<ul style="list-style-type: none"> Graphics quality: 82.6 Very Good Text quality: 81.0 Very Good DVD motion quality: Average 	<ul style="list-style-type: none"> Inputs: Analog and digital Adjustments: Tilt only 12ms response time Response type: Gray-to-gray
▶ Bottom line: Glossy screen shows rich colors and crisp text. Easel-like bezel/stand combo looks elegant but lacks physical adjustability.				
10	CTX Technology P972 \$399 find.pcworld.com/48750	75 Good	<ul style="list-style-type: none"> Graphics quality: 66.7 Fair Text quality: 77.8 Good DVD motion quality: Average 	<ul style="list-style-type: none"> Inputs: Analog and digital Adjustments: Multiple 16ms response time
▶ Bottom line: This versatile model isn't great for graphics, but it's sufficient for text—and the price is good.				

CHART NOTES: Ratings are as of 12/12/05. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

Harmony's Works-Through-Walls Remote

UNIVERSAL REMOTE

MY FAVORITE GADGET these days is a universal remote control for operating devices in other rooms and on different floors. So I was eager to try Logitech's \$399 **Harmony 890 Advanced Universal Remote Control**, the company's first with the radio frequency (RF) capability required to control consumer electronics anywhere in the house.

The beautifully designed 890, which also works as a standard infrared remote, works like other Harmony remotes in terms of setup: You connect it to your PC via USB and answer a few simple questions on the Harmony Web site; then the codes for

your existing infrared remotes download to the 890.

It took a bit more effort to get the Harmony to work with its wireless RF extender (the hardware that sits in the other room and responds to the RF signal by sending infrared signals to your electronics gear). To enable the RF features, I had to specify whether the device I wanted to control was to

HARMONY'S slick new 890 remote.



be operated by the remote (via infrared) or by the extender.

The 890 did practically everything I asked of it, flawlessly controlling equipment located in a nearby room. Unfortunately, my shipping unit routinely lost the connection when I tried to control my first-floor stereo equipment from the second floor, where I have remote speakers. In contrast, my year-old Home Theater Master MX-600 from Universal Remote

(purchased for \$450 and now available for half that much) handles this location easily.

The Harmony 890 is certainly an outstanding universal remote, and its RF features worked well through walls and doors. But if you're looking to control a device on another floor, consider buying the older MX-600 instead.

—Ramon G. McLeod

Harmony 890 Advanced Universal Remote Control

Logitech

PCW Rating **82** Very Good

Well-designed universal remote with RF capability works well in most locations.

List: \$399

find.pcworld.com/51202

A Good Mini-Office for Handhelds

PDA SOFTWARE

I'M NOT READY to ditch my laptop in favor of my Treo 650 smart phone. But if I had to, DataViz's Microsoft Office-compatible Documents to Go would help me get my work done. The new \$50 **Documents to Go 8 for Palm OS Premium Edition** supports Word, Excel, PowerPoint, popular graphics files, and for the first time Adobe's ubiquitous PDFs. In general I was impressed by the out-of-the-box usability of

the shipping copy I evaluated.

With the Documents to Go desktop application, I could drag and drop files from my PC to either my Treo or its expansion SD Card (the actual transfer occurs during the next HotSync). Office documents received as e-mail attachments on my handheld automatically opened in the appropriate Docs to Go application (Word to Go, Sheet to Go, or Slideshow to Go) when I clicked on them. And all installed either on the handheld or on an expansion card; no desktop conversion was required. Docs to Go's less expensive (and less elegantly designed) archival, Cutting Edge Software's \$40 Quick-office Premier, creates separate icons for each component



DOCUMENTS TO GO 8 lets you view PowerPoint files on the go.

app. In contrast, Docs to Go keeps things simple, providing just one Documents icon on the Palm home screen. Tap on it, and you get a list of your supported documents.

In my tests, Word to Go's rendering of Microsoft Word documents was faithful to the originals. Sheet to Go did a credible job with Excel ba-

rics: You can create formulas and perform simple formatting. Slideshow to Go lets you shuffle PowerPoint slides, enter bullet points and notes, and time your presentation.

But not everything went smoothly. I couldn't see any graphics on a PowerPoint file I received via e-mail until I moved a Docs to Go program file from the SD Card (where I'd installed the software) to the Treo. Also, PDF to Go's rendering of PDF files wasn't flawless: Hyphens sometimes broke up words in midline, and some text overlapped images. DataViz says that other Palm devices may also have problems with PDFs.

Still, Docs to Go let me reduce my paperwork while in transit, without a notebook. It's better to have a small Office than none at all.

—Yardena Arar

Documents to Go 8 for Palm OS (Premium Edition)

DataViz

PCW Rating **86** Very Good

Useful tool for editing key Office documents on a Palm.

Street: \$50

find.pcworld.com/51186

TOP 5 ADVANCED CAMERAS

Cameras Offer More Features for Fewer Bucks

THREE NEW MODELS nabbed spots on this month's Top 5 chart—and two of them are less expensive than any previously tested advanced camera. Each of the newcomers brings plenty of features, including a powerful zoom lens.

None of these upstart models could knock the Canon PowerShot G6 off its first-place perch, but the Fujifilm FinePix S5200 came close, earning a rating of Superior for image quality despite having the lowest megapixel rating of any camera on the chart. It just goes to show that you need more than lots of megapixels to make great pictures. The S5200 has fast startup, its shutter lag is minimal, and it focuses quickly. Some uncon-

ventional focus modes help you lock on to such difficult subjects as high-contrast or off-center objects. On the downside, the LCD is a bit small at 1.8 inches, and the software is nothing special. Also, though the S5200 is the only camera on this month's chart that can shoot at ISO 1600, noise was quite noticeable in images shot at the higher settings.

The Olympus SP-500 Ultra Zoom has the lowest price here. In fact, its price originally persuaded us to test it as a point-and-shoot model. Its impressive performance in that category, however, encouraged us to test its mettle against advanced cameras—



THE FUJIFILM
FinePix S5200 takes great photos with just 5 megapixels.

and it delivered similarly good results. The SP-500 matched the image quality of much more expensive models, and it offers features such as a large 2.5-inch LCD and the ability to store four customized scene modes. Both Canon units on

the chart let you store two custom modes; the Fujifilm and Panasonic products don't have this option. But the SP-500's shutter speed tops out at 1/1000 second, while most advanced cameras we've tested offer a 1/2000-second shutter, and Canon's Pro1 even hits 1/4000 second.

Panasonic's \$700 Lumix DMC-FZ30 is the only newly tested model with image stabilization. This capability can help prevent blurry images when you're using the camera's long, 60-second shutter speed or its powerful 12X zoom lens. The DMC-FZ30 uses a moving element in its lens for stabilization, rather than performing electronic compensation after the image is taken, as some cameras do. But photos taken with the Panasonic at high ISOs had more digital noise than many other models' images did.

Two cameras we tested this month didn't make the chart. The \$400 Konica Minolta Di-Mage Z6 turned in subpar scores for image quality and had limited controls. Sony's Cyber-shot DSC-R1, on the other hand, earned a Superior rating for image quality; but the camera's \$1000 price tag, weak zoom, and unpredictable autofocus held it back.

—Eric Butterfield

	ADVANCED CAMERA	PCW Rating	Performance	Features and specifications
1	Canon PowerShot G6 Best \$579 BUY find.pcworld.com/44872	86 Very Good	<ul style="list-style-type: none"> Image quality: Very Good Battery life: Superior Overall design: Superior 	<ul style="list-style-type: none"> 7.1 megapixels 35mm to 140mm zoom 4 scene modes 21.7 ounces
▶ Bottom line: The chunky G6 held its best-in-show crown by performing well in our image-quality tests and providing many useful controls.				
2	Fujifilm FinePix S5200 \$400 find.pcworld.com/50942	84 Very Good	<ul style="list-style-type: none"> Image quality: Superior Battery life: Superior Overall design: Very Good 	<ul style="list-style-type: none"> 5.0 megapixels 38mm to 380mm zoom 5 scene modes 16.8 ounces
▶ Bottom line: Snappy autofocus and great image quality make the S5200 hard to beat. It can shoot at ISO 1600, but images looked noisy.				
3	Panasonic Lumix DMC-FZ30 \$700 find.pcworld.com/50950	84 Very Good	<ul style="list-style-type: none"> Image quality: Very Good Battery life: Good Overall design: Very Good 	<ul style="list-style-type: none"> 8.0 megapixels 35mm to 420mm zoom 14 scene modes 26.4 ounces
▶ Bottom line: This model offers a focus ring, 12X zoom, and dual control wheels. Images are noisy at higher ISOs, and battery life is limited.				
4	Olympus SP-500 Ultra Zoom \$380 find.pcworld.com/50946	83 Very Good	<ul style="list-style-type: none"> Image quality: Very Good Battery life: Superior Overall design: Good 	<ul style="list-style-type: none"> 6.0 megapixels 38mm to 380mm zoom 21 scene modes 13.6 ounces
▶ Bottom line: The low-priced SP-500 has strong image quality, long battery life, and a powerful zoom—but it lacks image stabilization.				
5	Canon PowerShot Pro1 \$699 find.pcworld.com/43164	81 Very Good	<ul style="list-style-type: none"> Image quality: Very Good Battery life: Good Overall design: Good 	<ul style="list-style-type: none"> 8.0 megapixels 28mm to 200mm zoom 7 scene modes 22.0 ounces
▶ Bottom line: The Pro1's compact case makes it a pleasant camera to tote. Its battery life could be better, however.				

CHART NOTES: Ratings are as of 12/23/2005. Features listings are not exhaustive.

ONLINE

GO TO find.pcworld.com/50968 to see reviews of all cameras we've evaluated.

Network Drive Touts Backup

HARD DRIVE

NETWORK STORAGE IS undeniably convenient for backing up documents and storing media files. Iomega's \$289 **StorCenter Network Hard Drive** is very similar to others in its category, distinguished mainly by its physical design and distinctive software bundle.

I tested a shipping version of the 250GB StorCenter and found much to like. Unlike

most network hard drives I've seen, which lack a switch and are always on, the sleek black unit has a power switch on the back. Like competing drives, such as the pricier Maxtor 500GB Shared Storage Plus (\$500), the Iomega has two USB 2.0 expansion ports (for attaching other storage devices or a printer), is Universal Plug and Play-compliant (for use with a UPnP media server), and has gigabit ethernet.

Installation was simple; I attached the drive to the network and ran the installation utility, and my system's OS automatically assigned the StorCenter a drive letter. Iomega's installer has a friendly, unimposing design, as does its Discovery Tools software, which can be run at any time

THE STYLISH
StorCenter comes
with Iomega backup software.



to find the drive's IP address, rename the drive, or change the drive mapping.

The remainder of the software bundle consists of the full version of Iomega's capable Automatic Backup Pro 3.3 software (a \$70 value by itself) and Microsoft's FolderShare, for secure data sharing via the Internet. The included free (limited) FolderShare program would have set this drive

apart, but regrettably the service was scheduled for discontinuation in early 2006.

The Automatic Backup Pro software and power switch make this drive an attractive option. But the drive's 250GB capacity feels limited, given that a number of networked drives come in capacities up to twice that (and priced accordingly, of course).

—Melissa J. Perenson

StorCenter Network Hard Drive

Iomega

PCW Rating **75** Good

Despite limited storage capacity (250GB), this drive scores with easy installation, backup software, and the ability to power off.

List: \$289

find.pcworld.com/51224

Pricey 512MB Graphics Card Is Fastest Ever

GRAPHICS BOARD

PC GAMERS BOOED the \$600 price tag of graphics cards with nVidia's original 7800 GTX chip—and then drooled as the cards broke graphics benchmarking records. People's reaction to XFX's new **GeForce 7800 GTX 512MB DDR3**

XXX Edition won't be any less vociferous and Pavlovian.

This shipping PCI Express card features a revved-up 7800 GTX chip, plus 512MB of DDR3 memory (up from 256MB), at a jaw-dropping price of \$749. And in our tests, it blew away everything, including our favorite

256MB 7800 GTX board (the \$570 EVGA e-Force 7800 GTX KO) and ATI's 512MB Radeon X1800XT (\$599).

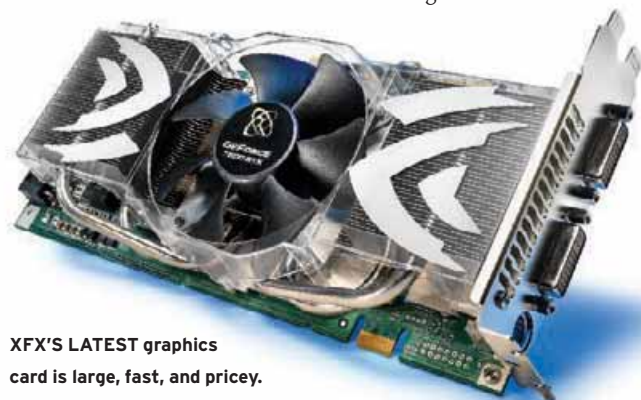
In our Quake 4 and Doom 3 tests, run at 1600 by 1200 resolution with antialiasing turned on, this XFX dominated. It cranked out frame rates of 72 frames per second and 70 fps, respectively, as compared to the EVGA's 54 fps and 55 fps, and the ATI's 56 fps and 58 fps.

The new XFX ruled in our Battlefield 2 tests (performed at the same settings), too. It generated 76 fps, versus 56 fps for the EVGA card and 69 fps for the ATI board. Predictably, the XFX's high price hurt its overall PCW Rating,

despite the awesome performance. One additional knock against the XFX: Its massive (albeit remarkably quiet) cooling system causes the card to occupy two slots.

So is it worth the money? For 98 percent of PC users the answer is no. But if top-notch graphics performance is what you seek, this is the fastest you can get—for now.

—Tom Mainelli



XFX'S LATEST graphics card is large, fast, and pricey.

GeForce 7800 GTX 512MB DDR3 XXX Edition

XFX

PCW Rating **83** Very Good

Oversize card is powerful, but price is not for the weak of heart. Street: \$749

find.pcworld.com/51074

More Reviews at PCWorld.com

SHORT LIST: PHOTOGRAPHY

Create a Photo Studio



YOU CAN GIVE your snapshots a professional look without breaking the bank. Low-cost digital cameras and photo printers continue to improve, as does budget-priced image-editing software. —*Danny Allen, Associate Editor*



DIGITAL CAMERA
HP Photosmart R717, street: \$270
find.pcworld.com/47128

This 6.2-megapixel camera, with extensive help menus and advice for improving shots, is ideal for an ambitious beginner.



PHOTO PRINTER
Canon Pixma iP6600D, street: \$199
find.pcworld.com/50532

A large LCD and fast photo printing make this model perfect for budding photographers. Plus, it handles two-sided prints.

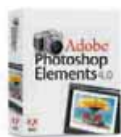


IMAGE EDITOR
Adobe Photoshop Elements 4, street: \$99
find.pcworld.com/51170

With great tools like the spot-healing brush from the full-size Photoshop, this is the best low-cost image editor you can buy.

SHORT LIST: DIGITAL MUSIC

iTunes Add-Ons

APPLE'S POWERHOUSE MEDIA player forms the backbone of my music library. These three add-ons for iTunes boost its sound quality, automate some management tasks, and add remote control. —*Eric Dahl, Senior Editor*



ALBUM ART FINDER
iTunes Companion, free
find.pcworld.com/51216

Automate the tiresome task of grabbing album art for music library tracks with this great-looking Konfabulator widget.



BETTER SOUND
Octiv Volume Logic, street: \$20
find.pcworld.com/51214

This low-cost plug-in enhances the sound of MP3s and other compressed audio files, especially on smaller PC speakers.



REMOTE CONTROL
Keyspan Express Remote, street: \$60
find.pcworld.com/51218

Access iTunes from across the room. This infrared remote controls the Mac Mini playing music in my living room setup.

ONLINE EXTRAS

At Home and on the Road

POINT YOUR BROWSER TOWARD *PC World's* Web site for the latest reviews, including looks at these notable products.

Samsung DVD-VR325

Street: \$400

find.pcworld.com/50286

This stylish device combines a DVD recorder and a VCR, so copying old videotapes is a breeze.

Plus, it has an HDMI output for HDTV, and it delivers great image quality.



Intermatic Home Settings Lighting Control Starter Kit

Street: \$130

find.pcworld.com/51172

New wireless technology makes turning lights on and off with a remote control as reliable as flipping a switch. And you can automate routines to confuse potential burglars.

Digital Duo Video: Automobile Tech Evolves

find.pcworld.com/51174



The next car in your driveway is likely to be a smarter driver than you are, says *PC World's* Digital Duo, Stephen Manes and Angela Gunn.

BEHIND THE RATINGS



EACH PC WORLD RATING is generated on a 0-100 scale, yielding a number that represents our overall assessment of a product's or service's performance, design, features, and price. Ratings fall into five categories.

Superior (90-100): The product is innovative, easy to use, useful, and fairly priced. It is among the very best in its category. **Very Good (80-89):** The product is better than most others of its type and is highly recommended. **Good (70-79):** The product is solid and does what it's supposed to do, but it doesn't go beyond the typical characteristics of its category. **Fair (60-69):** The product performs adequately but is somewhat flawed. **Poor (59 and lower):** The product is seriously flawed and we cannot recommend it. For more details, visit find.pcworld.com/49902.



BEST BUY AWARDS GO to hardware, software, and services in our ranked charts and other product comparisons that deliver outstanding quality and value.



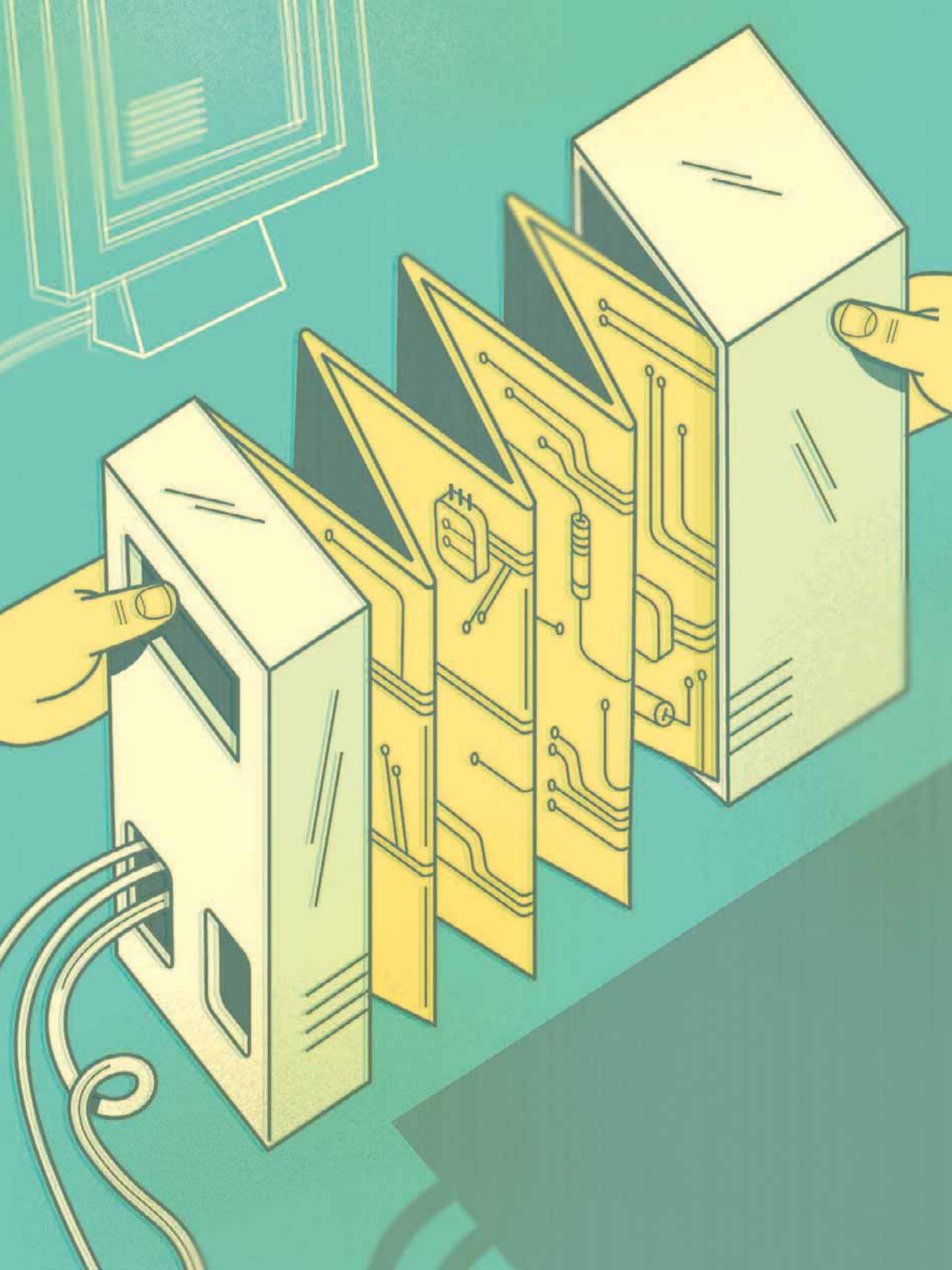
THE PC WORLD TEST CENTER formally tests all products designated with this icon. For more on how we test specific products, visit find.pcworld.com/49974.

More Out of Your PC

WITH THESE TIPS AND TECHNIQUES,
YOU CAN TEACH ANY MACHINE NEW
TRICKS, FROM RECORDING RADIO TO
SAVING YOU MONEY ON PHONE BILLS.

BY RICHARD BAGULEY

WHETHER YOU'RE A PC WIZARD or a desktop dunce, you can do plenty to teach your system new tricks and make it more flexible and just plain easier to use. With a few simple steps, your PC can help you trim your phone bill, obey your every word, record your favorite radio shows, and make you famous on the Internet. It's even easy to turn your old PC into a networked file server that can hold all of your photos, videos, and files in one place where everyone can get them. ▶



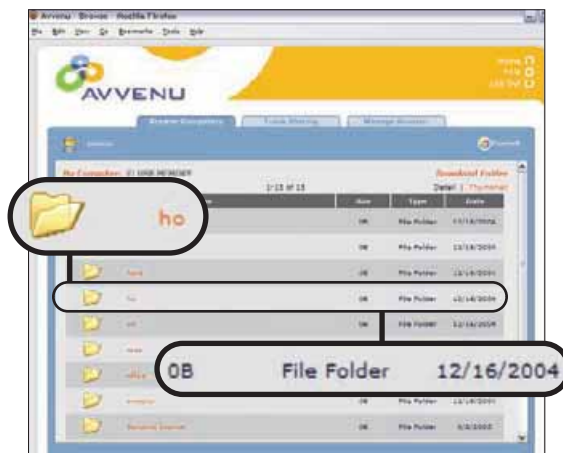
Access Your Data From Anywhere

SO IT'S THE DAY of your big presentation, but you suddenly realize that you left the presentation file behind on your PC. Rather than dashing back to retrieve the file, you can simply go to any nearby computer and quickly download the presentation from your home or office system—as long as you've planned ahead by setting up remote access to your files.

The first way to accomplish this is to install a remote control application. Programs like TightVNC (free, tightvnc.com) and PC Anywhere (\$95, find.pcworld.com/51092) or services like GoToMyPC (\$20 a month, gotomypc.com) and Laplink Everywhere (\$9 a month, laplink.com/products/le) allow you to access your home computer easily from the

office (and vice versa), or even from a cybercafé—ideal if you can't remember where you saved the file or if you need to look up figures in a spreadsheet. Becky Waring's "PC in a Browser" feature from last August's issue covers these and other options; go to find.pcworld.com/51106.

The second method is to use a free remote access service like Avvenu (avvenu.com) or FolderShare (foldershare.com), both of which let you access files on your PC from any other system. You need to install a small client program on your home or office system that communicates with the service; and you must tell it which



REACH OUT AND TOUCH files on your PC from any browser via the free Avvenu remote access service.

folders to share before you go traveling. For more remote file access alternatives, see find.pcworld.com/51196.

Another option is to take your data with you, either on a USB flash drive that fits

TRANSFORMATIONS



YOU HAVE POWER CABLES, network cables, speaker cables, keyboard and mouse cables.... Is it any wonder that the back of your PC looks like you've dropped a bowl of overcooked spaghetti down there? The good news is, it doesn't have to be that way. These products will restore order to that scary space behind your system.

UNCLUTTER YOUR CABLES

SNAP-TO CABLES

The handy Cable Turtles are great for anyone whose speaker cables are too long but who doesn't want to trim them. Open the little devices up, wrap the cables inside, snap the pieces closed, and the extra cable length stays tidily in place. find.pcworld.com/51058



CABLES UNDER WRAPS



Tamer is an easy way to route these: The plastic tube holds the cables together and attaches to the back of your desk with a

cable tie. Adding or removing cables is also easy, as a split in the side of the tube provides quick access. find.pcworld.com/51060

GOING UNDER COVER

Your computer needs juice, but that's no reason to leave the power cables lying around where you can trip over them. A cord cover holds several cables and runs across the floor or along the baseboard without endangering life and limb. If you're looking for a more permanent solution, consider surface raceways (find.pcworld.com/51064), which mount on walls easily to keep your cables out of the way. find.pcworld.com/51062



HIDDEN-CORD TRICK

One of the surest ways to keep the rat's nest of cables running to your computer nice and neat is by using a product like the WireMate Cord Organizer. This box offers a

onto your key ring or via an online storage service. USB drives come in capacities of 128MB to 4GB, and drives such as the \$55 Sandisk Cruzer Profile (find.pcworld.com/51108) include fingerprint scanners for extra security. The drives are also a great backup idea if you travel with a laptop: Copy your important files to the USB flash drive once a day, so if you're in Honolulu but your laptop got shipped to Helsinki, you'll still have your files.

Online services such as Xdrive (www.xdrive.com) and Acapana Data Deposit Box (www.datadepositbox.com) use software that copies your files to their servers, either on request or in a scheduled backup. These services can also provide remote access to your files: Both allow you to access your files via their Web sites from any PC with Internet access.



convenient way to wrap up excess lengths of cable. The unit mounts behind or underneath your desk and has a removable cover, so adding or removing cables is a breeze. find.pcworld.com/51066

FLEX YOUR POWER CORDS

Big, boxy power adapters are a real pain: Stick one on a normal power strip, and it blocks the sockets next to it. The Power-Squid can accommodate adapters the size of cinder blocks. The device's sockets are placed on the end of short cables, so up to five devices can run off of a single unit, no matter how large their power bricks are. find.pcworld.com/51068



Trim Your Phone Bill

HAVE A BIG FAMILY? Need to call coworkers a continent away? Then you probably have a big phone bill. But it doesn't have to be that way: Voice-over-IP services such as Skype (skype.com) and Gizmo (gizmoproject.com) use your broadband connection to bring you in touch by phone with your family, colleagues, and friends for free.

After you download the service's software and set up an account, you can dial other people with service accounts to your heart's content. Skype's optional SkypeOut and Gizmo's Call Out services let you call people with landlines, but only if you pay a fee. For the best sound quality, use a headset instead of a microphone and speakers.



YOU CAN TAKE LANDLINE CALLS for free, but making them will cost you with Gizmo.

The \$40 DSP-400 headset from Plantronics (find.pcworld.com/51076) sounds terrific, and is a good investment if you plan to make lots of VoIP calls on your PC. It plugs into a USB port and works independently of your sound card. To use it in Skype, go to *Tools•Options*, select *Sound devices*, and pick the headset from the list for *Audio In* and *Audio Out*. In Gizmo, go to *Edit•Options•Audio* and select the headset as both the input and output device.

Rather than bugging your friends to test the service, make sure that everything is working by calling the service's test server: Enter **username echo123** for Skype, and **username echo** for Gizmo. After a brief introduction, the server will record what you say and play it back—a great way to ensure you are set up correctly. Once you are connected at both ends, you can make a call and talk all you want without racking up a huge phone bill.

Add a Remote Control to Your PC

IF YOU USE YOUR PC for playing music and video, a remote control can be a big help. The \$50 Keyspan Express Remote (find.pcworld.com/51094) gives your media a new lease on life: You can skip tracks, adjust the volume, and stop and start your music or video without using the keyboard or mouse. You can set the matchbook-size remote's 17 buttons to emulate any key on your keyboard, so you can easily program it to work with your favorite media player or other application (it comes with preprogrammed settings for 30 programs). It also emulates the mouse, enabling you to navigate your desktop and software from a distance.

The Express Remote also controls iTunes even if the program runs in the background, so you can change tracks while you listen to music without having to leave the program you're working in. ►

KEYSPAN'S remote puts you in control.



Make Your PC a Media Hub

MOST LIKELY YOUR TV is in one room and your PC is in another. What if you want to watch television while you compute, or to use your big-screen TV to watch a video that's stored on your system?

The Slingbox (find.pcworld.com/51070) is a \$250 device that transmits video from your cable box, satellite receiver, or DVR to your PC. Hook the box up to your video device, open the Slingbox software on your system, and control video playback as if you were sitting in front of the TV. The quality is reasonable, but not as good as your TV's. For higher-quality playback, add a TV tuner like the \$90 ATI TV Wonder USB 2.0 (find.pcworld.com/45830). TV tuners let you record shows to DVD or your system's hard drive for later viewing. The \$110 ATI HDTV Wonder card (find.pcworld.com/44670) captures over-the-air digital TV signals and records them to a hard drive in their full high-def glory.

Devices such as Acoustic Research's \$350 MediaBridge (find.pcworld.com/50958) and D-Link's \$160 DSM-320 (find.pcworld.com/51072) let you view shows recorded to your PC (along with your photos and home videos) on your big-screen TV, via your wireless network. The MediaBridge is also the first one we've seen that works with HD video: It can display 720p video on an HDTV set through a DVI or HDMI connection. If you just want to listen to music, a dedicated audio device like the \$250 Squeezebox (slimdevices.com) or the \$150 Roku SoundBridge

GO FROM PC to TV with AR's MediaBridge recorder.

TRANSFORMATIONS

CONVERT AN OLD PC INTO A SERVER

YOU JUST BOUGHT a new PC, and the old one sits forlornly in the corner. Why not turn it into a file and print server? Running quietly in the basement or another out-of-the-way spot, it can hold all the music, video, and other files that you, your family, or your coworkers want to view and share.

The following steps explain the Windows XP Home approach. If you'd like to convert the machine into a Linux server (which is arguably more stable than a Windows one, and lets you create private folders for each user), see find.pcworld.com/51118.

First, make sure the PC has enough hard-disk space; when it comes to server storage, the more the better, so this is a good time to add a new hard drive if your existing one is smaller than 80GB. Once you have enough storage, strip the PC down to a lean, mean file-serving machine. Run your PC's reinstall CD or Windows XP installation disc to return your PC to the state it was in when you bought it. (Don't

forget to run Windows Update afterward to download the latest OS security fixes.) If you don't have a Windows CD, go to find.pcworld.com/51120 for details on how to reinstall Windows without a disc. Next, remove most of the installed programs using the Add or Remove Programs Control Panel: In XP, click *Start•Settings* (if necessary)•*Control Panel•Add or Remove Programs*. Delete all the programs listed there except your printer software—all you need is that program and Windows itself. A guide to getting rid of old programs is available at find.pcworld.com/51192.

With your system pared down, press **<Windows>-E** to open Windows Explorer. Navigate to and right-click the Shared Documents folder (double-click *My Computer*, right-click *Shared Documents*, and click *Sharing and Security*). If you've reinstalled Windows from scratch, right-click the folder and select *Sharing and Security*. In the properties window, click *Network Sharing*

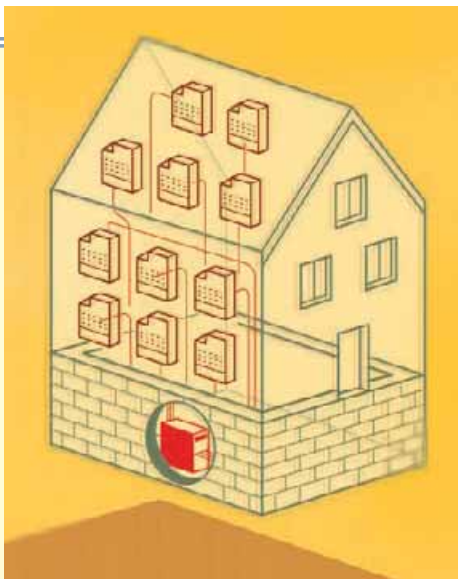
M500 (find.pcworld.com/46724) can play back all of your digital audio on your hi-fi. If you use a Windows XP Media Center PC, an extender device like the \$250 Linksys Dual-Band Wireless A/G Media Center Extender (find.pcworld.com/51110) allows you to play back content the Media Center PC records elsewhere on the wireless network. This way, you can place the noisy PC in the back room and the silent extender in the living room.

If you want to make your media avail-

able across the network without involving a PC, a combination like ViewSonic's Wireless Media Gateway WMG-80 (find.pcworld.com/51112) and WMA-100 Adapter (find.pcworld.com/51114) will do the job: While the \$349 Gateway stores the media on an 80GB hard drive, the \$250 adapter connects to your TV and hi-fi to play back the media. PCs and Macs on the same wireless network can access the content, but the device can't record TV itself; another device must do that.



PHOTOGRAPHS: RICK RIZNER



Setup Wizard and run through the steps, entering a name for the system (such as "Server"). Restart the PC, right-click the *Shared Documents* folder, select *Sharing and Security*, and make sure that *Share this folder on the network* and *Allow network users to change my files* are checked.

Next, click *Start•Control Panel•Printers and Other Hardware*. Select *View installed*

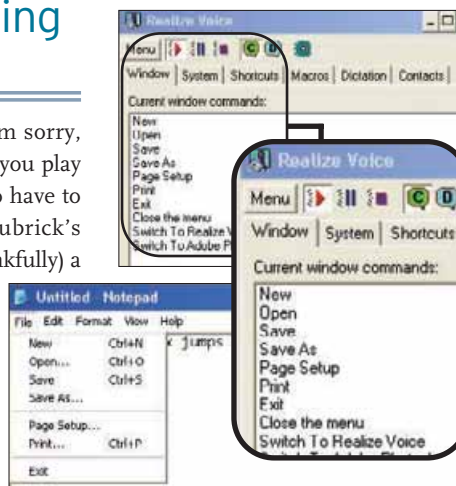
printers, right-click your printer, and select *Sharing*. Choose *share this printer* and give it a descriptive name (such as "Living Room LaserJet") so people know where it is.

Now open Windows Explorer on one of the PCs that will access the server and enter `\\server` in the address bar. You'll then see the *Shared Documents* folder, which is now accessible from any machine on the network. You can map a drive letter on the PC to the server simply by right-clicking the *Shared Documents* folder and selecting *Map Network Drive*; the folder will then be treated as a hard drive inside your computer. If you would like to use the server's printer from an attached PC, just double-click the printer icon to install its driver, and then print as you normally would. Repeat these steps for every system on your network, and you'll have a file and print server that anybody can access.

Control Everything With Your Voice

"HAL, OPEN ITUNES, PLEASE." "I'm sorry, Richard, I'm afraid I can't do that. If you play Pink Floyd once more, I am going to have to reformat my hard drive." Stanley Kubrick's vision of a psychotic computer is (thankfully) a bit behind schedule, but it's easy to control your computer by voice. Realize Voice (realizesoftware.com) is a \$99 program that lets you control the PC by speaking commands, such as "Open the Start menu" or "Switch to Firefox." While the program works with any PC headset, it couldn't control some of my apps, particularly ones like Winamp that open several windows at once. The dictation mode transforms your words into text.

The program's macros are great fun: Now when I say "Dark Side of the Moon," Windows Media Player starts, the Pink Floyd album plays, and the visualization goes psychedelic. My computer hasn't tried to kill me yet, no matter how many times I play it....



WITH A DECENT MICROPHONE, Realize Voice allows you to control your PC through speech.



Double Your Desktop

AS THE OLD SAYING GOES, you can never be too rich or too thin, or have too much desktop real estate. We can't help you with the first two, but the last one is easily remedied: Add a second monitor.

Most modern graphics cards have dual monitor ports and can drive two displays at once. If your PC's graphics are integrated in the motherboard, you'll need to add a dedicated graphics card (assuming your motherboard has an available AGP or PCI Express x16 slot); for more, consult our graphics cards roundup at find.pcworld.com/51116. DVI ports let you connect to the digital output on an LCD flat-panel or (with an adapter) to an LCD or CRT monitor's analog port. Today's higher-end cards tend to come with two DVI ports; lower-end cards commonly pair one DVI port with an older-style analog-only VGA type. The ideal multimonitor configuration is identical LCDs side by side, but the displays needn't be the same size or type. In a pinch you can use an old CRT monitor along with your new LCD screen.

To configure your second monitor, shut down your PC, connect the display, and then turn the PC back on. After Windows loads, right-click a blank area of the desktop and select *Properties*. Under the *Settings* tab you'll see icons representing both of your monitors. Click the monitor marked 2, and select *Extend my Windows Desktop onto this monitor*. The second monitor will start up, and you'll be able to move your mouse pointer (and on-screen elements) between the screens. By dragging the icons around, you can tweak the arrangement of the monitors to match their physical location on your desk. ►

Record Radio onto Your MP3 Player

DO YOU RUSH HOME to catch Rush Limbaugh? Do you adore Al Franken, but always miss his show? No need to panic: With the Radio Shark (find.pcworld.com/51082), a \$50 USB radio receiver, you can record AM and FM radio shows to your PC and listen to them at your leisure. You can even skip the ads and copy the shows to your MP3 player. Just install the Radio Shark and the software that comes with it, and then set it to record your programs; it can record them on a daily, weekly, or other schedule you specify. For Internet radio, Replay Radio (find.pcworld.com/51084) is a \$50 program that automatically records streaming audio to your PC, saving it for later listening as MP3 files.

To copy the shows to your MP3 player, locate the folder that the software uses to store the recorded shows: In the Radio Shark software, click *Preferences•Location*; in Replay Radio, click *Settings* and look at 'Save output files to this folder' under the Folders tab. Next, start Windows Media Player

THE RADIO SHARK is a \$50 USB radio receiver that can record your favorite AM or FM radio shows.



10, and choose *File•Add To Library•By Monitoring Folders*. Select the recordings folder, and WMP will automatically add the recorded shows to your music library, ready for uploading to your MP3 player. If you're using an iPod, iTunes can't automatically add the new files, but you can import them by selecting *File•Add*

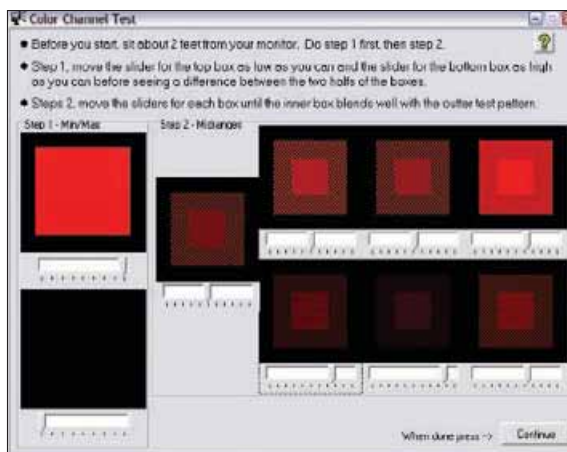
Folder To Library, and then choosing the folder that stores your radio recordings before you reconnect your iPod. If you prefer, you can set Replay Radio to automatically add the recordings to iTunes: Go to the main screen, right-click any of your scheduled recordings, and select *Properties•Output•Add to iTunes Library*.

Calibrate Your Colors

DOES AUNTIE DORIS SEEM greener than usual? Does Uncle Bob look pale? If the photos you view on your screen are a little off, you might need to recalibrate your monitor.

The first step is to use the International Color Consortium (ICC) profile for your monitor, which Windows uses to represent colors accurately on your screen. Your ICC profile is on the CD that came with the monitor (you can also download it from the manufacturer's Web site). To adjust your monitor's color, right-click a blank area of the Desktop and select *Properties*. Under the Settings tab in the Display Properties dialog box, click *Advanced•Color Management*. If no monitor profile is listed there, click *Add* and select the profile. Next, download and run the free Monitor Calibration Wizard utility from find.pcworld.com/51078. Step through the wizard and apply the profile it creates.

If you want more accurate color, buy a calibrator. Devices like the \$149 Pantone Spyder2 (find.pcworld.com/51080) analyze the color the monitor displays. These devices aren't cheap, but graphics professionals rely on them to calibrate their monitors. And if Auntie Doris still looks a little green, well, it's probably just the leftover salmon she had for lunch. ►



GET THE COLORS RIGHT with Hex2Bit's Monitor Calibration Wizard, which makes it easy to correct your monitor's hues.



FINE-TUNE YOUR CALIBRATION by reviewing your monitor's color profile prior to applying your new color settings.

Try Linux

IF YOU'D LIKE TO BOOT Windows right out of your life, it may be time for you to try Linux. Ubuntu Linux is an easy-to-use Linux version (called a "distribution" by those in the know). And the easiest way to get started is with a Live CD—a version of the OS that boots and runs straight from CD, so you don't have to install anything on your hard drive.

To start, browse to ubuntulinux.org/download/ to download the CD image for the Live CD version of Ubuntu. Burn this disc image to a CD-R disc using a program such as ISO Recorder (from isorecorder.alexfeinman.com). If you can't download the 632MB file, Ubuntu will send you a disc for free (see shipit.ubuntu.com).

Next, reboot your system and go into PC Setup, also known as the BIOS; you usually do this by pressing a certain key shown in the first screen you see when you turn the system on. Look for the boot sequence; if necessary, change it so that your CD drive comes before your hard drive. Save the changes, reboot the PC, and insert the Ubuntu Live CD.

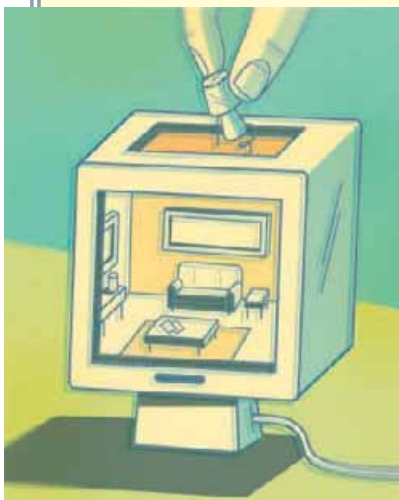
You should see the Ubuntu logo and a 'Boot:' prompt; press **<Enter>** to boot into Linux. After Linux loads and configures your hardware, you'll see the X Window screen, a user interface to Linux that works a bit like Windows. You can access programs from the Applications menu (Ubuntu comes with the open-source productivity suite OpenOffice 2 preinstalled), and you can reach the Internet by selecting *Applications•Internet•Firefox*.

If you decide you like Linux, you can install the OS alongside Windows to create a dual-boot system that runs either. Our resident Linux guru Matthew Newton offers more insight into Ubuntu in his column at find.pcworld.com/51090. Also, browse to find.pcworld.com/51256 to read his take on the pros and cons of the competing KDE and Gnome Linux desktops, and then visit find.pcworld.com/51258 for his review of the free Xfce desktop environment for Linux. ►

TRANSFORMATIONS

BUILD THE DESKTOP YOU WANT

THE FURTHEST MOST PEOPLE get in customizing their desktop is replacing the default Windows wallpaper with a picture of their kids. But there's a lot more that you can do to turn your Windows workspace into a nicer place to spend time. We took a typical, boring desktop and turned it into an attractive, efficient place to get things done.

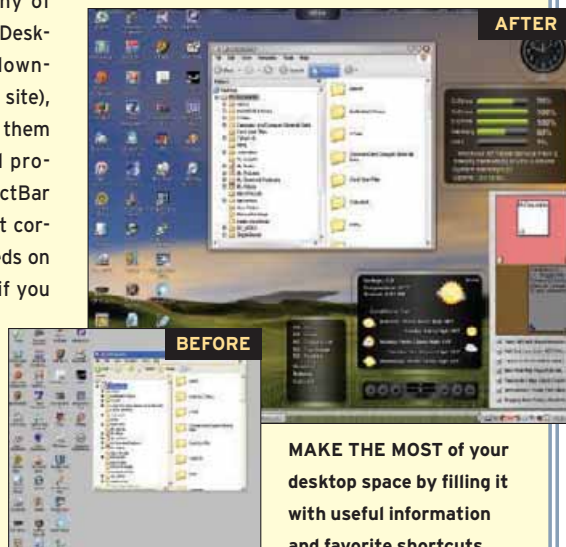


We used Object Desktop (stardock.com), a \$50 collection of utilities that can help you organize your applications and data (the company offers limited free versions of many of the programs we used, and also sells them individually). WindowBlinds changes the look and feel of Windows, allowing you to alter the way open windows display, replace the icons on the toolbars, and adjust other Windows behaviors. DesktopX allows you to run small programs called widgets that display, for example, weather information, an analog clock, and other autoupdating information on your desktop.

The suite also lets you create desktop-based menus, such as the menu tabs at the top of our desktop that provide quick access to commonly used programs like Microsoft Office apps and graphics editors. Instead of being buried in the long Start menu, the programs are a click away at the edge of the screen. Many of these menus came with a DesktopX theme (which we downloaded from the Stardock site), but it's easy to customize them to open frequently used programs and files. The ObjectBar (the box in the lower-right corner) lets you read RSS feeds on your desktop—a big plus if you want to keep track of news from several Web sites without having to constantly revisit them.

You can also use the suite to create virtual desktops. This allows you to run a specific combination of pro-

grams on multiple desktops and switch between them with a couple of mouse clicks. Virtual desktops are particularly handy if you use several applications at once (such as a spreadsheet and a word processing program): You can have each application run full screen on its own virtual desktop and then flick between them quickly. It's kind of like having multiple monitors, but without the additional cost and hardware.



MAKE THE MOST of your desktop space by filling it with useful information and favorite shortcuts.

Play Games on Your HDTV

YOU HAVE A FAST gaming PC and a big HDTV—why not combine the two for a full-on HD computing experience? Many graphics cards have an analog component output, and most HDTVs have a component video input. Just connect the two and then set the computer to generate the appropriate type of signal. (It's best to have both your normal monitor and the HDTV connected while you set this up so that you can see what you're doing.) With nVidia-based graphics cards, right-click the desktop and choose *NVidia display•TV*. In the Nview screen, click the HDTV icon and select *Device Settings•TV Wizard*. For an ATI-based card, open the ATI Catalyst Control Center, go to *Displays Manager*, click the TV icon, and



NVIDIA'S TV Setup Wizard makes it easy to configure your graphics card for an HDTV.

select *enable this display*. Now click *Video* in the Graphics Settings to the left and pick the HDTV mode you want.

If the HDTV has a DVI input, use the same DVI cable that connects to your flat-panel monitor to hook up the HDTV. If your TV has only an HDMI input, a DVI-to-HDMI adapter (like a \$30 model from Monster Cable, find.pcworld.com/51088) can connect the two. Then link the sound to your hi-fi, fire up Quake 4, and enjoy the blood and gore on the big-screen set.

Back Up Your Cell Phone

SOME PEOPLE store their lives on their cell phone: It holds important phone numbers, photos, videos, and messages. But what would happen if by some chance their phone dropped into the toilet? All of their vital information would get flushed away. Unless, that is, they previously backed up their cell phone's data to their PC.

The \$70 DataPilot Universal kit (find.pcworld.com/51056) contains a cable, software, and nine connectors that work with many brands of phones (the \$45 version has just one connector for one brand of phone). Check before you buy, though, as the device doesn't work with all phones. The software quickly sucks in your cell phone contacts, stores them in Microsoft Outlook or Outlook Express, and saves the candid shots you took with your cell phone's camera for later use as blackmail material. It also transfers your phone numbers, photos, and, ahem, priceless ring tones to a

new phone, which is really handy when you're upgrading. If you have a Nokia phone, that company's free Nokia PC suite (find.pcworld.com/51190) can perform similar cell-phone backup chores.

EXPORT YOUR cell phone contacts to your PC.



PHOTOGRAPH: RICK RIZNER



THE EASY-TO-USE Vlog It program lets you create video podcasts in the blink of an eye.

Make a Video Podcast

YOU'VE DISCOVERED a shocking secret that the world needs to know about, but CNN isn't returning your calls. Why not try putting up a video podcast? Vlog It from Serious Magic (seriousmagic.com/products/vlogit) is the simplest way we've found to create a video podcast: You write the script; select your graphics, titles, and background music; and then record your video, using either a Webcam or a digital camcorder, straight to disc. If you choose a green or blue background, you can use Hollywood's famous "blue-screen" effect to superimpose a picture behind you and make it look like you're broadcasting from somewhere else (useful for throwing The Powers That Be off your trail).

The \$50 software compresses the video to prepare it for your blog. It also automatically uploads your blog posting to a video hosting service. The beta version we tested includes a 15-day hosting trial with Playstream (playstream.com), but Serious Magic claims that the full version will work with a range of video-hosting services. Adding the video to your blog is easy: Drag an icon from the program onto the Web page containing your blog posts. (Browse to find.pcworld.com/51260 to see a rundown of blog services.) And don't forget: The truth is out there. ■

Richard Baguley is a writer in the San Francisco Bay Area.

Today's antivirus programs have no trouble stopping familiar intruders, but how safe are you from the unknown? Our tests of ten contenders reveal a new Best Buy.

The New Virus

FIGHTERS

BY TONY BRADLEY • ILLUSTRATIONS BY DAVID PLUNKERT

WE HAVE BOTH GOOD AND BAD NEWS about the ongoing war against computer viruses. The good news: All the antivirus products we tested for this article were 100 percent successful at identifying and blocking recognized security threats. The bad news: Such utilities still can't completely protect you from new threats—and there are plenty of those around.

AV-Test (find.pcworld.com/51168), the German security firm with which *PC World* partnered for this story, says that 70 to 100 new threats are discovered each day. Though many of them are variants of existing threats, waiting even a few hours for your antivirus software vendor to release fixes for them exposes your computer and others to harmful infection. Plus, viruses aren't the only problem. Virus writers are also sending worms—which don't need a host file in order to spread—and other destructive programs such as Trojan horses to users as e-mail attachments.

"The Bagle author likes to do this," says senior security researcher Joe Stewart of LURHQ, a company that provides security consulting and managed security services. Because of such dangers, it's important that your antivirus application be able to recognize and remove not only viruses but other types of threats as well. ►



ANTIVIRUS TOOLS STRIKE BACK

ANTIVIRUS SOFTWARE COMPANIES are adapting and upgrading their products in a number of ways. Frequently they now package traditional antivirus applications with other security components, such as antispyware tools and firewalls, to provide more-comprehensive protection; in some cases this extra



functionality is baked into the antivirus product itself. Companies are also reducing the length of time it takes them to release signature updates, which individual antivirus utilities download and then use to recognize and destroy newly identified threats.

BITDEFENDER'S MAIN interface is basic. Its performance is top-notch.

In addition, vendors are honing their products' heuristics, the mathematical algorithms that can spot new security threats based on their similarity to previously identified pieces of harmful code. "Heuristic scanning by antivirus software engines has shown some improvement over the past few years, with better detection and fewer false alarms," says Douglas Schweitzer, author of *Securing the Network From Malicious Code: A Complete Guide to Defending Against Viruses, Worms, and Trojans*. In false alarms—or *false positives*—an application wrongly flags a file as malware. This mistake at best wastes users' time and at worst causes them to delete benign files.

Companies are also using behavior-based detection to fight new threats that their products can't yet recognize through signature updates. This technology monitors the parts of your system that a malicious file might target, flags suspicious behavior, and stops it. The drawback associated with this approach is that the malware must already be active on your computer in order for behavior-based monitoring to detect it. For this reason, behavior-based detection works best as a supplemental layer of protection behind the virus-scanning engine, which ideally eliminates the threat before it can execute.

STAND-ALONE APPS, SUITES, AND FREE TOOLS

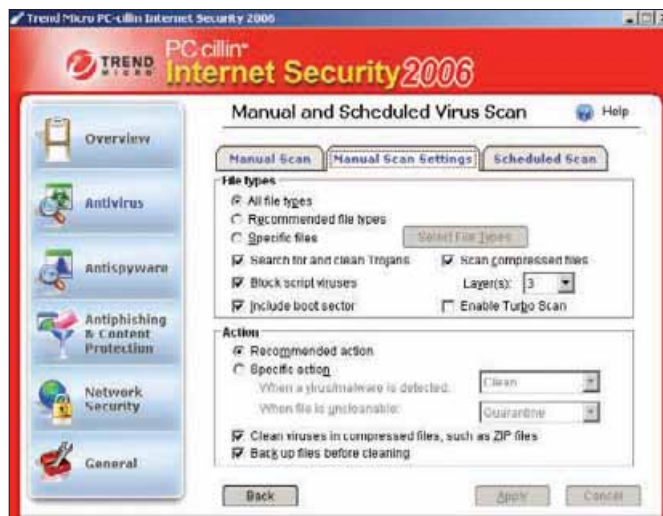
WITH THESE TRENDS IN MIND, *PC World* aimed to learn which of today's antivirus products will best protect you against both known and unknown malware. We tested ten products, ranging in price from free to \$50. To create a level playing field, we tested stand-alone antivirus apps where available and only the antivirus components of suites that offer other functions such as antispyware protection and network firewalls. Testing the suites with their nonvirus-oriented components enabled

would have given them an unfair advantage over the stand-alone antivirus programs, to which you can add (and we recommend that you do add) the firewall and antispyware tools of your choice.

Among our test group, Alwil Software's Avast Home Edition 4.6, AntiVir PersonalEdition Classic 6.32, and Grisoft's AVG Free Edition 7.1 are stand-alone programs that cost nothing. F-Secure Anti-Virus 2006, Kaspersky Lab's Kaspersky Anti-Virus Personal 5.0, McAfee VirusScan 2006, and BitDefender 9 Standard are paid stand-alone applications. Panda Software's Panda Titanium 2006 Antivirus + Antispyware and Symantec's Norton AntiVirus 2006 both include antispyware tools. Trend Micro sells its antivirus tool only as part of the full PC-cillin Internet Security Suite 2006.

One product we didn't rate is Zone Labs' ZoneAlarm Antivirus, our 2005 World Class winner in the category. It combines Computer Associates' Vet Antivirus engine with Zone Labs' network firewall and OSFirewall, a behavior-based prevention technology that flags suspicious system behavior.

AV-Test did evaluate Computer Associates' scanning engine, which performed poorly and was the slowest to release signature updates for new threats. However, for this story AV-Test could not assess the effectiveness of Zone Labs' behavior-based mal-



ware prevention. Putting it to the test against AV-Test's malware collection would have taken months, as each file has to be active on the test system. Since the OSFirewall is integral to the Zone Labs product, we excluded the entire product. (Panda's product, which we did rate, also uses behavior-based detection.)

TREND MICRO'S PC-CILLIN packs a lot of information into a well-designed screen.

HOW WE TESTED

OVERALL, AV-TEST RAN five tests. First, it determined whether the products could detect 1518 "in the wild" malware samples—a published list of viruses and other threats identified by the WildList Organization as active in public circulation.

Second, it tested the programs' ability to detect non-WildList threats by using its own collection (or zoo) of 136,250 backdoor programs, Trojan horses, and bots (also known as *zombies*). The zoo includes active malware collected from customers, computer magazines, and honey pots, which are Internet-connected servers that researchers set up to lure malware. Since the WildList is published, is often out-of-date, and intentionally excludes non-self-

replicating threats such as Trojan horses and backdoor software, AV-Test's zoo malware complements the WildList malware well.

A network firewall will detect backdoor apps, bots, and Trojan horses; but as with behavior-based detection, a firewall will notify you of trouble only once the threat is active on your PC. "Firewalls stop network traffic," says LURHQ's Stewart. "They might stop a Trojan from phoning home. They're not going to stop a Trojan ►

FEATURES COMPARISON

BitDefender's Malware Detection: **TOP-NOTCH**

THIS LOW-COST ANTIVIRUS tool performed the best in our heuristics tests and caught the widest range of malware.

	ANTIVIRUS SOFTWARE	PCW Rating	Performance score	WildList viruses	AV-Test zoo threats	Heuristic detection with one-month-old signatures	Heuristic detection with two-month-old signatures	Ease of use	Bottom line
1	BitDefender 9 Standard Best \$30 BUY find.pcworld.com/51130	92 Superior	Superior	100%	95%	56%	38%	Very Good	Inexpensive product received excellent scores in our performance tests, although its scan speed was sluggish.
2	McAfee VirusScan 2006 \$40 find.pcworld.com/51132	87 Very Good	Superior	100%	89%	53%	34%	Very Good	Relatively good heuristics help VirusScan provide solid protection. Phone support costs \$3 per minute.
3	Kaspersky Lab Kaspersky Anti-Virus Personal 5.0 \$40 find.pcworld.com/51134	85 Very Good	Superior	100%	100%	51%	26%	Good	Program had the fastest response to new malware outbreaks. Interface is clean but not exceptionally great.
4	F-Secure Anti-Virus 2006 \$40 find.pcworld.com/51136	83 Very Good	Superior	100%	97%	52%	27%	Good	Solid performer responded quickly in tests and provides best up-to-the-minute news on malware outbreaks.
5	Symantec Norton AntiVirus 2006 \$40 find.pcworld.com/51290	80 Very Good	Good	100%	97%	22%	8%	Very Good	Veteran utility offers solid threat detection and a nice interface. Phone support costs \$30 per incident.
6	Panda Software Panda Titanium 2006 Antivirus + Antispyware \$50 find.pcworld.com/51142	79 Good	Very Good	100%	86%	21%	16%	Good	This former Best Buy performed well, but not extraordinarily, in our newest non-spyware tests.
7	AntiVir PersonalEdition Classic 6.32 Free find.pcworld.com/51140	78 Good	Good	100%	95%	11%	6%	Good	AntiVir performed the best of the free programs, though it failed to clean several old macro viruses.
8	Alwil Software Avast Home Edition 4.6 Free find.pcworld.com/51138	77 Good	Fair	100%	86%	9%	5%	Very Good	Free product has a slick media-player-style interface that hides some features. Scan speed was slow in tests.
9	Trend Micro PC-cillin Internet Security Suite 2006 \$50 find.pcworld.com/51144	77 Good	Fair	100%	76%	6%	3%	Superior	Former Best Buy performed poorly in heuristics and zoo tests but has the best interface of the bunch.
10	Grisoft AVG Free Edition 7.1 Free find.pcworld.com/51146	73 Good	Fair	100%	80%	8%	4%	Fair	Free program has subpar heuristics and one of the clunkier interfaces among the products we tested.

CHART NOTES: Street prices are as of 12/12/05. The PCW Rating is an overall score based on performance, price, specifications, and product design. See find.pcworld.com/51466 for testing details.

from running [on your PC]," he says.

Third, AV-Test evaluated each product's heuristic capabilities. To do this, it looked at how well one- and two-month-old versions of the programs, which didn't have the later virus signatures installed, recognized malware that subsequently emerged. Thus, AV-Test determined the programs' ability to detect worms and backdoor software without the benefit of signature updates. Testing for worms and backdoor apps was appropriate because those were common and dangerous threats during the testing period, and brand-new viruses are hard to find, according to AV-Test.

Fourth, AV-Test examined each product's ability to clean up 110 macro viruses that attack Microsoft Office programs. And fifth, it compiled data on the average outbreak-response time by each antivirus software company to 16 outbreaks during eight months in 2005—a measure of how quickly the company deploys signature updates after new malware is identified.

To complete our testing, *PC World* timed how fast the various products conducted on-demand virus scans, and then we evaluated each product's ease of use, features, and tech support policies.

OUR ANTIVIRUS PICKS

AFTER THE DUST FINALLY SETTLED, BitDefender 9 Standard emerged as our Best Buy. It ranked in the top four on every performance measure, and it costs only \$30. The \$40 McAfee VirusScan 2006—with its relatively good heuristics performance and intuitive interface—came in second.

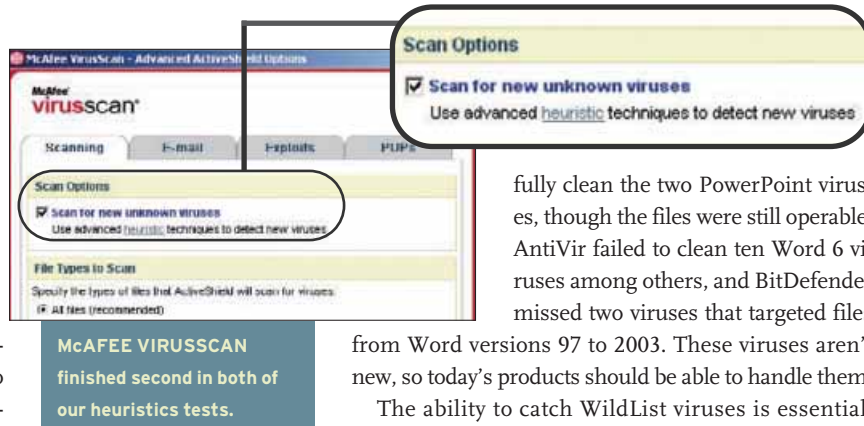
Trend Micro's PC-cillin Internet Security Suite 2006, a descendant of our Best Buy in June 2004, finished ninth among the ten products. It performed poorly in the zoo and heuristics tests and is relatively expensive because it's available only as a full security suite. On the bright side, it had snappy outbreak-response times and offers a stellar user interface.

The three free programs came up short, too: AntiVir placed seventh, Avast ranked eighth, and AVG brought up the rear in tenth. Of course, for people who have no budget for antivirus software, any one of these products provides far more protection than simply forgoing an antivirus utility.

FIGHTING MALWARE WE KNOW

AT THEIR DEFAULT CONFIGURATIONS and with up-to-date virus definitions in place, all of the products that AV-Test evaluated were 100 percent successful at detecting WildList viruses in real time and on demand, defined as when a user conducts a manual or scheduled scan of the computer.

The programs successfully detected and removed macro viruses, with a few exceptions. Avast failed to clean ten viruses, including two viruses that targeted files from PowerPoint versions 97 to 2003 and four viruses that targeted files from Word 6. Panda did not



fully clean the two PowerPoint viruses, though the files were still operable. AntiVir failed to clean ten Word 6 viruses among others, and BitDefender missed two viruses that targeted files

from Word versions 97 to 2003. These viruses aren't new, so today's products should be able to handle them.

The ability to catch WildList viruses is essential, since they're widely known; detecting the miscreants in

AV-Test's zoo, however, is a somewhat different matter.

Kaspersky Anti-Virus Personal 5.0 was the only program we looked at that successfully detected all three types of zoo threats 100 percent of the time. F-Secure and Symantec were successful 97 percent of the time—still an excellent score.

At the other end of the spectrum, PC-cillin produced one of the worst results, detecting only 76 percent of zoo threats—this score includes 85 percent of bots, 82 percent of backdoor software, and 69 percent of Trojan horses. Trend Micro says that it chooses not to expend resources developing signature files for the malware contained in AV-Test's zoo because those threats have never affected its customers. We can't say for sure whether every threat in the zoo is relevant, but we would rather choose a product that detects 100 percent of that menagerie's beasts.

FIGHTING MALWARE WE DON'T KNOW

NONE OF THE PRODUCTS performed exceptionally well in our heuristic tests, proving that there is room for improvement in identifying new threats. In our tests of apps with one-month-old signatures, BitDefender performed the best, detecting 43 percent of worms and 57 percent of backdoor programs.



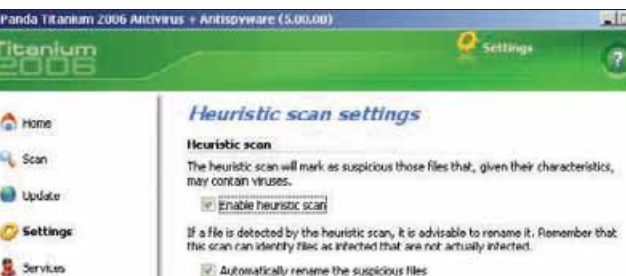
McAfee came in a close second, catching 41 percent of worms and 55 percent of backdoor software. F-Secure and Kaspersky finished close behind, catching more than 32 percent of worms and 53 percent of backdoor malware each. (AV-Test says that a 50 percent detection rate is very good.) In our tests of apps with

two-month-old signatures, all programs did more poorly.

PC-cillin again performed the worst. Its scanner with one-month-old definitions caught just 5 percent of worms and 7 percent of backdoor software. Trend Micro feels that the problems caused by heuristics—in particular, with its potential for false positives—outweigh the benefits. As a result, the company chooses to place less emphasis on developing heuristics.

THE NEED FOR SPEED

WE TESTED THE products for two kinds of speed: how fast they completed an on-demand virus scan and, more important, how swiftly the companies released signature updates for new



malware outbreaks. The software that turned in the speediest scanning performance was

PANDA'S HEURISTICS
proved middle-of-the-road.

Panda's, which blazed through the tests in an average time of 1 minute, 46 seconds. This was more than seven times faster than the slowest program, Avast, which came dragging in at the ▶

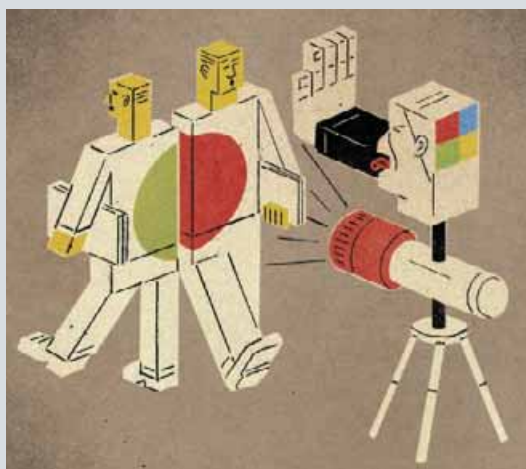
BETA WATCH

Antivirus Alternative: MICROSOFT ONECARE LIVE

MICROSOFT WILL SOON join the ranks of companies that offer all-in-one security protection to consumers. We took a look at the public beta of Windows OneCare Live, a new subscription-based PC protection package. It is one of several Internet-based services that are available for download from the Windows Live Ideas page (find.pcworld.com/51178).

OneCare Live is a collection of security tools and utilities that you can manage in a single interface. The security components currently consist of antivirus soft-

lets you scan on demand or on a schedule, configure the files and folders you would like scanned, and exclude files from the scanning process. Currently, it performs no inbound or outbound e-mail scanning, and it scans instant messaging traffic only from MSN Messenger; the company says, however, that it plans to incorporate e-mail scanning and



will consider additional IM client scanning later on. A layer of behavior-based protection monitors files for suspicious activities, such as modification of Registry keys. Our first scan took an acceptable 15-plus minutes.

OneCare's firewall, which monitors both inbound and outbound network traffic, is a beefed-up version of the Windows Firewall, which tracks only inbound traffic. Upon first use, OneCare asked us about software activity that it didn't recognize, such as an iTunes software update and Lotus Notes network activity. For the most part, it stayed out of our way so long as we kept up with security updates.

Installation was easy, though it required us to use Internet Explorer 6. (Checking for security updates necessitates using Internet Explorer 5 or later.) A Web-based wizard assessed our system to see whether it met the minimum requirements, as well as to spot possible software conflicts, before allowing us to install OneCare. Microsoft says that OneCare will check to make sure that you have no conflicting antivirus software running during installation, but it did not recognize the client version of Symantec's Norton AntiVirus Corporate Edition installed on our PC. However, a reader commenting on our Today @ PC World blog (find.pcworld.com/51360), reported that it did detect and prompt for the removal of the desktop version of Norton AntiVirus.

Microsoft hasn't set a price for the package, but a Purchase Now button indicates that OneCare won't be free forever.

—Narasu Rebbapragada

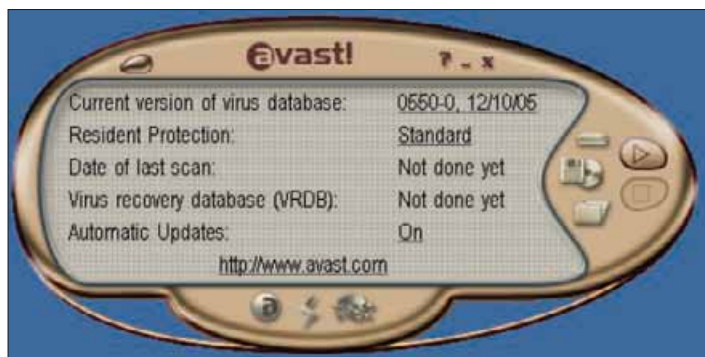


ware and a firewall; Microsoft expects to add an antispyware application in a subsequent beta version. Other utilities in

the set include a backup application and a tune-up routine that automates tasks such as disk defragmentation and disk cleanup.

Like most antivirus tools, OneCare Live

WINDOWS ONECARE
Live's firewall provides
easy-to-understand alerts
about unrecognized
network activity.



back of the pack with an average time of 13 minutes, 11 seconds.

When AV-Test evaluated the products' outbreak-response performance, all responded to incidents within 12 hours on average. Kaspersky had the fastest response time—from less than an hour to 2 hours. BitDefender and F-Secure were close behind at 2 to 4 hours. AntiVir and PC-cillin had response times of 4 to 6 hours; Panda took 6 to 8 hours; AVG, Avast, and McAfee took 8 to 10 hours, and Symantec taking the longest at 10 to 12 hours.

FEATURES VARY, SLIGHTLY

SOME PACKAGES provide nice extras. All automatically and regularly download virus signature files and application updates. Most will let you set up full or customized scans on a defined schedule. Some, such as the free AVG, are relatively rigid, allowing only scheduled scans of pre-defined drives or file types. Unlike every other program here, Panda's doesn't permit you to set up a regularly scheduled scan; for that, you'll need the full Panda Platinum 2006 Internet Security Suite.

Many programs have adopted console screens—similar to Windows XP's SP2 Security Center—that provide a general overview of your PC's status. Symantec's Norton Protection Center, for example, tells you how secure your PC is when you perform common activities such as using e-mail or surfing the Web. In some ways, these consoles (McAfee's Security Center, for one) are platforms for blatant attempts by the companies to market their other products, but they can be useful for finding security holes.

F-Secure and Panda provide breaking security news from their system tray icons. BitDefender puts a small window called the File Zone on your desktop to supply a running, graphical representation of the number of files that have been scanned in the past few minutes (you can turn the option off).

All of the products we tested come with e-mail technical support for the duration of the virus-software subscription (one year for the paid programs and indefinitely for the free ones). BitDe-

AVAST HAS A SLICK media-player-style interface that hides some features.

fender, F-Secure, Kaspersky, Panda, and Trend Micro all offer free telephone support—on weekdays, at least. Symantec's phone support costs \$30 per incident; McAfee charges \$3 per minute for help. If you think you might wind up needing phone support, you should consider these prices when making your buying decision. One or two lengthy calls could add up to the price of the software.

THE CONVENIENCE FACTOR

TREND MICRO'S PC-CILLIN was the easiest product to use. It packs a lot of security information in an easy-to-understand interface. And while intuitive for novice users to navigate, it still provides the choices and settings that seasoned users would require to configure the software.

Alwil's Avast distinguishes itself with a unique and flashy main console—complete with customizable skins—that looks similar to some media players. The console provides the same information as those of other programs, but it hides some features behind surrounding icon buttons.

The interfaces on other programs are fairly basic. BitDefender's opening screen notifies users only whether virus protection and automatic updates are turned on. More-useful features are located in screens accessed on the left side of the window. They open intuitive toolbars that let you quickly access details; here you can specify whether you wish to receive security notifications or change the color scheme of the interface, for example.

Grisoft AVG's main window is practically useless. Its sparse collection of options—Scan Computer, Scan Selected Areas, and Check For Updates—underscore the limited nature of the software's features, and

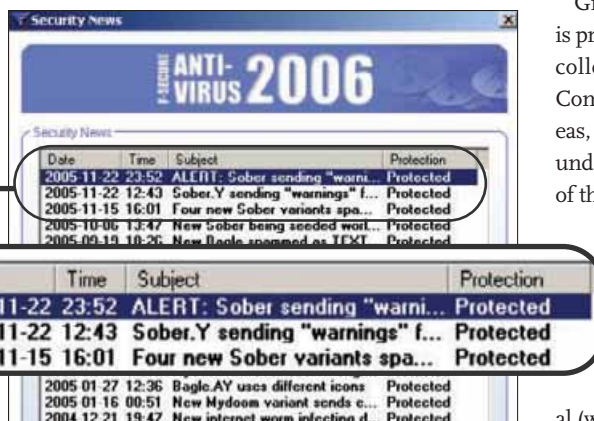
some configuration options remind you that certain tools are available only in the paid upgrade product, AVG Profession-

al (which we couldn't test due to space and time constraints).

However, thanks to free products such as Grisoft's AVG Home Edition, you don't have to shell

out any money to win the fight against known viruses. Though no antivirus package can completely protect your PC against unknown threats, choosing one of our top-rated products will at least give you the best protection you can get right now. ■

Tony Bradley is a network security consultant, and the lead writer for About.com's Internet/Network Security Web site. Narasu Rebbapragada is an associate editor for PC World.



F-SECURE REPORTS comprehensively on the latest security threats.

Broadband.....



We sent notebook-toting
roving reporters out to
see if new services deliver
on their promises of
superfast data access.

ILLUSTRATION BY RANDY LYHUS

to Go

BY CHRISTOPHER NULL

YOUR HOTEL OFFERS Wi-Fi in the lobby, but you're on the eighth floor; though the view is great, the wireless signal is pathetic. Starbucks is down the block, but it's closing soon—do you really want to buy a latte just to check e-mail and update your blog?

We thought not. Fortunately, fast, so-called third-generation (3G) wireless data services—paced by Verizon Wireless’s EvDO BroadbandAccess service—have moved out of the testing phase and into the mainstream, to the point where today broadband wireless can just about work as your primary means of accessing the Internet when you’re on the road. Some kinks still need to be worked out, and you might not be able to use these services as freely as their wired counterparts; but by and large, our informal survey found that wireless broadband wide-area networks (WANs) are ready for prime time.

TOWARD TRUE 3G

FOR A LONG TIME, cellular networks in the United States have been saddled with old technology, and early attempts to offer high-speed data services left consumers more confused than connected. So-called 2.5G standards—which didn’t quite reach anticipated 3G network speeds (for 3G, 300 kilobits per second is widely considered a rough lower bar)—were ultimately disappointing. Frustrated users of 1xRTT (the 2.5G technology deployed by CDMA carriers Sprint and Verizon) or EDGE (the slightly faster 2.5G technology adopted on the Cingular/AT&T side) regularly received harsh reminders of their service’s similarity to analog dial-up: None of these services could manage speeds much higher than 60 kbps or so in the real world.

THAT ‘OTHER’ WIRELESS

What Happened to My WiMax?

SO WHERE IS WIMAX, the long-awaited technology that has promised hefty 70-mbps maximum download speeds anywhere within a range of up to 25 miles?

It’s coming, says Mo Shakouri, the WiMax Forum’s vice president of marketing. With 350 member companies, the group is now working on hardware interoperability and making sure that carriers have infrastructure ready. While 2006 deployments will likely be limited to Europe, testing should



VERIZON VZAccess
PC Card for 3G.

Enter 3G. With eyes on wireless data speeds that can match those of DSL, a revolution is finally under way. Two main 3G technologies are currently rolling out in the United States. The first—and more widely deployed—is EvDO (Evolution Data Only, or Evolution Data Optimized). An update to the CDMA radio technology used by Sprint and Verizon in the United States, EvDO provides very high data throughput, with a theoretical maximum speed of about 2 megabits per second.

Even so, the GSM-based networks (run

by Cingular and T-Mobile), although trailing, aren’t out of the game. The 3G version of GSM, called HSDPA (High Speed Downlink Packet Access), is newer than EvDO and is being launched just now by Cingular. We were able to do only some last-minute tests in San Francisco (see “Cingular Starts Its Own Broadband Service” on page 104). HSDPA speeds theoretically can reach 3 mbps and faster—so fast that some people call HSDPA a “3.5G” service. T-Mobile won’t launch HSDPA here until 2007.

LIVING WITH 3G

IN 2004 VERIZON Wireless began testing its EvDO service

under the BroadbandAccess moniker (see our first look at find.pcworld.com/51176), and in late 2005 it rolled the service out nationally. Sprint’s EvDO offering, called Mobile Broadband, reaches various cities across the country, but coverage remains spotty. Both providers plan to expand the network over the next few years.

Each company charges its wireless-voice customers \$60 per month for unlimited access to these services (\$80 for data-only customers). But a provider’s definition of “unlimited” may not match yours: Both Sprint and Verizon impose restrictions that we’ll discuss later on.

So what is 3G service like in the real world? To find out, we shipped a Verizon Wireless VZAccess PC Card for laptops to testers in six metropolitan areas where BroadbandAccess coverage is available: Atlanta; Boston; Portland, Oregon; St. Louis; San Francisco; and Washington, D.C. We also circulated among the testers a Lenovo ThinkPad Z60, one of the few laptop models carrying an internal version of the VZAccess card, to see if the built-in adapter worked better than a PC Card.

Each tester used BroadbandAccess for a series of tasks ranging from performing simple ping tests and viewing identical

Web pages to watching streaming video and playing Internet radio. Each tester conducted the tests at various locations: at home; inside a large hotel conference center; in a moving vehicle; outdoors; in a café with Wi-Fi service; and at the periphery of the service area (to get a map of coverage near you, fill out Verizon's form at find.pcworld.com/51104).

Bear in mind that, due to the vagaries of location and network congestion, our results are not repeatable and should be considered as anecdotal evidence only. Your mileage may vary—wildly, in fact—depending on any number of factors, a few of which are outlined below.

GETTING STARTED WITH EVDO

SETTING UP Verizon's VZAccess PC Card is a snap. After installing a small application from a CD-ROM and sliding in the card, you gain access to the network

via a quick activation process. Assuming that you're setting up where you have a decent EvDO signal, you should be up and running in less than 5 minutes.

The VZAccess Manager software isn't entirely intuitive, but you'll probably have no need to use it except to double-click the program icon and to click *Connect* to hop on the network. Logging on never took us more than 10 seconds—faster by far than connecting to any Wi-Fi network. We were then able to use our notebooks as if they were connected via Wi-Fi or wires.

But one of the first things our testers noticed was that network speeds varied dramatically. When we were able to sustain downloads, speeds typically ranged from 300 to 500 kbps—but in some cases they soared to 2.5 mbps, and in others we weren't able to connect at all. Some Web pages loaded in seconds in one location, while in another we had to wait for up to

3 minutes. Move a few feet closer to an exterior wall, though, and you could be back to a blazing connection. This is fine if you're bumming around the house, but it's a different story if you're stuck in a location where you can't easily move a few feet in hopes of snagging a better signal.

FAST, BUT LESS RELIABLE

WHEN RECEPTION was good, we generally had positive experiences with streaming audio and video, and Voice-over-IP audio came through just fine. But when the signal was weak or we had interference issues, video would drop out altogether, and VoIP calls became garbled or incoherent. A better bet was instant messaging, which never felt any different than it did at home or at the office.

We also tried out the service in moving cars and trains. According to Verizon, speeds are supposed to be much slow- ▶

3G LAPTOPS

Wireless Broadband, Without Extra Hardware

AS HAPPENED WITH WI-FI, equipment manufacturers are starting to jump on the WAN bandwagon by integrating EvDO or HSDPA radios into their latest equipment. This year will see a flood of notebooks arriving with built-in WAN hardware.

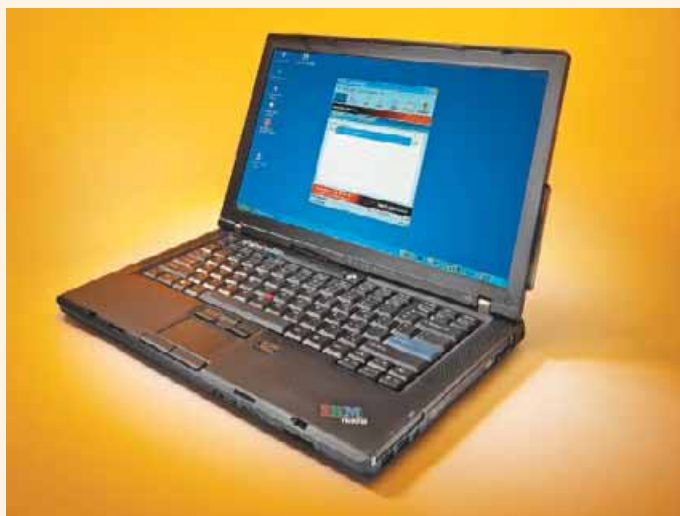
The big benefit: As with an integrated Wi-Fi adapter, integrated wireless WAN capability means no bulky, fragile PC Card to carry around. There's also no enormous antenna jutting out of the side of your notebook, possibly preventing it from fitting in your laptop bag. On the Lenovo ThinkPad Z60, which we tested for this story, the integrated Verizon EvDO's WAN antenna is a barely noticeable sliver attached to the right side of the lid.

In daily use, working with the integrated EvDO adapter is functionally identical to using the PC Card version. Even the connection software is unchanged.

But while we enjoyed not having to haul extra hardware around, integrated WAN presents a number of risks. Primarily, you're stuck with it for the long haul, since you can't swap the wireless hardware into a new laptop, and you can't switch carriers if the service isn't what you expected. Ditto if faster 4G technology arrives earlier than anticipated; you could be forced to upgrade early.

On the other hand, 3G networks may outlive your laptop, anyway. If you're sold on the technology and don't

mind sticking with one data service provider for the next two to three years, having the convenience and durability of integrated WAN hardware is definitely worth serious consideration. Just make sure that you try out (and are satisfied with) the exact hardware you're pondering—before you dive in headfirst.



LENOVO'S THINKPAD Z60 laptop is one of the first available with an EvDO radio built in (the antenna peeks out of the right edge of the screen panel).

er when you're in motion, but as long as we were within the service area and receiving a strong signal, we didn't notice any degradation in the quality of service.

At the border of a service area, however, the signal became unusable for anything but e-mail and Web browsing. That's because outside the EvDO coverage area, you use the slower, older 1xRTT network, whose speeds of about 70 kbps are barely faster than dial-up.

Within the stated coverage area, we rarely saw a signal drop, but we did experience odd stalls, even when the VZAccess application's signal-strength indicator displayed all four bars. A Verizon spokesperson noted that any number of momentary

glitches could interfere with a signal: "Don't let that 'bar' commercial fool you. You can have four bars and still drop a call." We also saw strange color banding around GIF images, which rendered pic-

Turns out, most of the tests we performed violated both companies' terms of service.

tures unsightly. Verizon was unable to explain this phenomenon, but we speculate that it might be a relic of a compression scheme in the connection software.

So the service basically works, albeit unevenly. But there's a catch with both Verizon's BroadbandAccess and Cingular's

BroadbandConnect, and it's a biggie that the rosy-sounding ads don't warn you about. Turns out, most of our tests were in violation of both companies' terms of service, which strictly mandate what you

ANECDOTAL TESTS

EvDO Delivers. Most of the Time

ON VERIZON'S BroadbandAccess service, testers' experiences varied widely. Several of the tests we performed are expressly forbidden under Verizon's terms of service.

TEST	User reports	Activity permitted in service contract? ¹
Ping	When radio signal strength was strong, our ping times ranged from the mid-100s to 200 milliseconds. Where reception was weak, pings took longer, averaging from the mid-300s to as high as 500 milliseconds.	Yes ²
File uploads/downloads	Results varied wildly: Download speeds averaged around 500 to 600 kbps, but dropped dramatically—in some cases, under 50 kbps—on transit. Uploads ranged from a glacial 30 kbps to well over 4 mbps.	Yes
Shoutcast audio	Shoutcast streamed audio, used by many Internet radio stations, worked remarkably well—even in locations where the EvDO signal strength hovered just above zero.	No
Streaming video	In areas where the radio signal was weak, testers reported that the player repeatedly buffered the video, but otherwise, live TV streamed to a laptop over EvDO looked surprisingly good.	No
Web browsing	Web browsing gave us the most inconsistent results. On average, testers said that complex pages with rich content took 20 to 50 seconds to fully load. But a few experienced page load times in the minutes.	Yes
Instant messaging	In nearly all cases, as long as our testers were in range of the BroadbandAccess network, they were able to connect to their preferred IM service from the client application, and send and receive text messages.	Yes
VoIP	BroadbandAccess's terms of service explicitly prohibits use of the network for Voice-over-IP calls, but we made a few PC-to-PC calls anyway. The results: Pretty darn good, as long as you can get a strong signal.	No

FOOTNOTES: ¹ According to Verizon's terms of service for BroadbandAccess. ² Activity not explicitly disallowed.

HOW WE TEST: We asked testers in six metropolitan areas across the United States to perform seven tasks using a laptop equipped with a built-in EvDO adapter and/or a PC Card at various locations around (and outside) their city. For full details about the tests we performed, and for extended test results, browse to find.pcworld.com/51166.

can and cannot do on their networks. Verizon explicitly allows only Web browsing, sending and receiving e-mail, and "access to a corporate intranet or specialized application" on its EvDO network. Cingular's terms of service are similarly worded; Sprint has yet to formulate contract language for its fledgling 3G service.

And that's all you can do. Relegated to the strictly prohibited list are:

- ◆ Streaming or downloading music, movies, or games
- ◆ Watching a Webcam feed or accessing any automatic data feed
- ◆ Voice-over-IP phone calls
- ◆ Peer-to-peer file transfers
- ◆ Any automated machine-to-machine connection

Clearly, the ban on VoIP reflects Verizon's (and other carriers') concerns about the technology's threat to the voice-call business—after all, if you're paying for unlimited data service and can use Skype, why pay for a voice plan too? But depending on how the company interprets the terms, Verizon could prohibit just about any online activity, from visiting Windows Update to checking a real-time stock ticker. The question is, will it?

Evidently, neither Verizon nor Cingular strictly enforce the restrictions at this point: We broke all of the rules over the course of our testing and never heard a peep about it. Both companies said that the rules are in place only to dissuade people who would use the service for commercial purposes (to run a Web server, for example). Representatives assured us that most users wouldn't have to worry about getting kicked off the network for downloading a song or ten. "The legal ►

clause...is there solely for abusers," Verizon spokesperson Brenda Raney told us.

Restrictions aside, we generally liked EvDO's performance. Though it can't replace wired broadband, it marries the convenience of instant-on access to a pretty fast Internet experience. After using the service exclusively for a few days, we found that we couldn't live without it.

WHAT ABOUT WI-FI?

ARE YOU WONDERING why T-Mobile isn't jumping on the 3G bandwagon more quickly? With its investment in more than 23,000 T-Mobile hotspots, the company is betting that, when it comes to accessing the Internet while on the road, you would prefer Wi-Fi to WAN. And all things being equal, you probably would, as Wi-Fi is generally faster (depending on the wired line that a hotspot connects to, speeds may range from 800 kbps for DSL to 6 mbps for a high-end cable modem) and more reliable. But Wi-Fi is a local-area network technology: It isn't available universally, and its range of a few hun-

dred feet means that you'll face enormous gaps in coverage no matter where you are.

Still, for some users a T-Mobile Wi-Fi subscription might make more sense than 3G. It's much cheaper: \$30 a month for unlimited access with a 12-month con-

puter hacking, and the like, T-Mobile doesn't limit how you can use the service.

And don't forget that, if your notebook came equipped with integrated Wi-Fi or you already have a notebook adapter on hand, there's no extra hardware to buy.

Overall, if you have convenient access to hotspots and can put up with gaps in service in between them, we'd advise sticking with Wi-Fi for the time being. But if you are constantly on the move in areas covered by EvDO, can justify the admittedly pricey service as a business expense, or hate paying to sit in a café just so you can check e-mail, EvDO makes an appealing alternative today.

EvDO still has a lot of hype to live up to, but Verizon's implementation comes close

to matching its promises. BroadbandAccess is fast and convenient, and it provides a remarkably better experience than previous mobile networking options. ■

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CINGULAR'S 3G antenna is longer than Verizon's.

tract (versus Verizon's steeper charge of \$70 monthly for a two-year contract).

Also, T-Mobile offers hotspots in over 20 countries, a plus for international travelers. EvDO, of course, won't work outside the United States. And apart from standard terms against illegal use, com-

HSDPA VS. EVDO

Cingular Starts Its Own Broadband Service

CINGULAR MAY BE something of a late arrival to the wireless broadband party, but there's nothing laggardly about the performance of its new High Speed Downlink Packet Access network.

We received Sierra Wireless's AirCard 860 for Cingular's new BroadbandConnect service after all our EvDO testing was complete, so we were able to try it out in only one city, San Francisco. There, on the whole, we experienced excellent results: Web browsing was noticeably more responsive and downloads were faster than on Verizon's network. In fact, data speeds ran about 1 mbps—faster than the 400 to 700 kbps speeds that Cingular touts.

The improvement was especially noticeable in areas where EvDO signals were weaker. At locations where streaming video was unwatchable and Skype phone calls were unintelligible over Verizon's BroadbandAccess service, we were able to receive uninterrupted video and carry on extended, crystal-clear VoIP calls on Cingular's network. "Can you hear me now?" Indeed.

But we did encounter a few problems. First, the design of the hardware is dated and problematic: The AirCard 860 has a slender, jointed antenna that extends 3.5 inches vertically. While a longer antenna is normally preferable, this one is flimsy, and may interfere with typing if your laptop's PC Card slot is positioned near the front. And when you remove the card, there's no good way to pack it to ensure the delicate antenna won't break off.

A bigger concern was with the BroadbandConnect software. In our tests, the lengthy installation conflicted with Google Desktop Search (a problem Cingular says it has been unable to reproduce), and the software attempted to take over management of our existing Wi-Fi setup. Because the BroadbandConnect card is a six-band, dual-mode product, it can take up to 2 minutes to optimize its settings when you initiate a connection in a new location.

Fix the archaic antenna and streamline the software, however, and we'd pronounce HSDPA the winner in the current 3G race.



HOLLYWOOD VS. YOUR PC

ROUND 2

Legal options in digital entertainment are growing. But they come with restrictions that can hobble your ability to enjoy the content you've paid for—and even threaten your control over your system.

BY DAN TYNAN ♦ ILLUSTRATION BY LOU BEACH

AS WE MOVE TO A WORLD where all entertainment is delivered digitally, the battle over copyright protection is turning into a full-blown war. And consumer rights may end up being the biggest casualty as media companies hunker down and try to redefine what users can and can't do with the content they've paid for and the hardware they own.

From Apple's iTunes and Real Networks' Rhapsody music network to movie rental sites like CinemaNow and Starz' Vongo, legitimate digital

media services are exploding. But each additional option brings a new battle, new restrictions, and even new dangers for unsuspecting users. Copy protection included in Sony BMG audio CDs allowed virus writers to co-opt the system and sneak onto users' PCs. Satellite and HD Radio, which promise higher-quality audio and more content, may become difficult for listeners to record if the music industry has its way. And TV fans are finding that cable stations are limiting their ability to time-shift shows; pending federal legislation may curtail their rights even more.

Worse, since we last looked at this battle in 2002 (see find.pcworld.com/51362), technology firms, which once struck a balance between the rights of content owners and the rights of users, have sided more and more with Hollywood as they strive to secure the content they believe will help sell their products.

We'll look at the multiple fronts of the digital wars—from file sharing to music to TV—and give you a hint of what's next.

COPYRIGHTS AND WRONGS

PEER-TO-PEER file sharing remains the bogeyman, driving entertainment companies toward ever-increasing control over content. Despite the U.S. Supreme Court decision holding Grokster liable for the actions of its copyright-defying users, and despite more than 13,000 lawsuits filed by the Recording Industry Association of America and the Motion Picture Association of America, file swapping is still growing. According to P-to-P research site Big Champagne, some 6.5 million U.S. users share files at any one time—up

more than 30 percent from the year before.

Media companies have responded in two ways. Using their influence in Washington, D.C., they've pushed for laws friendlier to the rights of content owners. At the same time, Hollywood has threatened to withhold access to its libraries unless electronics manufacturers build devices with sufficient copy protection.

This is not the way the copyright process was supposed to work, according to

Each new, legal digital media option brings a new battle, new restrictions, and even new dangers to users.

Jessica Litman, author of *Digital Copyright* (Prometheus Books, 2001).

"Copyright law was intended to protect reading, viewing, and listening as much as creating and distributing," says Litman, a professor of copyright law at Wayne State University Law School. "Now it takes what people previously saw as their rights and treats them as loopholes the copyright owners will close, if they can."

Take books, for example. You can read a book anywhere you want, skip chapters at will, give the book away or sell it, quote portions of it on your blog, or scan it into your PC and print out a copy. And when the book eventually becomes part of the

public domain, you can do anything you please with it—including printing copies and selling them at a profit.

Buy an electronic book, however, and your rights start to wither. You're now subject to the terms of an end-user license agreement. Depending on the EULA, you may be able to read the book on only a limited number of machines (usually just one), and you probably won't be allowed to sell it, lend it, or make backup copies.

As you move up the content spectrum to digital music, movies, radio, and TV, the rules can be just as restrictive.

"[Hollywood's] model is to make experiencing copyrighted material—reading a book, listening to music, or watching a movie—legally like going to a movie theater," Litman says. They want you to buy a ticket, watch ads, eat only their food, leave when they want you to, and pay for it all again each time you do it, she says.

Brad Hunt, senior vice president and chief technology officer for the MPAA, disagrees, arguing that content owners are seeking ways to offer users more options than they have with today's media. "Instead of saying 'here's the movie locked to a piece of plastic, take it or leave it,' content owners may make other rights available to you to do more with it," he explains.

MUSICAL DISCORD

THE PRIMARY battleground for digital content has long been music. To combat widespread file swapping, the record industry has attempted both copy protection for CDs—most notoriously in the form of Sony BMG's XCP rootkit (see "Copy Controls: How Far Will They Go?" at find.pcworld.com/51232 for more)—and digital rights management schemes for online music. Each has made life more difficult for legal purchasers of music.

Usually, copy-protected CDs don't prevent you from making copies so much as they limit how many copies you can make and where you can make them. If you played a protected Sony CD on your PC, for example, you could rip three copies of the CD to your hard drive. If you then put this music into your Windows Media

Player library, you could burn three other CDs. But Sony's XCP scheme prevented iPod fans from easily copying MP3s from the CD to their music libraries, though a workaround was available upon request.

Online music rules are even more complex. You can play music purchased from iTunes on up to five systems, for example, but if you want to add a sixth, you have to log on to one of the other machines and "de-authorize" it. You can burn a playlist to a CD, but no more than seven times. You can share tunes across five computers on a local network, but the other users can only listen to the music. Still more restrictive are the rules for iTunes' video downloads—there's no sharing at all.

Yet as DRM schemes go, iTunes' FairPlay system is fairly transparent, Jupiter senior analyst Joe Wilcox notes. "People know it's there only if they try to violate it," he says, adding that with Windows DRM, he's had problems with both legit music playback and the purchasing process.

Moreover, incompatible DRM schemes can lock users into a particular technology. If you purchase your music from iTunes, realistically you have two options: to buy iPods for the rest of your life—since iTunes music won't play on other players—or to ditch your library and start over. Players that support Windows Media Audio DRM are more plentiful, but similar restrictions apply to them.

Later this year, new DRM technologies may challenge the hegemony of FairPlay and WMA, says Bill Rosenblatt, president of GiantSteps Media Technology Strategies and editor of *DRMwatch* in New York. One approach, the Marlin DRM scheme, is based on personal identity: It would let you access content on a variety of portable devices according to who you are, not what device you're using. Another DRM platform, code-named Coral, would allow service providers to convert content from one DRM format to another, making it playable on a wider variety of devices. Both schemes are backed by two closely allied consortia whose members include 20th Century Fox, Hewlett-Packard, Philips, and Sony.

DIGITAL MEDIA FAQ

MUSIC

Work with—and around—content protection on your digital music files.

How do I know whether my CD has copy protection on it?

Copy-protected CDs often come with a label identifying them as such, though that's not legally required. Amazon.com clearly identifies CDs containing copy protection schemes, so searching there for the CD title may turn up the answer.

Ack! My CD has DRM all over it. What can I do?

Not a lot. Most tools for bypassing DRM are illegal under the Digital Millennium Copyright Act, though low-tech workarounds exist. Some users have circumvented Sony BMG's copy protection by placing a strip of tape on the CD's outer edge where the data layer is, to stop the PC from reading it—but if the tape comes loose, it could gum up your CD drive. Other solutions involve drawing over the outside track with a black marker or dis-



abling the computer's autorun feature—and thereby preventing the copy protection software from loading—by holding down the <Shift> key as the CD loads.

Can't I rip MP3s without a PC?

If your MP3 player offers in-line recording, you can legally rip MP3 files directly to it from your stereo, bypassing your PC. Archos, Cowon, iRiver, and Samsung all make players with this feature. Video Without Boundaries' Flyboy portable video player can do the same with DVDs. Since this method relies on analog output and doesn't break digital encryption, it doesn't run afoul of the DMCA.

Navio, a small Silicon Valley startup, is taking yet another tack. Instead of buying digital files, users, in Navio's scheme, buy the rights to enjoy them. So when a user is at work but wants to hear a song that he downloaded at home, he can log in to Navio, which confirms that he has rights to the song and allows him to download or stream the song to a new device. Files can still use DRM technology to prevent unfettered file swapping, while consumers get many of the same freedoms they've grown used to with analog content.

"If the rights are properly defined and ubiquitous, they'll become more valuable to consumers than the actual files," says Navio CEO Stefan Roever. Then only people with no money and lots of time will fool around with file sharing, he adds.

Navio already enforces media rights for

the Fox Sports and Fox Music Web sites, and at press time it was preparing to announce a deal with a major record label.

Meanwhile, another front is opening in the war over digital music: The RIAA is pushing for legislation that would prohibit listeners from recording or sharing individual songs broadcast via new digital radio services unless they paid a fee for each song. Nevertheless, the group favors being able to record digital radio in blocks of 30 minutes or longer.

"We support time-shifting," says RIAA spokesperson Jenni Engebretsen, but not "cherry-picking individual songs and storing them in a library on an MP3 player in a manner that substitutes for a sale."

According to Public Knowledge, a consumer rights group based in Washington, D.C., such rules would extinguish ►

fair-use rights that listeners have enjoyed in the past—there are no such restrictions on the right to record personal copies of songs from traditional radio broadcasts.

DIGITAL TV BEHIND GATES

THE BATTLE OVER rights in the digital TV arena is already well under way. By March 1, 2007, according to Federal Com-

digital TV shows must carry an 8-bit “flag” that broadcasters could use to limit how viewers recorded such programs; all TV gear would have had to recognize this flag. But last May, a federal court struck down the broadcast flag, ruling that the FCC had exceeded its authority. Flag supporters have tried to persuade Congress to authorize the flag; that has yet to happen.

service changed how it responded to the Macrovision copy protection built into pay-per-view and video-on-demand content. For the first time, content owners could prevent viewers from recording PPV and VOD shows on a DVR. They could also require deletion of shows from the recorder after a certain period. TiVo already prevented viewers from burning protected content to DVDs or using the TiVoToGo service to transfer it to a PC.

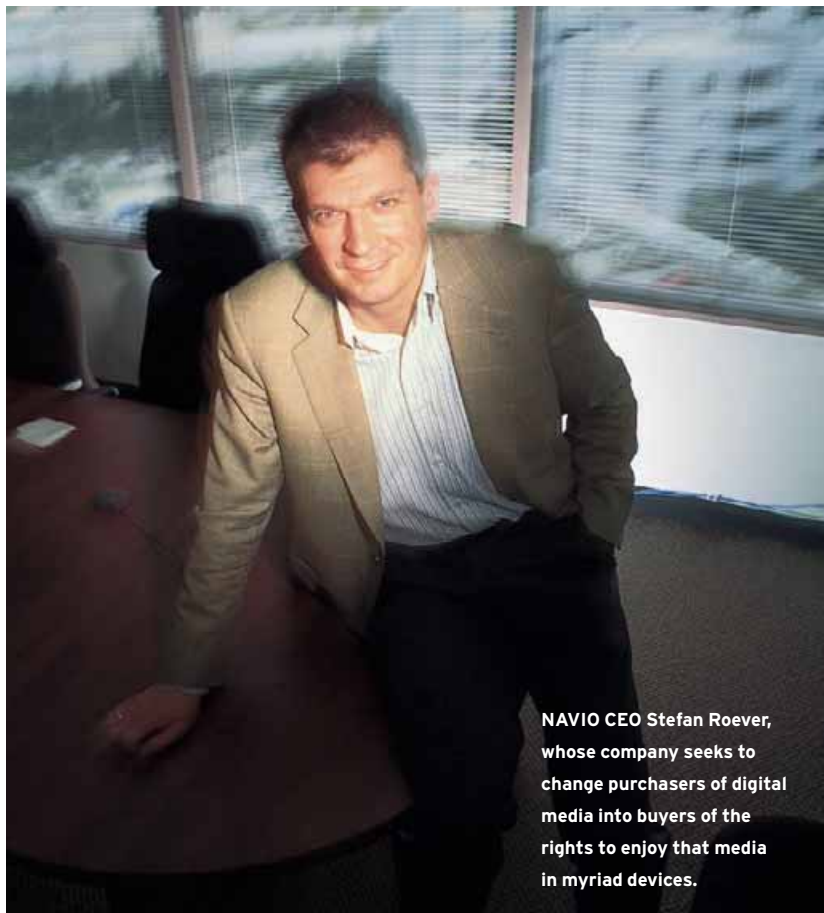
Fred von Lohman, senior staff attorney for the Electronic Frontier Foundation in San Francisco, says that this change is a classic case of content owners taking away features consumers have paid for.

“Two years ago the TiVo you bought did one thing, and now suddenly it does something different,” he says. “Despite the fact we’re buying more media than ever before, products are treating us more and more like pirates each day.”

But TiVo VP of product marketing Jim Denney says the changes have had little impact on the vast majority of TiVo users.

More restrictions may be on the way for home recording. At press time, sponsors had just introduced the Digital Content Security Act (HR 4569) in the House. This bill would close the “analog hole” by requiring devices that allow users to make digital copies from analog sources to employ copy protection technology. If the analog hole were closed, protected shows could carry signals that prevented them from being copied by any device at all, or could limit copies and prohibit them from being digitally redistributed, or could restrict viewers’ time-shifting abilities to within 90 minutes after a broadcast.

Next-generation home recording via high-capacity blue-laser DVD technology promises a little more freedom but also additional restrictions. Both Blu-ray and HD DVD discs (the two major blue-laser DVD formats) will carry a digital watermark that will let players identify illegally copied discs and prevent playback of the content. Backers of both Blu-ray and HD DVD formats have announced their support for “mandatory managed copies,” which will allow home users to make ▶



NAVIO CEO Stefan Roever, whose company seeks to change purchasers of digital media into buyers of the rights to enjoy that media in myriad devices.

munications Commission rules, all new TV devices (tuners, VCRs, DVRs, and set-top boxes) for sale in the United States must be capable of receiving digital TV signals. For the past few years, media conglomerates have been scrambling to keep their expensively produced, highly profitable digital content from drifting all over the Net. But the protections they’ve devised may keep viewers from doing things they are accustomed to doing—such as recording, time-shifting, and sharing shows.

In 2003, the FCC ruled that over-the-air

The MPAA’s Hunt says such controls are necessary. “If content owners have no assurance there will be some form of protection from redistributing digital TV, that high-value content normally provided to broadcasters would move into the pay-TV world,” he says. That could mean networks like ABC and NBC might no longer get the rights to show *Star Wars* or *Harry Potter* movies, for example.

Meanwhile, TiVo owners recently got a taste of what life under such a flag might be like. Last September the popular DVR

a single copy of their high-definition discs and share them across a home network—something that consumers can't legally do with today's commercial DVDs.

VISTA BLURS HIGH-DEF

IF MICROSOFT has its way, your digital entertainment options will be served via a PC in your living room. To fully enjoy the benefits of digital content, however, you may have to buy new hardware.

When Windows Vista appears later this year, it will allow playback of HD video—but it may do so only if your monitor or TV supports Intel's High-bandwidth Digital Content Protection scheme. Without a DVI or HDMI port that handles HDCP, your aging 42-inch plasma set could display the film at lower DVD-quality resolution, or not play it at all (for details, see "Most Monitors Won't Play HD Video," at find.pcworld.com/51160). The same will likely be true of Blu-ray and HD DVD recorders, though final specs of the content protection scheme for those two formats were not available at press time.

The Vista DRM scheme puts playback decisions in the hands of content providers. But showing the content at a lower resolution is more likely than shutting it off, says Marcus Matthias, a product manager in Microsoft's Digital Media Division. "Frankly, we'd have zero interest in doing all this if it wasn't something [that content owners that Microsoft partners with] were interested in having," he admits.

Although HDTVs sold today typically support digital copy protection via their HDMI ports, many older models do not. According to Rhoda Alexander, director of monitor research for market research firm iSuppli in San Jose, California, the percentage of HDCP-compatible computer monitors was "in the low single digits" when she surveyed the market in 2005.

HDCP will make it more difficult for consumers to share HD content—and will keep them from making legal "fair use" copies—by preventing the capture of HD programs by unlicensed devices. But like most DRM schemes, it's unlikely to stop determined pirates. In 2001 researchers

DIGITAL MEDIA FAQ

VIDEO

Beware of viewing and recording pitfalls as you navigate the digital video waters.

My DVR has "flagged" a program I recorded and will delete it in a week. Is it still possible to keep a copy?

Nope. If content owners use Macrovision's copy protection to flag a program, you can't burn a copy of that show to any other storage medium. But this affects only a small number of pay-per-view and video-on-demand programs, and it applies only to TiVo subscribers—so far. Other video recorders or TV service providers may have different rules; for example, the Dish satellite network lets you record pay-per-view programs but not its Dish on Demand movies.



I'm in the market for a new high-def display. Should I wait until the DRM dust settles before I buy?

Not necessarily. Virtually all new HDTVs have an HDCP-compatible digital interface, which is the one new HD players will use. More and more PC monitors do, too; look for the term "HDCP-HDMI" in the product description as you shop.

at Carnegie Mellon University uncovered several flaws in the scheme, long before it was developed for commercial purposes. German electronics company Spatz is already selling devices that it claims convert HDCP signals for non-HDCP displays.

Olin Sibert, a longtime DRM developer, believes that Vista's DRM, while technologically impressive, is unlikely to be effective in the long run. "Content that can be experienced can also be copied. You can place obstacles in the way, but you can't ensure content will never be copied."

PLAYING FAIR

ONLY THE MOST rabid BitTorrent users would want to live in a world where copyrights don't exist, but nobody wants one side to call all the shots either.

"Hollywood is speaking with one voice, holding the reins on the one thing everyone needs: content," says EFF's von Lohman. "In that kind of environment, consumers are going to get screwed."

But Microsoft's Matthias says that it's in everyone's best interest to find solutions that media firms and users can live with.

"At the end of the day, if consumers don't see a value proposition for next-generation content, there are a lot of very big companies who've made some very big bets that aren't going to pan out," he notes.

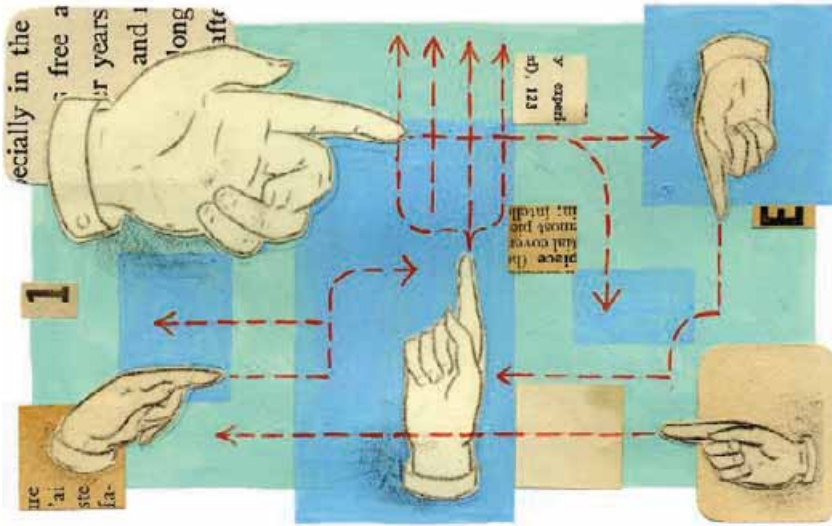
As happened with the backlash against Sony BMG's copy protection technology, users must reject bad DRM schemes—not because they violate computer security, but because they punish the people who actually paid for the digital content, say consumer advocates.

"One approach [to piracy] is to make it as hard as possible to create and share illegal copies of digital content," writes Navio's Roever in his corporate blog. "Another is to make it as attractive and easy as possible to buy digital content. The more successful the industry becomes at achieving the latter, the less it will need to rely on the former." ■

Contributing Editor Dan Tynan writes PC World's monthly Gadget Freak column (find.pcworld.com/51156). He is also the author of Computer Privacy Annoyances, from O'Reilly Media (find.pcworld.com/50566).

HERE'S HOW

EDITED BY ERIC DAHL AND DENNIS O'REILLY



INTERNET TIPS

SCOTT SPANBAUER

Thirteen Simple Ways to Bring Order to Your Inbox

WHETHER YOU'RE A grizzled e-mail vet or you just got your first account, these 13 tips for Microsoft Outlook 2003, Outlook Express 6, and Mozilla Thunderbird 1.5 will help you make the most of the medium. (Note that many of the tips will also work in older versions of the programs.)

1. Manage multiple accounts: I check more than a half dozen e-mail accounts regularly, and I don't like opening them one at a time. Fortunately, most mail programs accommodate several accounts handily.

To add an account in Outlook, choose *Tools•E-mail Accounts*, select *Add a new e-mail account*, and click *Next*. Choose the type of incoming-mail server (POP3 is most common), click *Next*, and then enter the account name and the incoming and outgoing server addresses (your ISP sent you this information when you signed up for the account). Click *Next* and *Finish*.

In Outlook Express, click *Tools•Accounts•Add•Mail*, enter the e-mail address, click *Next*, add the server addresses, click *Next*

again, and finally add your account name and password. Click *Next•Finish•Close*.

In Thunderbird, choose *Tools•Account Settings•Add Account•Email account•Next*. Enter your name and e-mail address, click *Next*, select the type of incoming server, enter the incoming server address, click *Next*, add the user name, click *Next*, type the account name, click *Next* one more time, and finally click *Finish*.

2. Keep your inboxes synced: Most e-mail programs automatically delete messages from the mail server after you download them to your PC. This means you don't see all of your old messages together if you use several different systems to check for mail. To keep your inbox reasonably synchronized, set the mail program on each PC you use to leave messages on the server, so the next machine you use sees the messages as new and unread.

To do this in Outlook, select *Tools•E-mail Accounts*, click *Next* to modify an existing account, choose the account in the E-mail Accounts list, and select *Change*. Click *More Settings•Advanced*, and check *Leave a copy of messages on the server* (you may also want to check *Remove from server when deleted from 'Deleted Items'*). Click *OK•Next•Finish* to complete the process.

In OE, choose *Tools•Accounts*, select the account under the Mail tab, and click *Properties•Advanced*. Check *Leave a copy of messages on server* (and maybe *Remove from server when deleted from 'Deleted Items'* as well), and click *OK•Close*.

In Thunderbird, choose *Tools•Account Settings*, select *Server Settings* under the account you want to modify, check *Leave messages on server* (and *Until I delete or move them from Inbox* if you wish), and click *OK*.

3. Work faster with shortcuts: Save time by keeping your hands on the keyboard

128 INTERNET TIPS

Take charge of your inbox by simplifying your e-mail management tasks in Outlook, OE, Thunderbird, and Gmail.

132 WINDOWS TIPS

The fastest routes to your Desktop items; restore missing Desktop icons; put info in your programs' title bars.

138 HARDWARE TIPS

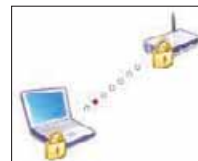
Save money by keeping your inkjet printer in tip-top shape; fix a balky wireless keyboard; iPod voice recorder.

139 ANSWER LINE

Schedule your PC to start on its own; a freebie gauges system performance; retrieve your Windows Product Key.

140 WIRELESS TIPS

Improve your wireless network's security by updating to WPA2; utilities that make pre-WPA2 networks safer.



140



FIGURE 1: TEACH OUTLOOK HOW TO Gmail with this free setup utility for older versions of Outlook and OE.

rather than on your mouse. To retrieve new messages in Outlook and Outlook Express, press **<Ctrl>-M**; to do the same in Thunderbird, press **<Ctrl>-<Shift>-T**. Start a new message in all three apps by pressing **<Ctrl>-N**, and send a message by entering **<Alt>-S** in Outlook and Outlook Express, or **<Ctrl>-<Enter>** in Thunderbird. To open a message, use the cursor keys to scroll to it, and press **<Enter>**. Close a message window by tapping the **<Esc>** key.

4. Send a Web page: If you'd like to share a Web page, you can paste the page's URL into the body of a message and instruct the recipient to follow the link. However, it's just as simple to send someone the entire page as an e-mail attachment. If you use Outlook, enable HTML mail: Select **Tools>Options>Mail Format**, choose **HTML** in the 'Compose in this message format' list, and click **OK**.

Browse to the page in Internet Explorer and select **File>Send>Page by E-mail**. A new message will open in Outlook, with the page pasted in the body of the message and the subject reading 'Emailing: the page URL'. Enter the recipient's address and then press **<Alt>-S**. The Web page will dis-

play correctly in Outlook, but not in other e-mail apps.

To e-mail a Web page in Outlook Express, click **Message>New Message Using>Web Page**. Enter the page's URL, and then press **<Enter>**. The page (or at least a close approximation of it) will be pasted into the message. Enter the recipient's address, add a subject line, and press **<Alt>-S**.

In Thunderbird, type **<Ctrl>-N**, choose **File>Attach>Web Page**, enter the Web page's URL, and then press **<Enter>**. The page will be attached to the e-mail message as an HTML file.

5. Change your outgoing mail server: If your current outgoing SMTP server does not work in a particular situation (such as from your office network), replace it with another. (Of course, this tip assumes that you have multiple e-mail accounts.)

To change your SMTP server in Outlook, choose **Tools>E-mail Accounts**, make sure 'View or change existing e-mail accounts' is checked, click **Next**, select an

account, click **Change**, and enter the new server name in the 'Outgoing mail server (SMTP)' field. If the server requires a password, click **More Settings**, choose the **Outgoing Server tab**, check **My outgoing server (SMTP) requires authentication**, choose **Log on using**, enter your user name and password, and click **OK>Next>Finish**.

In Outlook Express, click **Tools>Accounts>Mail**, pick an account, select **Properties>Servers**, and enter the server address in the 'Outgoing mail (SMTP)' field. If your server needs a password, check **My server requires authentication**, click **Settings**, enter the password, click **OK** twice, and **Close**.

In Thunderbird, choose **Tools>Account Settings>Outgoing Server>Add**. Enter a description, the server name, and your user name. Click **OK**, and in the Account Settings dialog box, choose **Set Default** to make the new entry your default server.

6. Teach Outlook and OE to Gmail: Even though Google's Gmail service is noted for its simple interface, you may prefer to use your existing e-mail program to access your Gmail account. You can add it manually as described in the first tip, but Google's own tool for Outlook and OE is fast and simple.

Open your Gmail account, choose **Settings>Forwarding and POP**, and select one of the two 'Enable POP' settings (for all mail or only new mail). Click **Save Changes**. Browse to find.pcworld.com/50404 to download and then run the Gmail Client Configuration tool. Choose which of the two mail applications (Outlook 2002 or earlier, or Outlook Express) you want to use to send and receive ►

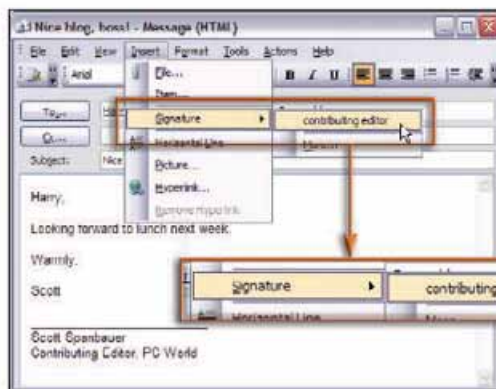


FIGURE 2: APPEND PARTICULARS to messages sent in Outlook using the e-mail program's signature tools.

Gmail messages, and click *Configure* (see **FIGURE 1**). Though this function doesn't claim to work with Outlook 2003, Outlook noticed when I added Gmail to OE and

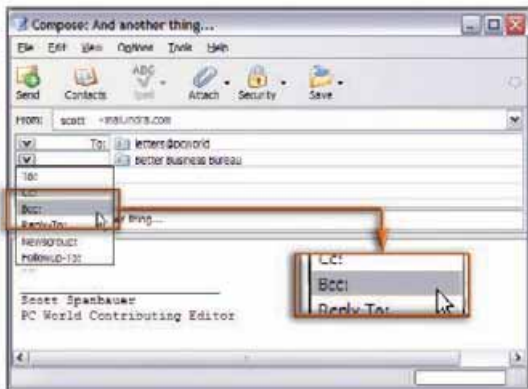


FIGURE 3: BLIND CARBON COPYING keeps recipients from seeing that the message also went out to others.

offered to import its settings. To configure other programs manually to send and receive Gmail, click the *Configuration instructions* link on Gmail's 'Forwarding and POP' settings page.

7. Know when you've got Gmail: The problem with Web-based e-mail is that you have to remember to look for it (unless, of course, you added Gmail to Outlook and OE as described above). Gmail's Notifier (find.pcworld.com/50412; in beta) alerts you when new Gmail awaits.

8. Sign on the bottom line: E-mail signatures are the extra text added automatically at the end of messages to identify the sender. They sometimes get in the way, but a brief, well-crafted sig is the perfect finish to a professional missive, especially when you're contacting someone for the first time.

To append a signature to an Outlook message, choose *Insert•Signature* and click an existing sig or choose *More* to create one on the spot (see **FIGURE 2**). In Outlook Express, create a signature (*Tools•Options•Signatures•New*), and then add it to a message by clicking *Insert•Signature*.

In Thunderbird, create the signature as a text file using Notepad. Next, open Thunderbird and choose *Tools•Account Settings*. Select your account, check *Attach this signature*, click *Choose*, browse to and select the signature file, and click OK.

Thunderbird will insert the text automatically at the end of all new messages.

9. Catch their eye (for better or worse) with stationery: I think fancy fonts and backgrounds just get in the way of the message, but e-mail with such formatting always gets my attention. To add a standout format to mail in Outlook, choose *Actions•New Mail Message Using•More Stationery*, select a message background, and click OK. In Outlook Express, choose *Message•New Message Using*, and select one of the listed stationery formats. To see several more templates, click *Select Stationery*. Choose the *Create New* button in the Select Stationery dialog box to create a custom

style using the stationery wizard. (Thunderbird lacks similar automated stationery tools, much to my relief.)

10. Feed Thunderbird some RSS: Version 1.5 of Thunderbird can track blogs, news updates, and other RSS feeds. Choose

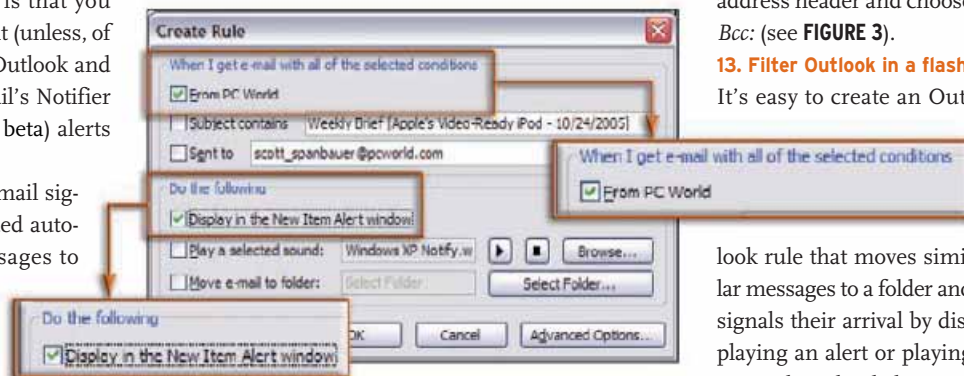


FIGURE 4: CREATE RULES IN A jiffy: Outlook lets you easily send messages meeting specific criteria to a folder, and the app can alert you to their arrival.

Tools•Account Settings, click *Add Account*, select *RSS News & Blogs*, click *Next* twice, and then *Finish*. Now you're ready to add a news feed: Select *News & Blogs* in Thunderbird's folders list in the left pane, click *Manage Subscriptions•Add*, and paste a news feed address into the Feed Properties dialog box that appears (see a list of PC World's feeds at find.pcworld.com/50422). Click OK to complete the process.

11. Add RSS to Outlook, too: Integrating RSS with e-mail is such a good idea,

Microsoft is supporting it in the Office 12 version of Outlook, due late this year. But you don't have to wait until then: Attensa for Outlook (find.pcworld.com/50424) is a free add-in that keeps Outlook up to speed on the latest RSS buzz. The preview version I tried includes RSS toolbars for Firefox and Internet Explorer, support for podcast playback in iTunes and Windows Media Player, and the ability to publish links to RSS feeds on your own blog. (Note that several other Outlook plug-ins add RSS support to the program as well.)

12. Hide your mailing list: It's handy to send e-mail to many people at once, but sometimes you don't want some or all of them to know who is getting the message. Addresses placed in the Blind Carbon Copy (Bcc) field are stripped away before the messages arrive. Outlook's Bcc option is hidden when you start a message. To use it, click the down arrow next to *Options* and select *Bcc*. In OE, create a message and then click *View•All Headers*.

In Thunderbird, simply click the down arrow next to 'To:' in the message's address header and choose *Bcc*; (see **FIGURE 3**).

13. Filter Outlook in a flash: It's easy to create an Out-

look rule that moves similar messages to a folder and signals their arrival by displaying an alert or playing a sound: Right-click a message, choose *Create Rule*, pick the criteria, and select an action (see **FIGURE 4**).

When that type of mail arrives, Outlook will shunt it or shout out, as you choose. To have Outlook remind you of an important message, right-click it, choose *Follow Up•Add Reminder*, and select a date and time in the 'Due by' menu. ■

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.

WINDOWS TIPS

SCOTT DUNN

PUT YOUR DESKTOP
ON THE MENU

ACCESS ICONS VIA
THE KEYBOARD

ADD INFO TO YOUR
APPS' TITLE BARS

The Fastest Way to Open Items on Your Desktop

A READER RESPONDED to my December 2004 column on removing junk from context menus (find.pcworld.com/50434), asking how to restore the 'Desktop (create shortcut)' option that appears under 'Send To' when he right-clicks a file. Being able to generate desktop shortcuts to any file you right-click can indeed be useful. (You can also right-click and drag the item from an Explorer or folder window onto the desktop and choose *Create Shortcuts Here*.) Fortunately this context-menu option, and similar desktop shortcuts, are easy to re-create. I'll also describe several other techniques for getting to your desktop items in a jiffy.

Restore your Desktop shortcut: To replace your context menu's Desktop shortcut option, start by opening Notepad: Choose *Start•Programs* (or *All Programs*)•*Accessories*•*Notepad*. Don't type anything in the window. Just choose *File•Save As*. Navigate to the folder that holds your Send To shortcuts. In Windows 98 and Me, look



FIGURE 1: RESTORE THE Desktop shortcut to your right-click Send To menu by adding a simple text file to your SendTo folder.

for the SendTo folder inside your C:\Windows folder. In Windows 2000 and XP, it's inside C:\Documents and Settings in a subfolder named for your own profile; for example, if your profile name is 'Phil', you'll navigate to 'C:\Documents and Settings\Phil\SendTo'. When you've selected the proper SendTo folder, type **Desktop (create shortcut).desklink** as the file name and click *Save*. Then exit Notepad. The next time you right-click any file and choose *Send To*, you should see this shortcut restored (see **FIGURE 1**).

Replace the Show Desktop icon: The Show Desktop shortcut found in the Quick Launch toolbar on the taskbar can also be easily deleted by mistake. This handy button toggles between minimizing and restoring all your open windows. Notepad can help you replace this icon, too.

Open Notepad as described above. On the first line, type **[Shell]** and press **<Enter>**. On the next, type **Command=2** and press **<Enter>**. On the third, type **IconFile=explorer.exe, 3** and press **<Enter>**. On the fourth, type **[Taskbar]** and press **<Enter>**. Type **Command=ToggleDesktop** on the last line and press **<Enter>**. When you're finished, your Notepad window will match **FIGURE 2**. Choose *File•Save As* and navigate down to Documents and Settings\All Users\Application Data\Microsoft\Internet Explorer\Quick Launch on the drive where Windows is installed (probably your C: drive). Now type **Show Desktop.scf** in the 'File name' box and click *Save*.

You don't have to put your Show Desktop icon on the Quick Launch bar. For

example, if you have a mouse that lets you launch a custom application from one of its buttons, you can program it to display your desktop at the touch of a button.

ALTERNATE DESKTOP ROUTES

YOU DON'T NEED a Show Desktop icon at all if you use your keyboard to minimize all open applications. Or maybe you don't care so much about seeing your desktop but just want a fast way (such as a menu option) to access all the items there. Here are some other favorite techniques for getting to the desktop.

Access the desktop via keyboard: Windows has two keyboard shortcuts for quickly minimizing all open windows, but contrary to popular belief, the two options are not the same. Enter **<Windows>-D** (as in "desktop") when you want to minimize *everything* on screen, even Control Panel and Properties dialog boxes; this shortcut

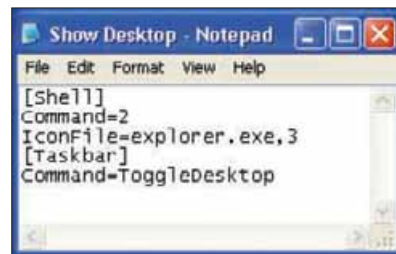


FIGURE 2: A FEW LINES OF TEXT are all that is required to return the Show Desktop icon to your system's Quick Launch toolbar.

leaves nothing but the desktop showing. Enter **<Windows>-M** (as in "minimize") to minimize normal windows, but not dialog boxes (such as the Properties dialog box for an object or certain Control Panel windows) or the application that currently has a dialog box open.

You can use **<Windows>-M** as a kind of "minimize all but one" command: Open a dialog box (such as *File•Open*) in any application, and then press **<Windows>-M** to minimize everything except that application and dialog box. There's one more difference between the two shortcuts: Like the Show Desktop icon, **<Windows>-D** serves as a toggle—press it once to minimize everything, then press it again to restore everything as it was. On the other hand, the **<Windows>-M** shortcut doesn't ►

act as a toggle—it's strictly a one-way trip. **Get there by menu:** When I'm not using the keyboard, my favorite way to access items on my desktop is by placing them in a menu that pops out of the Windows taskbar. Get the full scoop on this technique from my June 2002 *Windows Tips* column at find.pcworld.com/50436.

<Alt>-<Tab> to the desktop: If you're comfortable entering <Alt>-<Tab> to choose

among your running applications, why not use the same shortcut to get to your desktop as well? Just launch the free Tab2Desk utility to add a desktop icon to the choices of applications you can switch to when you press <Alt>-<Tab>. Release the <Alt> key at the "Minimize All Windows" icon, and—poof!—all your applications are minimized. Enter <Alt>-<Tab> again to restore your windows to the way they were (as long as you haven't restored any other windows in the meantime). Browse to find.pcworld.com/50438 to download your copy.

Make an Explorer shortcut: Maybe you'd like a shortcut that opens your desktop in a folder window. To create one, right-click the desktop or in the folder where you want to store your shortcut, and choose *New>Shortcut*. In the Create Shortcut wizard, type **explore.exe /e, /root**, (in Windows 98; be sure to include that final comma) or **explorer.exe /e,**

/select, /root, c: (in Me, 2000, and XP; see **FIGURE 3**). You can replace the 'c:\' with any valid folder path. Remove the '/e,' if you want only a folder window without the Explorer tree pane on the left. Click *Next*, type a name for the shortcut (such as **Desktop**), and click *Finish*.

UNCLUTTER YOUR DESKTOP

IF YOU PREFER TO access the desktop using either the Explorer window or pop-up menu methods described above, you may want to eliminate the clutter of icons on the desktop itself. To hide them, right-click the desktop and choose *Arrange Icons By>Show Desktop Icons* (in XP Professional) or *Active Desktop>Show Desktop Icons* (in Windows 2000). If you don't see the Show Desktop Icons option in Windows 2000's Active Desktop submenu, choose *Active Desktop>Show Web Content*; then try accessing the menu again. With desktop icons hidden, you will still be able to drag and drop shortcuts or other



FIGURE 3: SEE YOUR DESKTOP items in Windows Explorer by entering this command line as you create a new Explorer shortcut.

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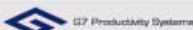
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icons to the desktop, but you won't see them there or be able to position them. Instead, you must access the shortcuts via the Desktop folder in Explorer, or through the Desktop pop-up menu.

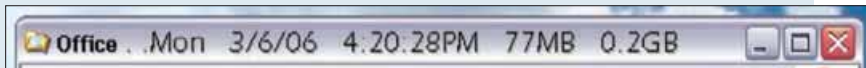
You can also hide desktop items and prevent dragging and dropping on the desktop by using the Group Policy Editor to modify the Registry: Choose *Start+Run*, type **gpedit.msc**, and press **<Enter>**. In the tree pane on the left, navigate to and select *Local Computer Policy\User Configuration\Administrative Templates\Desktop*. Double-click the entry in the right pane labeled *Hide and disable all items on the desktop* (*Hide all icons on Desktop* in 2000). Under the Setting tab (it's labeled 'Policy' in 2000), select the *Enabled* option and then click **OK**. Log off Windows and then log back on to see the effect.

In Windows XP, there's a way for you to be more selective about the icons you choose to show or hide on your desktop: Right-click the desktop, choose *Properties*,

WINDOWS TOOLBOX

Put Your Title Bar to Work With TitleBarClock Pro

PERHAPS THE MOST underutilized patch of screen real estate in Windows is the title bar that runs the length of almost every application and folder window that's open on your system. Putting that space to good use is the job of TitleBarClock Pro, a \$10 shareware program from QuickerSoft. Why would you ever want to spend money for a clock when the taskbar already has one? Because TBC Pro adds to most title bars the weekday, date, and



time (with seconds), in your choice of eight languages. The program shows your free physical RAM, and the space available on your Windows drive. You can synchronize your clock to an Internet time server, automatically maximize all open windows, and copy the date, time, and other info to the Clipboard. The tool displays a simple pop-up calendar, as well, and it even lets you shut down Windows. Turn on the program's Desktop Clock feature to see the same information on your desktop when all windows are minimized. Go to find.pcworld.com/50440 to download the trial version.

click the *Desktop* tab, and choose the *Customize Desktop* button. Select or deselect the check boxes at the top to show or hide My Documents, My Computer, My Network Places, or Internet Explorer. ■

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.

SUMMARY NOTICE OF SETTLEMENT

To: All persons or entities in the United States who purchased between January 1, 1999 through November 22, 2005 a Netgear wireless product. This Notice contains important information that may affect your legal rights. This Notice is only a summary of the detailed "Official Court Notice of Pendency and Proposed Settlement of Class Action." You may obtain the detailed Notice, which explains your rights and gives instructions on how to claim settlement benefits, from the products listed by model number on Attachment A which is on the Website. Any of the wireless products is hereinafter referred to as a "Covered Netgear Wireless Product." **Description of the Action:** In an action titled, *Zilberman v. Netgear, Inc.*, Case No. 1:04-CV-021230 (Santa Clara Superior Court), Plaintiff alleges that Netgear's advertising of the Covered Netgear Wireless Products is false and misleading. Netgear has denied and continues to deny these allegations and has asserted a number of affirmative defenses. You are a member of the Settlement Class if (1) you purchased a Covered Netgear Wireless Product at any time from January 1, 1999 through November 22, 2005, (2) you resided in the United States at the time of the purchase, (3) you purchased the Covered Netgear Wireless Product at a location within the United States, (4) you purchased the Covered Netgear Wireless Product new or refurbished (i.e., not second hand) from an entity that regularly sells/sold such devices or items, and (5) you did not purchase the Covered Netgear Wireless Product for resale to others. **Description of Settlement:** If the court approves the settlement, each member of the Settlement Class is eligible to purchase a new Netgear wireless product from Netgear's online store at a 15% discount. To be eligible, you must visit the Website, and follow the instructions for making a claim. If the claim is timely and valid, you will be sent via e-mail a Promotional Code that will allow you to receive the 15% discount at the point of sale once the settlement becomes final in the courts. See the Notice on the Website for information about other terms of the Settlement (also on file with the court for your review), such as the claim and Redemption Periods, charitable donation, changes to product packaging, and advertising, and attorneys' fees and costs. **Requests for Exclusions and Objections:** If you fit within the definition of the Settlement Class and you agree with the settlement, you need do nothing at all to indicate your consent. **You will be a member of the Settlement Class and will be deemed to have agreed to the terms of the settlement, including the terms of the waiver and release of claims.** See the detailed Notice on the Website for further information. Any requests for exclusion from the settlement must be sent by mail to: Class Counsel, Weiss & Lurie, Jordan L. Lurie, 10940 Wilshire Blvd., 23rd Floor, Los Angeles, CA 90024, Tel: (800) 437-7918 or (310) 208-2800 and **postmarked no later than March 6, 2006.** The procedures, rights, and effects of requesting an exclusion are explained in the detailed Notice on the Website. Any objections to the settlement must be in writing and mailed or hand-delivered to the Clerk of the Court, Superior Court of California, County of Santa Clara, Old Courthouse, 191 N. First Street, San Jose, California, 95113, must identify the case as *Zilberman v. Netgear, Inc.*, Case No. 1:04-CV-021230 (Santa Clara Superior Court), and **must be received by the Court no later than March 6, 2006.** You must also mail copies of your written objections to the counsel listed above, **postmarked no later than March 6, 2006.** The procedure for making an objection is explained in the detailed Notice. **Hearing:** A hearing will be held before the Honorable Jack Komar, Superior Court of California for the County of San Francisco, located at 161 N. First Street, Dept. 17C, San Jose, CA, on March 21, 2006 at 9:00am. The purpose of the hearing is for the judge to decide, among other things, (1) whether the proposed settlement is fair, reasonable and adequate, (2) whether the Settlement Class should be certified, (3) whether the Court should enter the proposed final judgment, and (4) whether the application of Class Counsel for an award of attorneys' fees and expenses should be granted. **PLEASE DO NOT CONTACT THE COURT OR THE CLERK'S OFFICE FOR INFORMATION.**
Dated: December 28, 2005
/s/ Honorable Jack Komar
Honorable Jack Komar
Santa Clara County Superior Court

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HARDWARE TIPS

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TOO OFTEN AN inexpensive inkjet printer ends up costing you a fortune. Here's how to control your inkjet costs.

Practice good housekeeping: Keeping your printer's mechanisms clean will ensure that the device runs at its best. An occasional blast from a \$7 can of compressed air (available at electronics stores) will keep dust and bits of paper from clogging the paper path and other moving parts.

Ensure that the small ink nozzles on your printheads are clear of dried ink. The most common cause of clogs is underuse, so print a page once a week to keep the nozzles clean. Many inkjet printers have a cleaning program in their settings that can handle partially clogged nozzles. Unfortunately these programs are ink profligates, so use them judiciously. If running the program once doesn't help, print another page to eliminate excess ink before you run the program again. (Note that many inkjets automatically clear the nozzles when you turn the machines on.)

Use less ink: Cut down on the ink your printer deposits on the page by lowering

its quality setting. Some printers have an external print-quality control, but you can also right-click the printer's entry under 'Printers and Faxes' in Control Panel, and look for a 'Print Quality' setting. If you have a color inkjet but print mostly in black, disable the device's color-printing setting; on some models, this not only saves ink but also speeds up printing.

To avoid having to change your print quality—or any other setting—each time you print, create an additional printer installation for each. For example, make one labeled "Draft" for low-resolution printing, and another named "Final" for printing at the highest quality. Browse to find.pcworld.com/51210 to read Scott Dunn's tips in his *Windows Tips* column from October 2002.

Dan Littman's "Slash Ink Jet Printing Costs" in the August 2002 issue (find.pcworld.com/50454) evaluates Strydent Software's \$35 InkSaver utility and offers insights into calculating the real cost per printed page for your printer.

Almost never pay retail: Third-party replacement ink cartridges from such online retailers as PrintPal (www.printpal.com) and Carrot Ink (www.carrotink.com) can cost less than half the price of the manufacturer's ink cartridges. However, these savings aren't without risk. *PC World* tests of third-party inks revealed problems with quality—especially the ink's longevity—as well as with clogged print nozzles. The bottom line: If you require consistently high-quality, high-

resolution output for presentation graphics or photographs, stick with the manufacturer's cartridges; but if you print lots of draft documents and low-resolution images, third-party cartridges may be worth the potential hassles. For more on our inkjet ink tests, go to find.pcworld.com/50450 to read "Cheap Ink Probed" from the September 2003 issue.

WIRELESS WOES



MY WIRELESS keyboard suddenly stops working, often at critical moments. Any idea how to remedy this? Also, is there any way to bypass the keyboard on my Windows XP system and enter keystrokes using my mouse in a pinch?

Robert Albert, Alexandria, Virginia

FIRST, CHECK THE connection between the Bluetooth or RF transceiver and your PC; if it's working, move the transceiver so it's closer to the keyboard. Next, spin the batteries inside the keyboard or mouse—this can squeeze more juice out of a low



FIGURE 1: BYPASS YOUR KEYBOARD and enter keystrokes with your mouse via the On-Screen Keyboard in XP and 2000.

power cell. Replace the batteries if necessary. Finally, remove or temporarily turn off nearby devices that may be causing electrical interference, including microwave ovens, portable phones, and even some flat-panel displays. To bypass the keyboard in Windows XP and 2000, use the On-Screen Keyboard. Click *Start•Programs* (or *All Programs*)•*Accessories*•*Accessibility*•*On-Screen Keyboard* (see FIGURE 1). ■

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 Quick-Steps* from McGraw-Hill/Osborne Press.

DON'T MISS A WORD

"NOTE TO SELF: Get voice recorder for making notes to self." Ever wish you could record all your deep thoughts and daily reminders without having to lug around yet another electronic gizmo? If you have an iPod, you can. Belkin's \$50 Voice Recorder for iPod (find.pcworld.com/50462) plugs into the top of any 3G or 4G iPod model and automatically turns it into a voice recorder. A new version for the 5G iPod should be available by the time you read this.

ANSWER LINE

LINCOLN SPECTOR

Schedule Your System to Start Automatically

? I'M AWARE OF a lot of programs that can automatically turn a PC off at a preset time. Are there any that will turn one on automatically?

William Lee, Clinton, Utah

YOUR PC'S SETUP program may let you schedule a boot. To find out, start your computer and watch the screen. Before Windows loads, a message will tell you the key to press to enter Setup.



FIGURE 1: SEE WHAT YOUR PC's resources are up to with the free TinyResMeter utility.

Once the program has loaded, search its menus for an autostart option.

Windows' Scheduled Tasks tool can set a wake-up call for your system, but only if you hibernate your PC or put it in standby mode rather than closing Windows and shutting off the machine. (Placing your system in hibernation saves about as much energy as turning it off.) For more on hibernation, browse to find.pcworld.com/50464 to read "Enable Hibernation" from my November 2002 column.

Scheduled Tasks requires that you use a log-on password in XP; see "Schedule

Tasks in XP" from my January 2003 column at find.pcworld.com/50466.

To wake your system from standby or hibernation at a set time, click *Start•Programs* (All Programs in XP)•*Accessories•System Tools•Scheduled Tasks*. Double-click the *Add Scheduled Task* icon to launch the Scheduled Task Wizard, and click *Next*.

Select a program you'd like to run when your system wakes up, and schedule the task. On the wizard's last page, check *Open advanced properties for this task* when I click *Finish* before clicking *Finish*. In the resulting Properties dialog box, click the *Settings* tab, check *Wake the computer to run this task*, and click *OK*.

Now you simply have to make sure you hibernate your PC, rather than shutting it off, when you're ready to call it a day.

To schedule a task that will wake your PC from hibernation and then reboot it, download the reboot batch file for Windows XP (find.pcworld.com/50470) or 98/Me (find.pcworld.com/50468) and save it on your desktop or in another convenient location. (The Firefox browser doesn't accommodate batch-file downloads, so you will have to use Internet Explorer to get your copy.) Note that Windows 2000 lacks the ability to reboot from a batch file.

Follow the instructions above for creating a wake-up scheduled task. When the wizard asks you to select a program, click *Browse* and choose the downloaded batch file. Make sure that you close all programs before hibernating your PC if you plan to restart it using this batch file.

If you are working at the scheduled

restart time, you have 30 seconds to abort the reboot. Go to the white-text-on-black Command Prompt window and press **N** (in Windows 98 or Me) or any key (in XP).

GOOD GAUGES

? I FORMERLY USED Symantec's Norton SystemWorks and enjoyed the System Doctor's gauges that kept me apprised of system memory and hard-drive space. Is there a cheaper and simpler way of seeing this information?

Name withheld by request

THE METERING PROGRAM that I like best is PE Soft's free TinyResMeter (find.pcworld.com/50472), which is extremely simple to operate—just right-click the tool's icon in the taskbar to select the statistics you want to show. The basic bar graphs aren't as pretty as System Doctor's gauge-and-graph approach, but they tell you what you need to know. Choose from a range of statistics that includes CPU speed, processes, RAM, and local drives (see **FIGURE 1**). You can make the display transparent so you can see what's underneath, and set it to disappear when you move the mouse pointer over it. ■

Send your questions to answer@pcworld.com. We pay \$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.thelinkspector.com.

EASY PRODUCT KEY DISPLAY

LAST NOVEMBER (find.pcworld.com/50474), I told you to keep your Windows Product Key handy. Ty Davis of Edgewood, Rhode Island, notes an easy way to unearth it using the free Keyfinder program (find.pcworld.com/50476) from Magical Jelly Bean Software. (Browse to find.pcworld.com/50580 for more on Keyfinder from last October's issue.) Run the program, and it returns your product key. Because this utility can be used for unwholesome purposes, your antivirus or antispyware program may prevent it from running. Disable your protection, run the program, note your product key, and then reactivate your security tools.

WIRELESS TIPS

ANDREW BRANDT

Your Wireless Network Needs a Security Update

DO YOU THINK your wireless network is secure? Better think again. The newest Wi-Fi security standard, called Wireless Protected Access 2, adds professional-grade encryption—but even though the standard has been around for more than a year, most people still aren't using it.

WPA2 security is definitely worth the

your network, you must download and install Microsoft's WPA2 hotfix for Windows XP (KB893357; find.pcworld.com/50446). You may also need to install the latest drivers for your wireless card. Microsoft's Windows Update page often lists these updates under its 'Hardware, Optional' category; you can also check for

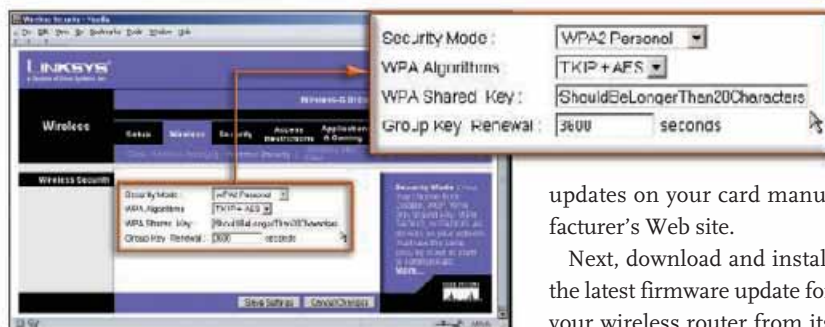


FIGURE 1: SET YOUR NETWORK to Wireless Protected Access 2 via the security options for your gateway.

modest amount of effort required to set it up. The original WPA security standard can be cracked with relative ease unless you use a passphrase that is longer than 20 characters and is not merely composed of words that can be found in a dictionary (English or otherwise).

And while WPA's predecessor, Wired Equivalent Privacy, is still around, relying on it is only marginally safer than having no network protection at all. WEP can be cracked in seconds, no matter how complex a "key" you contrive for it. If your primary security concern is to prevent neighbors and passersby from siphoning your network's bandwidth, WEP will suffice; if you're serious about keeping your data private, however, you need WPA2.

Before you can add WPA2 protection to

updates on your card manufacturer's Web site.

Next, download and install the latest firmware update for your wireless router from its manufacturer's Web site. (Go to find.pcworld.com/50448 for a list of products that support WPA2.)

If your router has gotten too old to support an upgrade to WPA2 or even to the original WPA standard, replace it; new ones cost as little as \$35.

With your equipment fully patched, log in to your router's administration page

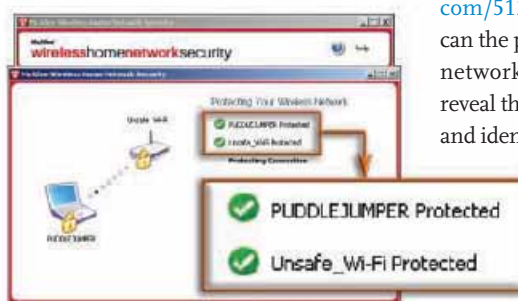


FIGURE 2: KEEP YOUR WIRELESS network connection safe by using McAfee's \$80 Wireless Home Network Security program.

through your Web browser (check the manual for the exact steps), and change the security settings to WPA2 Personal: Choose *TKIP+AES* as the WPA algorithm to use, and enter your passphrase in the field labeled WPA Shared Key (see **FIGURE 1**) and in the passphrase confirmation field below it. Your phrase can consist of any combination of letters and numbers, up to 63 characters in length. Save your changes, and the router setup is done.

The next time you log on to your newly WPA2-protected gateway, your system will prompt you for your WPA Shared Key passphrase. Type the WPA2 passphrase into the appropriate fields in the Wireless Network Connection dialog box.

AUTOMATED WI-FI SECURITY

EVEN THOUGH Windows 2000 and earlier versions don't support WPA2 network security, you can still have a secure wireless network under older Windows releases, with the help of the right tools.

McAfee's \$80 Wireless Home Network Security software can configure the Wi-Fi security settings for many different wireless gateways and for up to three networked PCs (see **FIGURE 2**). The company maintains a list of the devices the program works with at www.mcafee.com/router. Though the software can't handle WPA2 yet, it does address one of WPA's weaknesses: the protocol's use of a static key, which makes it easier to crack. The program automatically generates, and then rotates through, new keys on any PC on the network, and on the gateway itself.

One way to check the security of your wireless network is with Marius Milner's Netstumbler utility (go to find.pcworld.com/51212 for the download). Not only can the program help you determine your network's vulnerability, but it can also reveal the sources of network interference and identify areas of weak signal strength.

Netstumbler is free to use, but the author requests that you make a donation of \$50 (which he refers to as "beggarware") if you like it. ■

Senior Associate Editor Andrew Brandt writes the Privacy Watch column.



Digital Media: Quality Isn't Job One

THE OLD PROGRAMMER'S JOKE ASKS, "Do you want your software good, fast, or cheap? Pick any two!" But increasingly my video and audio purist friends have been preoccupied with a simpler question: "Do you want your digital entertainment good or in your pocket? Pick any one!"

At the "good" end of the spectrum—your home theater or living room—high-def displays keep getting better, DVDs look pretty darned impressive, and HD video discs will come soon. Multichannel audio DVDs and Super Audio CDs sound spectacular on high-end setups.

But my purist friends point out that multichannel audio hasn't caught on, and they look askance at the world of portable devices like iPods and cell phones, where compressed audio and fuzzy video are the norm. They see a form of Gresham's law at work, with bad-quality media driving out any hope for something better.

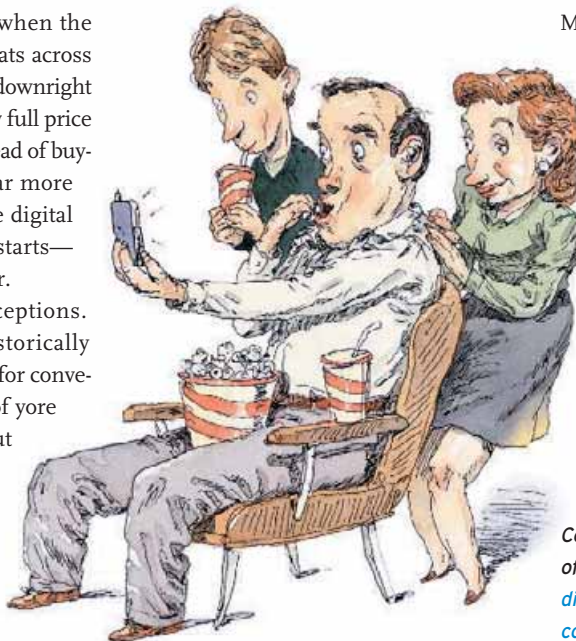
As a viewer who goes nuts when the most fleeting digital artifact floats across the screen, I feel their pain. It's downright weird when people willingly pay full price for compressed digital files instead of buying a better-quality CD with far more playing flexibility. Even so, the digital world is moving—in fits and starts—toward higher quality, not lower.

Yes, there are plenty of exceptions. Again and again, we have historically been willing to sacrifice quality for convenience. The big console radio of yore may not have sounded great, but nobody minded taking an even tinier transistor portable along to a ball game or a picnic. Pre-recorded cassettes sounded wildly inferior to vinyl discs, but at least the tapes could

go along with you on your morning jog.

Initially CDs were touted for their sound quality—at a minimum, they abolished the scratches, pops, and ticks we all got used to with vinyl—but what sold them was the combination of that quality with portability. TV shows played on a VCR were obviously inferior to broadcasts, but time-shifting turned out to be a killer app.

When entertainment goes portable, it may lose a little something.



Saving money is another reason we'll compromise quality. Voice-over-Internet-Protocol phone calls may not sound quite as good as those made on dedicated telco lines, but the price makes the trade-off attractive. And when you're trafficking in free stolen tunes or movies copied illicitly in a theater, you get what you get.

Still, improvement is the trend. Even though they're heavily compressed, satellite and local digital radio sound better than their analog AM and FM counterparts. The total pixel count of the video-capable iPod's color screen may be minuscule, but the dots-per-inch count is higher than what's on most standard TVs.

And just as digital cameras and inkjet printers have improved radically over the years, the same is happening with music. If you're willing to give up the space, you can buy losslessly compressed tunes from MusicGiants (www.musicgiants.com) or rip your CDs the same way. Improved compression methods and greater bandwidth and storage are already bringing us better video-on-the-go.

So I suspect any quality decline is temporary. Just as the film industry wants to sell us high-definition versions of the movies we already have, the record business will one day want to take advantage of our multichannel home theaters.

When it comes to digital media quality, it's Moore's law, not Gresham's, that matters in the long run. ■

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



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