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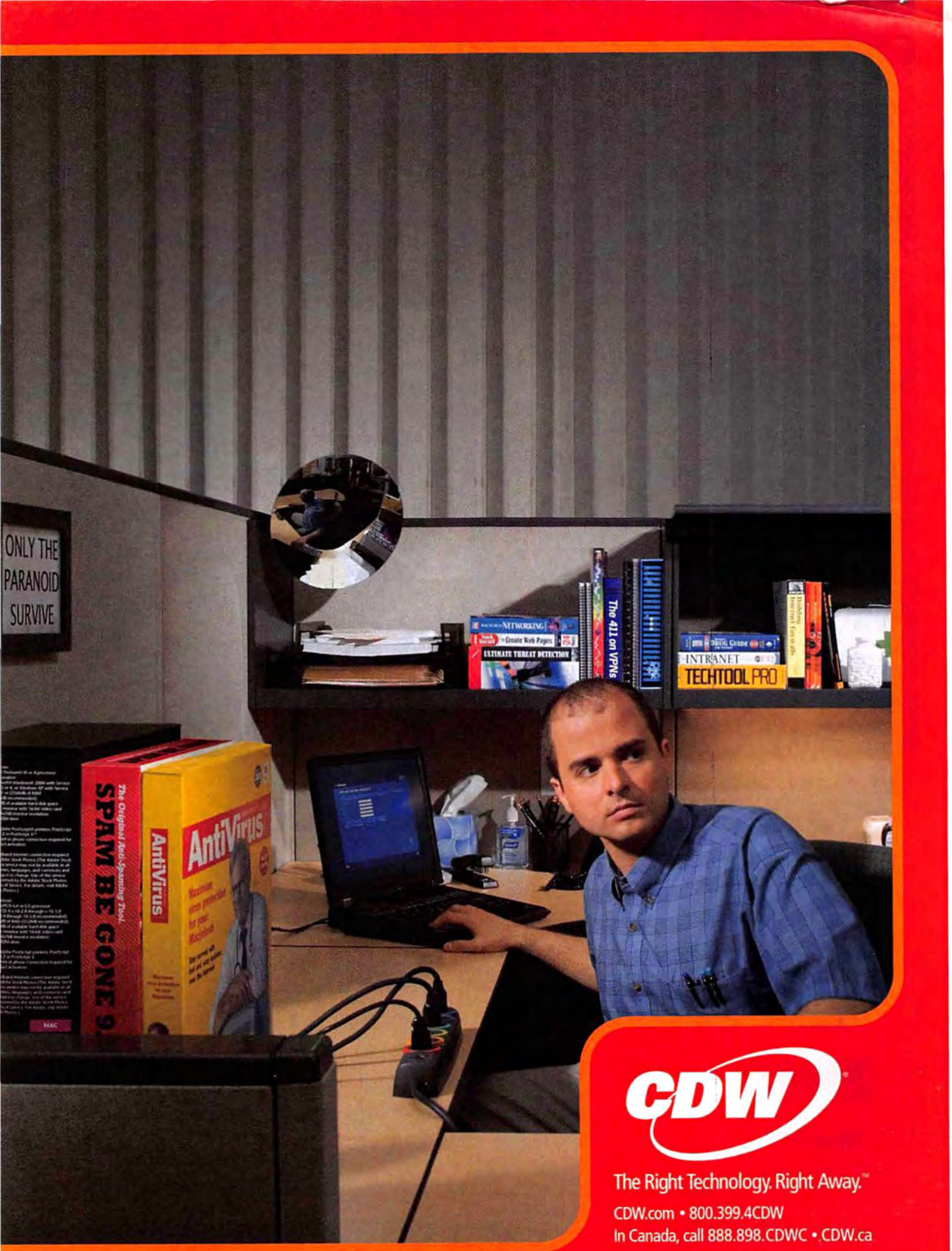

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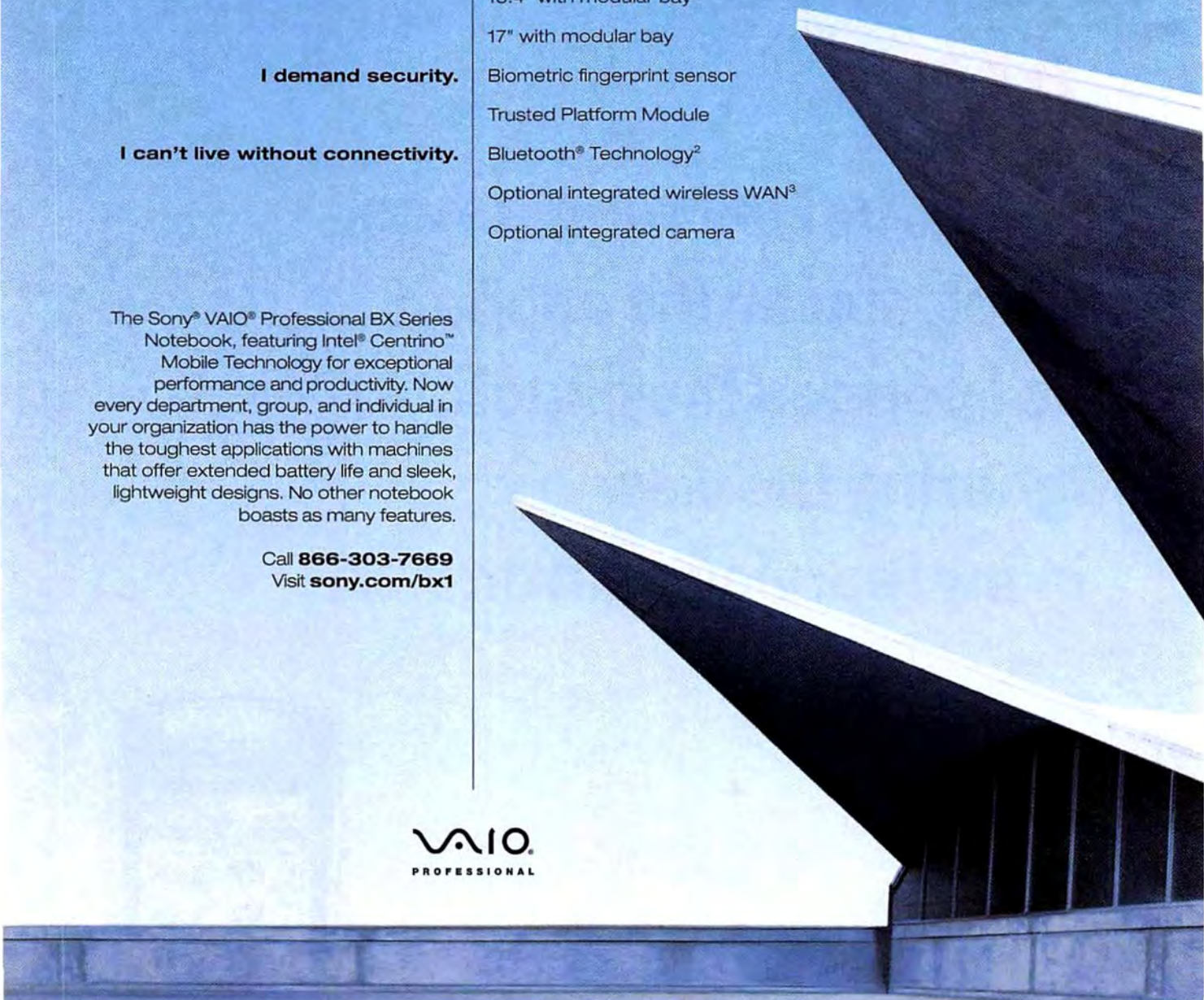

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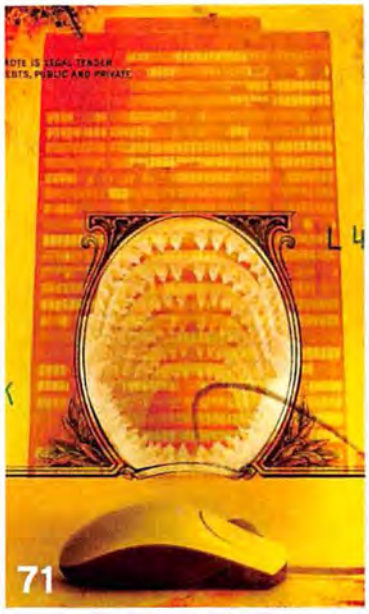

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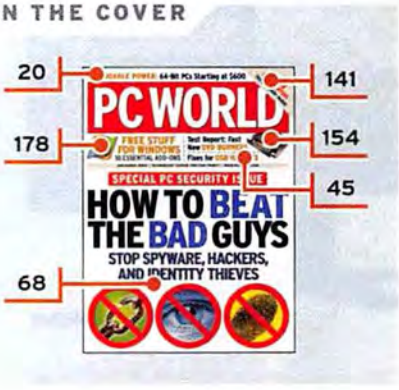
The Internet today is as dangerous as it is essential. Familiar problems like viruses and spam share a rogues' gallery with identity thieves, spyware and adware, and phishing and other e-mail scams. In this special issue, *PC World* offers an in-depth look at the threats that malware and online criminals pose to your security—and the countermeasures you can take.

Cover graphics by Greg Silva.

ON THE COVER



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COMING UP IN DECEMBER

What's Hot for 2006: A guide to products, trends, and technologies that will matter in the coming year.
Software Alternatives: Find out when to stick with the champ and when to opt for the challenger.
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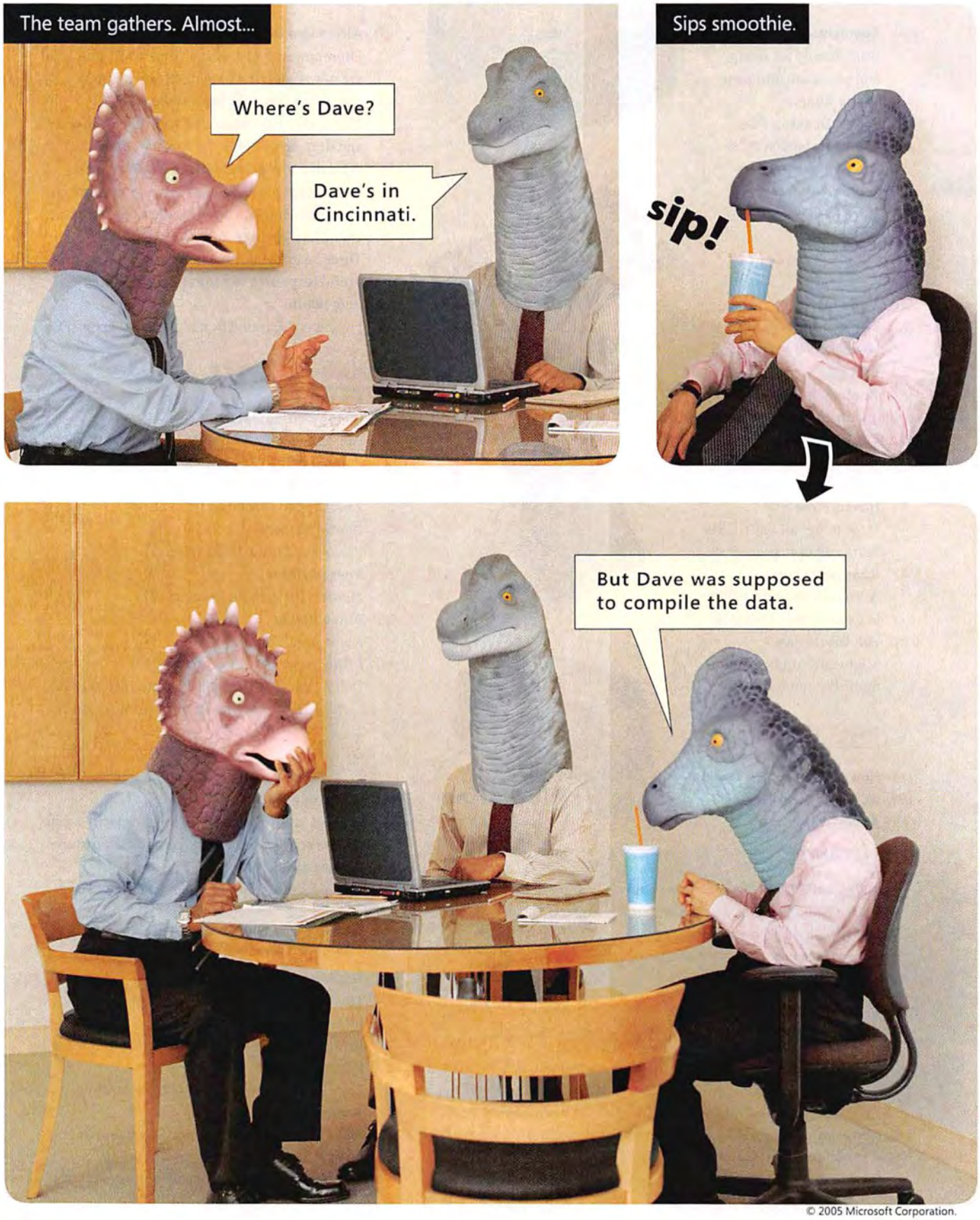

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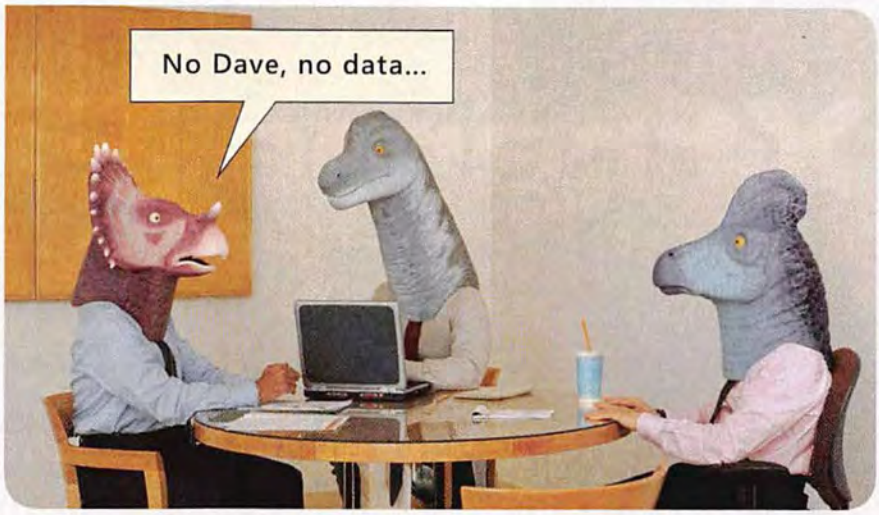

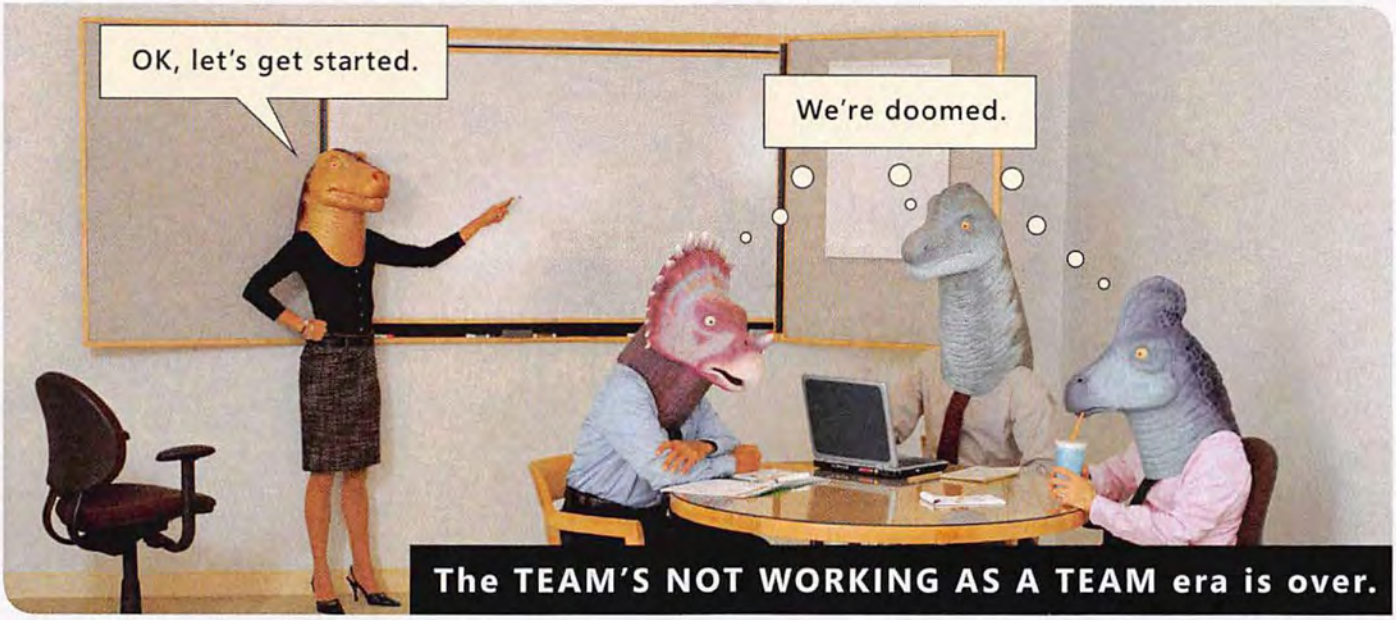

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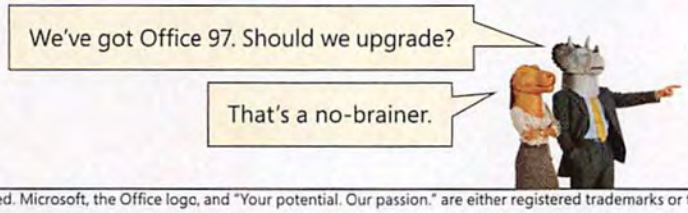

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So it would go in the real world. Then there's the online realm, where PC break-ins are not only maddening, but maddeningly mundane: All connected Windows computers endure ongoing attack from an array of Internet intruders. Each time an old enemy starts to wane, a new one pops up to take its place. And behind the threats is a nebulous malware economy that gives bad actors every incentive to ply their trade.

A crisis this vast demands a big response. Which is why we've devoted this issue's entire feature section to "The New Security War," a special report spearheaded by Senior Editor Anush Yegyazarian. Our package unblinkingly explores multiple facets of the situation, from illicit adware to identity theft to the future of cybercrime.

Just as important, it provides plenty of strategies for fighting back. "For every problem, there's something you can do," says Anush. "Whether it's running the right software to protect your PC, or just remembering to use lots of plain old skepticism in your everyday life online."

SENATORS VS. SPIES

"SPYWARE IS essentially wreaking havoc... Turn on your computer, and the avalanche begins!" Those could be the words of any harried PC user, but the speaker happens to be in a position to do something: U.S. Senator Ron Wyden (D-Oregon).

With Barbara Boxer (D-California) and Conrad Burns (R-Montana), Wyden is cosponsoring a bill—one of several proposed laws—that aims to stem the spyware tide. The Software Principles Yielding Better Levels of Computer Knowledge Act (SPY BLOCK) would move against multiple standard malware techniques, including covert monitoring of user activity, "drive-by" software installations, and tricks to evade uninstalls.

Like PC users, legitimate software merchants suffer from spyware's pervasiveness. For one thing, their tech support departments often have to clean up the mess. But the industry hasn't exactly rallied behind anti-spyware legislation. True, its representatives decry electronic spying. But beyond that, they tend to hem and haw, fretting that new laws may stifle innovation or impose unreasonable demands on honest companies.

In March 2004, Robert Holleyman, president of the Business Software Alliance—a group that includes most of the major software companies—testified before a Senate subcommittee that was considering SPY BLOCK. Holleyman argued that the bill's limits on unauthorized installs amounted to banning technology rather than banning bad behavior. He urged that SPY BLOCK focus solely on information theft.

Today's security battle, however, isn't solely about the pilfering of data. Consider botnets—secret networks that turn unwitting users' systems into zombies for such nefarious purposes as spam distribution. That's theft of computing cycles, not information. But it's theft nonetheless.

Ultimately, taking time to get anti-spyware legislation right is vital, and any law must be designed to combat both today's menaces and those of tomorrow. "The technology industry has a valid point, that Congress always fights yesterday's problems," concedes Senator Wyden, who is working on revising SPY BLOCK. Skeptical feedback helps, he says: "We're pushing this rock up the hill."

There may be no simple solutions here, but one thing should be beyond debate. The people who get to determine what software runs on PCs should be the people who own those PCs. After all, they're our machines. And technology companies that want to earn our business should make clear—in both words and deeds—that when it comes to the security war, they're on our side. ■

Contact PC World *Editor in Chief Harry McCracken at mageditor@pcworld.com; read his blog at blog.pcworld.com/techlog.*

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What's new and what's next in technology

NEWS & TRENDS

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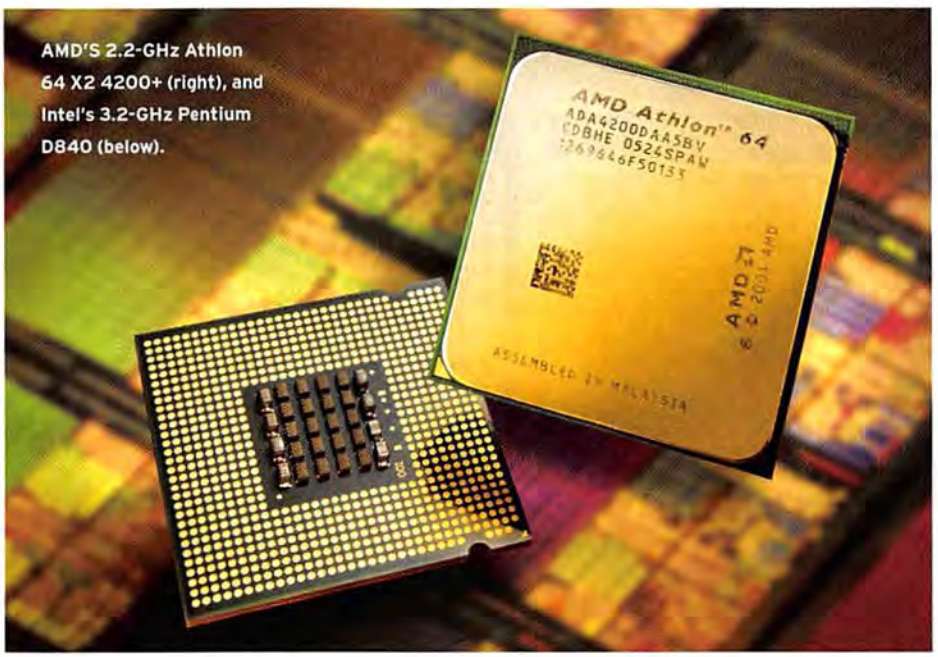
Affordable Dual-Core

AMD COMES OUT AHEAD IN OUR FIRST LAB TESTS OF MAINSTREAM DUAL-CORE SYSTEMS. PLUS: HANDS-ON WITH THE NEW 64-BIT CELERON AND SEMPRON CHIPS. BY KIRK STEERS

HAVE YOU BEEN lusting after a dual-core processor but are unwilling to pay the premium price? Your wait may be over. New dual-core CPUs from AMD and Intel are showing up in desktop systems priced around $1500, within the budget of mainstream computer users. Our first tests of such systems indicate that dual-core chips provide good value.

If you wanted to own one of the first dual-core systems to hit the market, you had to pay the typical cutting-edge premium: Intel's first dual-core chip, the 3.2-GHz Pentium Extreme Edition 840, initially sold for $1100. Now the company's cheapest dual-core processor, the 2.8-GHz Pentium D 820, is about $250 online.

When AMD launched its dual-core chips in August, it also targeted the high end, with its 2.4-GHz Athlon 64 X2 4800+ processor. That chip still sells for almost $900. Now AMD is offering several more-affordable dual-core chips, including the Athlon 64 X2 3800+, which currently goes for as little as $359 online.



AMD'S 2.2-GHz Athlon 64 X2 4200+ (right), and Intel's 3.2-GHz Pentium D840 (below).

To rate the performance of affordable dual-core CPUs, we ordered two nearly identical computers from HP and ran them both through *PC World*'s WorldBench 5 applications benchmark, as well as through our desktop graphics tests.

On our WorldBench 5 test, the AMD-based Pavilion outperformed the Intel-equipped

PHOTOGRAPH: MARC SIMON

system by 10 percent, with a score of 100 to the other's 91.

The results were similar on our graphics test, which tracks frame rates while running the games Return to Castle Wolfenstein and Unreal Tournament at several resolutions. The AMD-equipped Pavilion bested the Intel-based system 201 frames per second to 183 fps, a 10 percent difference.

The two computers were built around the same basic components, including 1GB of RAM, a 400GB hard disk, and an nVidia GeForce 6800 graphics card. The only differences involved the processor, the motherboard, and the RAM type. The AMD-based system we used, a Pavilion d4100e, incorporated a 2.2-GHz Athlon 64 X2 4200+ CPU and DDR-400 RAM; the Intel-based Pavilion d4100y was assembled around a 3.2-GHz Pentium D 840 processor and 533-MHz DDR2 memory.

The dual-core systems were fast for mainstream PCs, their scores running even with or slightly better than the marks of the fastest single-core systems we have tested for our value-PC rankings. For example, a Micro Express MicroFlex 35B system built around a 2.2-GHz Athlon 64 3500+ turned in a score of 101 on WorldBench 5, nearly identical to the mark of 100 that the dual-core Athlon box from HP posted. And HP's a1050y system scored 89 with its 3.4-GHz Pentium 4 530 processor, nearly matching the Intel-based dual-core system.

> The AMD-based Pavilion bested the Intel-equipped system by 10 percent.

The fastest dual-core system we've tested is Xi Computer's $3897 MTower 64 AGE-SLI, which relied on an Athlon 64 X2 4800+ chip to speed to a WorldBench 5 score of 130. By comparison, the best mark for an Intel-based dual-core system is 98, from a PC with the superexpensive Pentium Extreme Edition CPU.

While the dual-core systems excelled at multitasking in WorldBench 5, many of the other apps we use for testing don't take advantage of multiple CPU cores. Individual software programs that support multithreading, such as Adobe's Photoshop and Acrobat, can exploit the advantages of a dual-core CPU, but multithreaded applications are scarce outside the spheres of digital content development, graphics, and digital video.

Any program that has you regularly "staring at an hourglass," says Nathan Brookwood, principal analyst for Insight 64, is a candidate to become a multithreaded application in the future. "But I'd be surprised if many mainstream office applications were converted in the near future," he adds.

When multiple applications are running, however, a ▶

TEST REPORT

HIGH-END VS. LOW-END DUAL-CORE SYSTEMS

WHAT DO YOU GET by moving to a high-end system? The fastest dual-core PCs we've tested had fast graphics systems and 2GB of RAM, which account for some of the speed boost over our test systems.

TEST SYSTEM	Price[1]	CPU	WorldBench 5 score (Faster)	WorldBench 5 multitasking test (seconds)[2]	Graphics tests (average frames per second)[3]
HP Pavilion d4100e	$1999[1]	2.2-GHz Athlon 64 X2 4200+	100	513	201
HP Pavilion d4100y	$2079[1]	3.2-GHz Pentium D 840	91	625	183
REFERENCE SYSTEM					
Xi Computer MTower 64 AGE-SLI	$3897	2.4-GHz Athlon 64 X2 4800+	130	424	280
Polywell Poly 916NF4-SLI	$3099	3.2-GHz Pentium Extreme Edition 840	98	596	222

TEST Center [1]Price does not include monitor. [2]Lower is better. [3]Higher is better.

IN BRIEF

Tidbytes

NOKIA'S POCKET-SIZE TABLET: Nokia's 770 Web Tablet lets you surf the Net or check e-mail anywhere, anytime via 802.11b Wi-Fi or through your Bluetooth cell phone. Priced at $350, the 770 runs Linux and offers a 4-inch 800-by-480-pixel screen on its slim, PDA-like frame. The 770 ships with the Opera browser, an RSS news reader, an Internet radio, a media player, and image and PDF viewers. You can input data by using its handwriting recognition or an on-screen keyboard.

PRINT AND BURN MULTIFUNCTION: The $200 Lexmark P450, a hybrid inkjet photo printer and CD burner, works with removable storage devices to print 4-by-6-inch images and write files to CD for archiving—all without a PC. Included is a 2.4-inch display that lets you view and edit your photos with crop, rotate, color adjust, and remove-red-eye functions. The P450 can also print pics directly from a Bluetooth camera phone or run a slide show on a TV.

dual-core system will greatly benefit mainstream business users, according to Brookwood. Routine chores, like scanning for viruses or defragmenting a hard drive, can run in the background without slowing everyday work tasks.

Overall, our dual-core test results are consistent with the outcomes of other *PC World* performance tests, which historically have shown systems built around AMD processors outperforming similarly configured machines built with Intel processors.

One possible explanation for AMD's superior performance is the design of the AMD dual-core processors. Intel took the "quickest path to market," says Jim McGregor, principal analyst with In-Stat, "and crammed two Pentium 4 Prescott cores onto a single die rather than designing a dual-core chip from the ground up [as AMD did]."

FUTURE CORES

INTEL IS WORKING now to address that situation with its next generation of processors. At the Intel Developers Conference in August, the company announced its next mobile, desktop, and server processors, code-named Merom, Conroe, and Woodcrest, respectively. The new chips are expected in the second half of 2006 and will be designed from the ground up as 64-bit, multicore CPUs based largely on the design of the company's current mobile processor, the energy-efficient Pentium M.

Introduced earlier this year, dual-core processors are the "new expression of Moore's Law," says Martin Reynolds, emerging technologies analyst at Gartner. Doubling up on processors offers a way to boost performance and increase the number of transistors per square inch while avoiding design problems and keeping heat-producing clock speeds at manageable levels.

> Intel is currently working on more than 15 multicore CPU projects for the future.

Intel said at IDF that it's currently working on more than 15 multicore CPU projects for the future, and that by the end of 2006 it expects 70 percent of all desktop and mobile shipments to be multicore. AMD echoes the sentiment: Jonathan Seckler, AMD's product marketing manager for Athlon 64, says, "Dual-core processors should fill the mainstream PC market within 12 to 18 months."

Don't expect single-core processors to completely disappear anytime soon, however, says Shagorika Dixit, HP's product manager for consumer desktops. "Single-core processors will have a place in the value PC segment well into the foreseeable future."

BUDGET SYSTEMS

64-BIT SYSTEMS FOR EVERY BUDGET

DUAL-CORE ISN'T the only new chip technology to go mainstream—64-bit computing has entered prime time as well. This summer AMD and Intel, respectively, introduced 64-bit versions of their Sempron and Celeron CPUs—chips usually confined to the least expensive budget PCs.

TEST REPORT

64-BIT PERFORMANCE RESULTS

CPU	WorldBench 5 score (Faster)	Graphics tests (average frames per second)
1.8-GHz Sempron 3100+ (AMD)	82	38
2.8-GHz Celeron D 336 (Intel)	74	37

We ran WorldBench 5 on two machines from Polywell: the MiniBox 915Gx-336, running a 2.8-GHz Intel Celeron D 336 CPU, and the MiniBox 900Ax-3100, running a 1.8-GHz AMD Sempron 3100+ CPU. Both PCs sell for $699 and have similar hardware configurations. The one with the AMD chip, despite its much lower clock speed, scored 82 on WorldBench 5, outperforming the Intel-based computer by over 9 percent.

Each test system relied on integrated video (ATI and Intel, respectively, for the Sempron- and Celeron-based PCs), so we didn't expect high graphics scores. Our near-identical results (see chart) indicate that neither PC would excel at gaming.

As our tests indicate, 64-bit processors won't significantly boost the performance of value PCs. Most low-end PCs (and even high-end desktop machines, for that matter) aren't intended to take advantage of a 64-bit system's ability to run on 4GB of RAM, and they don't usually come with a 64-bit-aware operating system like Windows XP Professional x64 Edition. So why are AMD and Intel introducing these chips for low-end systems now?

Intel spokesperson Dan Snyder says there are two reasons. First, Intel is looking to the future and is working to standardize its "whole product line on 64-bit technology, from top to bottom." Second, he says Intel has received requests for the chips from the computer manufacturers it works with.

AMD's Jonathan Seckler offers a similar explanation: "Enterprises and midsize businesses that already use 64-bit hardware and software want to standardize all of their PCs on the same technology."

Prices for AMD's Sempron CPUs range from $60 for a 1.5-GHz Sempron 2200+ to $129 for the 2-GHz Sempron 3300+, purchased online. The six new 64-bit Intel Celeron D processors range in price from $145 for the 1.5-GHz Celeron D 326 chip to $351 for the 3.2-GHz Celeron D 351.

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SAMSUNG

OFFICE SUITES

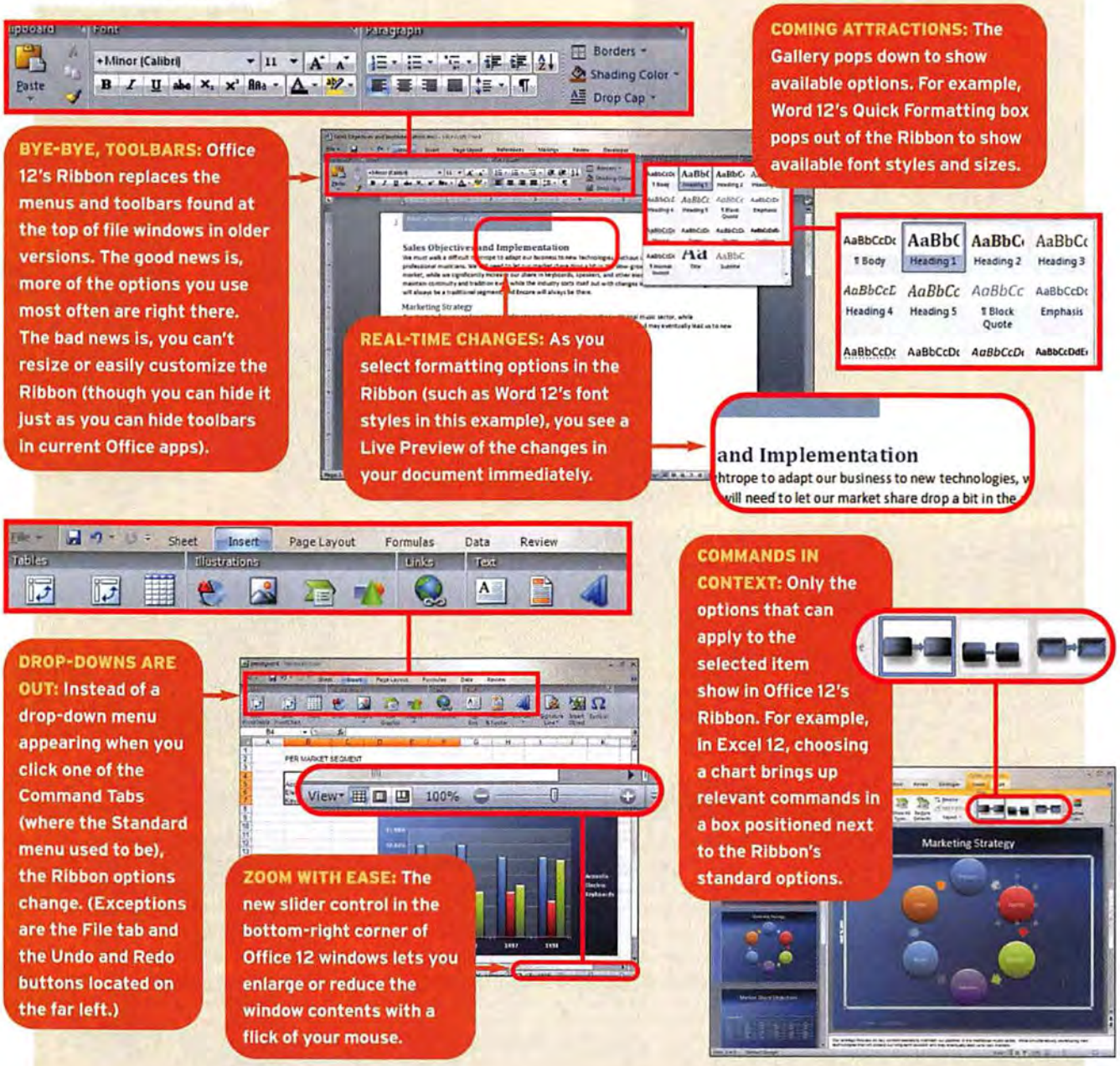
Office Gets an Extreme Makeover

UPCOMING VERSION OF MICROSOFT'S SUITE ELIMINATES TOOLBARS, MOST DROP-DOWN MENUS.

JUST WHEN YOU thought Microsoft Office's look was as unchanging as the old Volkswagen's, the folks in Redmond decided to cook up a whole new way to work in Word, Excel, PowerPoint, and Access. Out are toolbars, drop-down menus (with a few noteworthy exceptions), and most dialog boxes (or at least they're harder to find). In as a replacement is the new Ribbon, which aims to put frequently used items one click away. The revamped interface will debut with the new suite (as yet unnamed, but currently called Office 12) in the second half of next year.

—Dennis O'Reilly

OFFICE 12 CHANGES



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CONSUMER ALERT

Most Monitors Won't Play New HD Video

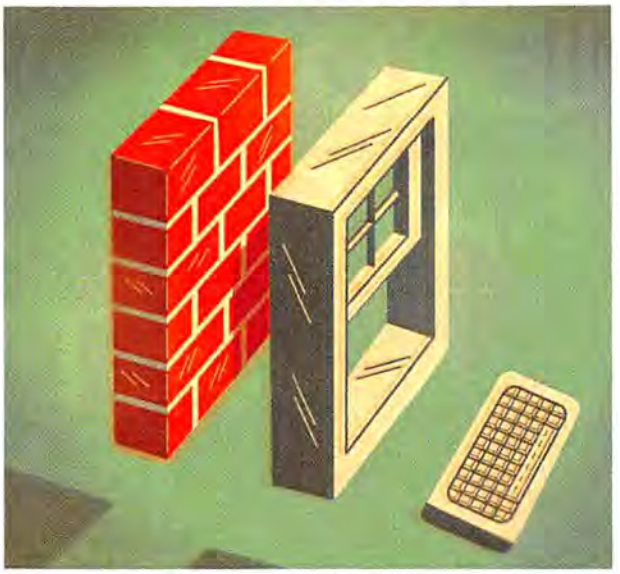
VISTA'S CONTENT PROTECTION WILL BLOCK OR BLUR HIGH-DEF MOVIES ON TODAY'S DISPLAYS.

IF YOU DROPPED a bundle on a high-end computer display or HDTV, you could be in for an unpleasant surprise when you slip your new high-definition DVD of *Star Wars: Episode III* into your Windows Vista PC. Vista, the next version of Windows that's slated to appear in about a year, will feature a new systemwide content protection scheme called PVP-OPM (see box below). If your monitor doesn't work with PVP-OPM, all you'll likely see is either a fuzzy rendition of your high-def flick or Hollywood's version of the Blue Screen of Death—a message warning you that the display has been 'revoked'.

HIGH-DEF HARD-LINERS

FORTHCOMING Blu-ray and HD-DVD discs promise higher resolution than a standard DVD's 480-line maximum. But to protect its high-quality content from pirating, the film industry, along with disc and hardware makers, has created an umbrella content protection scheme known as AACS. If Windows is to play the new discs, Microsoft has little choice but to support AACS, which is where PVP-OPM comes in. According to Microsoft, PVP-OPM will prevent pirates from attaching recording devices directly to the PC graphics card's DVI or HDMI video outputs in order to capture a pristine digital copy of the disc's otherwise encrypted content. A related component, PVP-UAB, will prevent savvy computer owners from installing data capture cards in order to grab high-def movies straight off the PCI Express bus.

Unfortunately, PVP-OPM will also shut out plenty of law-abiding video watchers whose current displays aren't future-proof. To comply with the film industry's protection scheme, PVP-OPM employs HDCP technology to determine whether graphics boards and displays are allowed to output and display high-def video. If HDCP sees a blocked display (such as a video capture device) or one that does not support HDCP (including any HDTV with only analog connectors), it prevents output or reduces the video resolution until the offending display or protected content is removed from the system.



COSTLY UPGRADES

IF THAT SCENARIO sounds disturbing, it gets worse: Few existing wide-screen desktop displays support HDCP. If you're one of the hundreds of thousands of current wide-screen desktop display owners, you can probably forget about viewing Blu-ray or HD-DVD discs on your nearly new (and far from cheap) monitor. To watch high-def content, you'll likely have to upgrade your monitor. A handful of HDCP-compliant displays from NEC, Samsung, Sony, and ViewSonic are just starting to appear, according to market research firm iSuppli. And manufacturers such as Dell have plans to incorporate HDCP support into future wide-screen displays, though details are scarce.

Think you could avoid this expense by sticking with XP? No such luck. To see HD, you'll have to upgrade to Windows Vista as well; Windows XP's security and driver models lack the ability to support HDCP. Consumers intent on viewing HD discs via their PCs will have little choice but to spring for the new operating system in addition to an HDCP-compliant monitor.

—Scott Spanbauer

ILLUSTRATION: HARRY CAMPBELL

CONTENT PROTECTION

DECODE THE JARGON

AACS: Advanced Access Control System. A specification for guarding next-generation optical-media content created by the film, electronics, and software industries.

HDCP: High-Bandwidth Digital Content Protection. Intel's content protection scheme for digital displays, not supported by most currently available PC monitors.

PVP-OPM: Protected Video Path Output Protection Management. Downgrades video resolution or blocks the picture entirely if the connected display doesn't support content protection.

PVP-UAB: Protected Video Path User-Accessible Bus. Encrypts video content as it passes over the PCI Express bus from the high-def disc to prevent other PCI Express devices from intercepting the video stream.

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WEB SEARCH

Search Sites Try to Give Instant Answers

THREE SEARCH ENGINES PROMISE DIRECT REPLIES TO QUERIES (NOT JUST LINKS), BUT RESULTS ARE SPOTTY.

FIGURING OUT what keywords to use for a Web search has always been a challenge. And once you get your results, you have to guess which link will have the answer to your question. Wouldn't it be nice just to type in a regular question and get a direct answer?

Three search engines promise to serve up direct answers to so-called natural-language queries: natural-language veteran AskJeeves; GuruNet's Answers.com, a relative newcomer to Web search; and MSN Search, which recently beefed up its search results with information culled from Microsoft's Encarta encyclopedia. In our sample searches, however, the three services did much better at answering our general-information questions than they did at replying to technical, topical, or geo-specific questions.

We expected the answers to our questions to appear at the top of each site's initial results page, without our having to follow a link. We gave the sites some credit when the correct answer was on the first page in the search results (one click away), or was within the top ten links returned (two or more clicks away).

We posed dozens of questions and reduced our results to a representative 15. AskJeeves produced four on-the-money answers; MSN Search and Answers.com answered three of our questions spot-on. (We included Google as a control; its results were almost identical to those of Answers.com.) For more details about our test questions, see find.pcworld.com/49648.

SOME SEARCH engines try to answer your questions directly rather than link you to a Web site with the information.

Of course, Web information is constantly changing. Our latest results varied considerably from those we got when we asked the same questions days earlier.

All three sites were on target with the question "What was John Dillinger famous for?" (though we had to click the top link at Answers.com), and they also aced "Who was the 17th president of the United States?" Yet none of the three could immediately answer a question about the speed of USB 2.0 versus ethernet.

Extra words—ironically, the natural language—often got in the way of good results. For example, entering the keywords "high tide Santa Monica California" returned better results than "When is high tide on October 15, 2005, in Santa Monica, California?"

—Steve Bass

REPORT CARD

DIRECT ANSWERS: NO SEARCH ENGINE ACED OUR TEST

WEB SEARCH CHAMP GOOGLE was as good at answering our natural-language questions as the three sites that promote their ability to respond to questions rather than keyword phrases. Our goal was to see the correct answer without having to follow a link on the results page (no clicks). Answers on the top link's page (one click) and in the top ten links (two or more clicks) earned partial credit. Visit find.pcworld.com/49648 to see the results for 15 of our questions, along with the correct answers.

QUESTION	Answers.com	AskJeeves	MSN Search	Google
Who was the 17th president of the United States?	No clicks	No clicks	No clicks	No clicks
What is the best way to start a barbeque?	Two or more clicks	Two or more clicks	One click	Two or more clicks
What are roundheads?	No clicks	Two or more clicks	No clicks	No clicks
Which states use daylight saving time?	Two or more clicks	One click	One click	Two or more clicks
How do you make ceviche?	Two or more clicks	Two or more clicks	One click	Two or more clicks
What is the "semaphore timeout period has expired" error?	Two or more clicks	Two or more clicks	Two or more clicks	Two or more clicks
When is high tide on October 15, 2005, in Santa Monica, California?	One click	(No answer in top ten)	One click	One click
What is the speed of USB 2.0 versus SATA?	Two or more clicks	(No answer in top ten)	Two or more clicks	Two or more clicks
What is the speed of USB 2.0 versus ethernet?	Two or more clicks	(No answer in top ten)	Two or more clicks	Two or more clicks
What is the temperature in Paris?	Two or more clicks	No clicks	One click	Two or more clicks

COMMENTS: Answers.com's results are nearly identical to those of Google, but with several general-interest questions leading to an "answer" page rather than to a list of Web results. AskJeeves lists more sponsored links than the other services. MSN Search was the fastest of the bunch; on some searches (such as "Where is Algerie?"), MSN corrected misspellings on the fly with no user intervention. On some searches (such as "Where is Algerie?"), the Google engine also corrected misspellings on the fly with no user intervention, and it sometimes suggested the correct spelling.

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PLUGGED IN

ERIC DAHL

Firefox vs. IE Battle Heats Up

PLUS: HIGH-DEF OPTICAL DRIVES ON PCs; LCD TV SETS FOR LESS.

FIRING UP THE NEW FIREFOX

The Buzz: Get ready for the next round of the heavyweight browser fight. Mozilla is about to officially release version 1.5 of its excellent Firefox browser, to be followed soon after by the beta release of Microsoft's Internet Explorer 7. Automatic updating receives a major revamp in the 1.5 version: If you want, Firefox will download critical updates by itself when your Web connection is idle and then alert you when patches are ready to install. Improved pop-up blocking and the ability to reorganize browser tabs by dragging and dropping them are also in the offing. Live Bookmarks—Firefox's already impressive method of simplifying the discovery and bookmarking of RSS feeds—will get a boost as well.

Bottom Line: Microsoft's feature list for Internet Explorer 7—including tabbed browsing, integrated Web searching and RSS, and antiphishing technology—should do a lot to help IE catch up. But browsers like Firefox and Opera established themselves as the true innovators long ago, and many of us have simply moved on.

HIGH-DEF HITS PCs

The Buzz: Because no clear front-runner has emerged between the competing high-definition optical-disc formats, optical-drive vendors are pushing ahead with plans to bring both Blu-ray and HD-DVD drives to the PC. Pioneer's BRD-101A Blu-ray drive should be available for PCs by the end of the year. Blu-ray burners can store up to 50GB of data on a dual-layer disc. HD-DVD drives are coming as well, with NEC among the first to announce a PC drive that can read (but not write) HD-DVDs. Both drives will also read and write standard DVDs and CDs.

Bottom Line: With the format wars still raging, I'd leave the early adopting to someone else—unless you don't mind purchasing a lifetime supply of blank discs just in case.

CHEAP LCD TVs

The Buzz: Okay, okay, so "cheap" is a relative term here, but just $1300 for a 32-inch, high-def LCD TV is pretty impressive. That's the price on ViewSonic's N3250w, one of a number of practically somewhat-affordable LCD TVs that should be shipping around the time you read this. Expect high-def to take off this holiday season as big price drops start to kick in on flat-panel displays. Dell offers a 32-inch LCD (the W3201C) for $1800, and you can expect it to be heavily discounted at some point. Panasonic recently cut the suggested retail prices on its plasma TV lineup by $500 (a 37-inch high-def plasma set will run you about $2500).

Bottom Line: At $1300, a 32-inch LCD TV is pretty tempting. With a high-def display that big, I might even be able to follow televised hockey. ■

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.*

ILLUSTRATIONS: GORDON STUDER

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4. **PROTOPAGE.COM:** Configure a free start page of your own with movable panels of links, notes, searches, and more.
5. **GPUZZLE.COM:** Wacky word puzzles driven by Google's image searches. www.gpuzzle.com

NUTS AND BOLTS

Behind the New Web: Ajax

WHAT DO FLICKR, GOOGLE Maps, and Protopage have in common? All three are based on a set of Web standards that is known as Ajax, or Asynchronous JavaScript and XML. Traditional Web applications rely on a Web server to send back a complete page each time you click a link or submit a form, but an Ajax app requests only the data it needs and handles everything else on its own. That gives Ajax applications the responsiveness of desktop software plus the connectedness of Web sites. Pretty good for a technology that sounds more like a household cleaning product.

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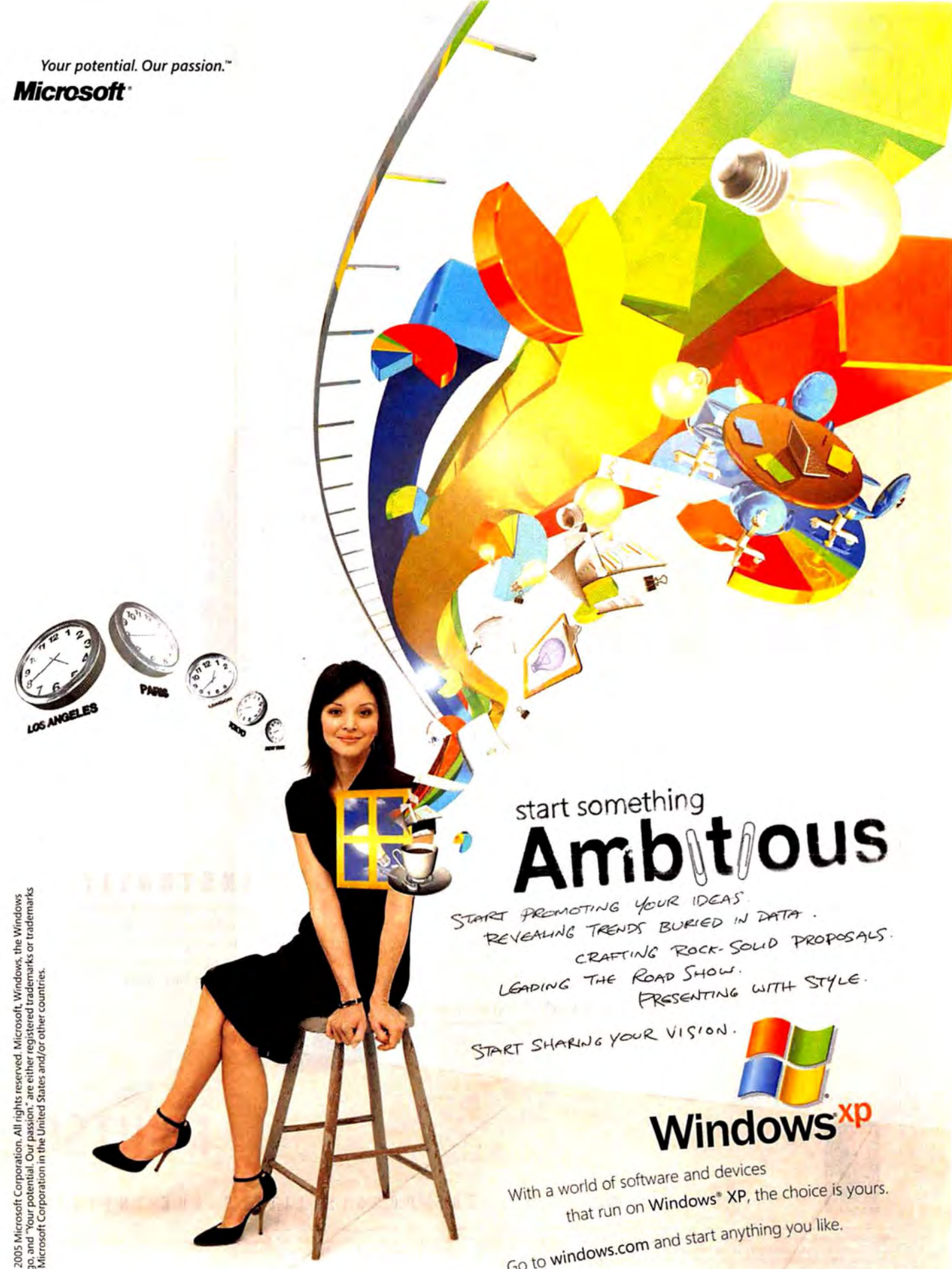

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THE FIBER-OPTIC ALTERNATIVE

TELECOMMUTING AND BROADBAND

WHEN THE BACKUP DRIVE FAILS

PHOTOGRAPH: MARC SIMON

INTERNET PHONE SERVICES: READERS SOUND OFF

AFTER READING YOUR VoIP review ["Net Phones Grow Up," September], we decided to try VoIP again after having had call-quality problems with one company. My wife and I are both pleased with the call quality of your Best Bet, AT&T CallVantage. We experienced slow download and upload speeds; but after we called AT&T, it took just a few minutes to fix the settings in the router and reboot. I'm back up to 4 megabits download speed and 300 kilobits upload on my cable modem during calls.

John Varga, Dousman, Wisconsin

I WAS SURPRISED at your critical evaluation of the Skype VoIP program. I have used Skype for six months now, have never lost a call, get clarity far beyond what I obtain on my landlines, and only rarely lose a word or two. I make lengthy international and interstate calls, both to Skype members (free) and to landline numbers (approximately 3 cents a minute). The people I talk to almost always comment on how clear the call is. In short, I have found the program to be excellent.

Tom Rowney, Corvallis, Oregon

REGARDING PROBLEMATIC 911 service with VoIP: Living in southern Florida, we know that storms can cause frequent power, cable, and phone outages. Vonage has a feature that lets a user have calls transferred to an alternate number, such as a cell phone. Great idea.

Dave Greenbaum, via the Internet

IS WINDOWS THAT ANNOYING?

I LAUGHED WHEN I saw the cover headline of the September issue about fixing Windows annoyances, because my first thought was that the issue was way too thin to accomplish that. Then I realized it said "biggest" annoyances.

Paul Miller, The Villages, Florida

IT SEEMS LIKE you have a Windows annoyance article every few months. As a longtime Windows user, I, for one, do not find those annoyances very annoying. Ever since Windows XP, I have been one happy camper. How about an article on the benefits that Windows provides? Or at least stop bagging on Microsoft once in a while.

Catherine Mau, San Diego

THREAT TO SMALL ISPs

REGARDING YOUR ARTICLE "Proposed DSL Rules Threaten Small ISPs" [*News and Trends*, September]: As a person who uses a smaller ISP and does not want to change (especially after a short time with one of the big guys), I would urge *PC World* to keep up your reporting on this issue. Specifically, how big a problem are the new rules going to be for the smaller ISPs? If it's really a threat, how can we preserve the choices we have now? Are there efforts to protect access to DSL lines that we can lend support to?

Carole McNall, Olean, New York

RECORDING INDUSTRY DRIVING AWAY FANS

I READ YOUR ARTICLE titled "Copyright Crackdown" [*News and Trends*, September] with keen interest. I have been looking to buy an Apple iPod as an alternative to carrying all my music CDs with me in my car. However, after seeing where the record industry is going, I think I will just buy a satellite radio subscription and stop purchasing music CDs.

Leo Boeckl, via the Internet

I RECEIVED THE LATEST Dave Matthews CD as a present. Before opening the shrink-wrap, I saw the itty-bitty, teeny-tiny type explaining all the copy rules. I said to hell with it and took the CD back to the retailer (thank goodness my sister sent a gift receipt). I was not planning on copying and distributing, but I didn't want to accept their golden handcuffs.

Joe Matchette, Miami

NASA'S SATELLITE MAPS

I WAS DISAPPOINTED that the article "Satellite Maps: The World on Your Desktop" [*News and Trends*, September] did not mention NASA World Wind (worldwind.arc.nasa.gov). This is an open-source 3D globe with a large community of developers and volunteers. With a new version due out [*Version 1.3.2 was released in mid-August. —Editors*] and a rapidly ex- ▶

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panding catalog of add-ons and plug-ins, as well as a wiki and a helpful forum for questions and problems, World Wind is quickly maturing and improving.

Joel Bradshaw, Chehalis, Washington

LONG-CABLE SOLUTION FOR HD

SEÁN CAPTAIN'S fine article "The Cable Game" [*Digital World*, September] clearly establishes that if your high-definition display is more than 12 feet from the source, copper cables will be trouble.

Like many home theater enthusiasts, I have a ceiling-mounted projector that is located about 30 feet from my HD cable box, well beyond the 12-foot limit. Solution: Instead of copper, I use fiber-optic cables to ensure accurate delivery of the gigabit HD content with zero loss of signal.

Bob Rapoport
St. Petersburg, Florida

BROADBAND UPLOADING

STEPHEN MANES'S September *Full Disclosure* column ["Broadband Speed That'll Send You"] didn't mention the most compelling reason for having faster uplink speeds: telecommuting. VPN connections suffer from slow uplink speeds when your job requires—as mine does (I am a software developer)—the use of interactive server-bound tools. Working in this environment with a 384-kbps uplink is downright maddening.

Jay Winter, Poolesville, Maryland

BACKUP DRIVES—RELIABLE?

MY 300GB EXTERNAL drive ran great for almost three months; then it died ["Big Drive Backups," September]. It seems that the USB 2.0 interface went to heaven. So what now—make a backup to DVD of the backup on the external hard drive?

Pete Matthies, via the Internet

LESS ON GADGETS, PLEASE

I JUST FINISHED reading the September issue and am a little annoyed. Someone needs to explain to me what hanging a high-definition TV on the wall [*Gadget Freak*] has to do with personal computers.

Also, I realize that perhaps most of your readers are interested in digital photography. But I read *PC World* to be informed about computers and computer-related topics. If I am looking for reviews of digital cameras, I will read one of the many magazines that specialize in that subject.

Steve Heinemann, Troy, Illinois

MACS? NOT IN PC WORLD

I AM MYSTIFIED by the inclusion of "The Truth About Windows Alternatives" [September]. We've all known for ages that the Mac OS is more innovative and elegant than the Windows OS of the corresponding era, but we stick with Windows because it is far more popular, with many more applications developed for it.

> '*Full Disclosure* didn't mention the most compelling reason for having faster uplink speeds: telecommuting.'

Why would a magazine purporting to be for PC users (almost exclusively Windows users) attempt to convince us to switch to Macs? Are you masochistically attempting to put yourselves out of business? Linux I can understand as a PC alternative (in five or ten years), but Mac?

Wallace Chinitz, via the Internet

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

OCTOBER'S "Deep File Divers" should have said that Yahoo Desktop Search can search e-mail in Mozilla Thunderbird; also, the chart should have noted that Blinkx can filter search results in other ways besides by file type.

September's "Powerful Cameras, Lower Prices" (Spotlight) should have said that the Canon EOS 20D can shoot at up to ISO 3200.

PC World regrets the errors.

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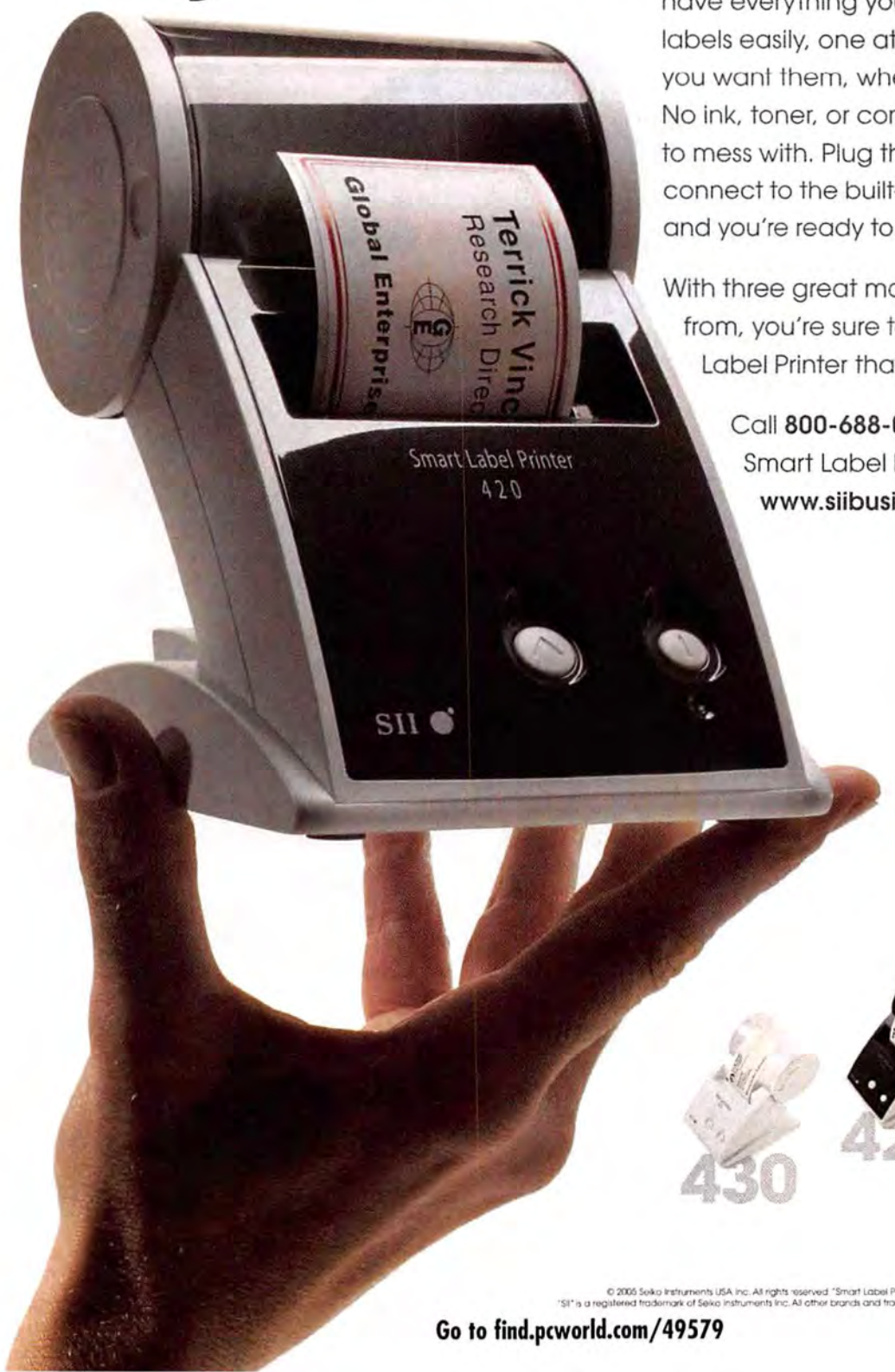

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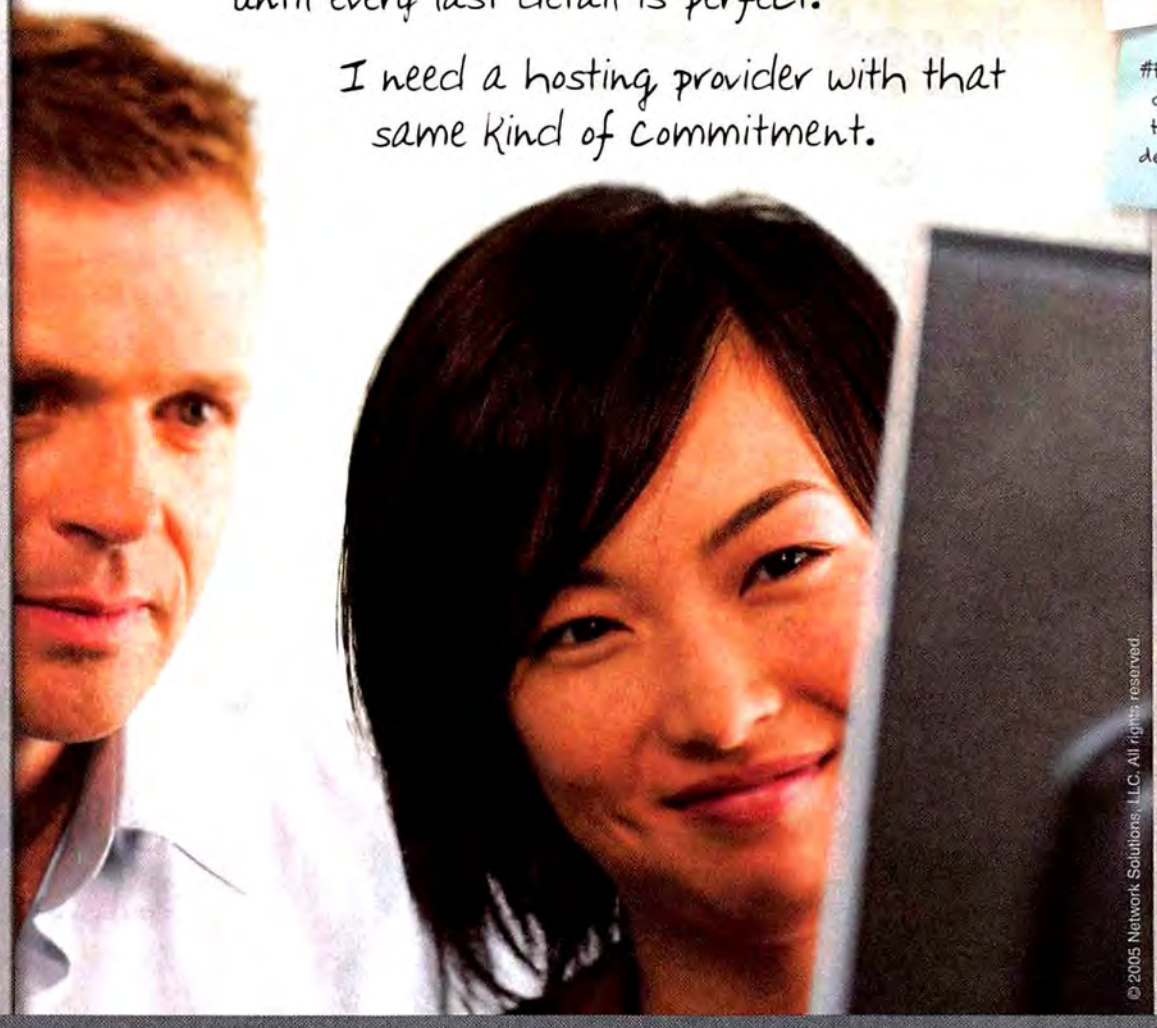

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Tips on Picking a Future-Proof PC

Windows Vista is coming: Make sure today's tech buy is ready for tomorrow.

ILLUSTRATION: MICK WIGGINS

YOU KNOW THE STORY: You're itching to go out and buy yourself a new desktop or notebook PC. But you keep remembering how quickly your last purchase became obsolete. And even in an era when you can pick up a new desktop for less than a few tanks of gas, you'd like the gear you buy today to be capable of handling whatever changes or new standards may appear in a year or two—or even (dare I say it?) five years down the road. What's a would-be tech buyer to do?

Take heart. Although there's no such thing as a completely future-proof PC, you can—with a little education—choose a system that has at least some staying power. Here are some important points to keep in mind when shopping.

LOOKING TOWARD VISTA

WITH WINDOWS VISTA (the next version of Windows, formerly code-named Longhorn) due out late next year, you're probably wondering how much horsepower your PC will need to handle that OS, should you decide to upgrade.

To help chart the course, Microsoft and PC vendors are working together on the Windows Vista–Ready PC Program. Under this plan, which sources say is slated to debut in early 2006, PCs that qualify will be labeled as "Windows Vista–Ready" in retail and online stores.

For PC buyers who can't wait that long, Microsoft has announced some general guidelines, though few details. It's safe to say, however, that you shouldn't skimp on memory, processing power, or graphics if you plan to install Vista on your next PC.

For example, Microsoft states that a Windows Vista–Ready PC will need to have a "modern" CPU. But that covers a lot of ground these days. Dual-core 64-bit CPUs are clearly the wave of the future. And now that prices for dual-core 64-bit processors are coming down (see this month's *News and Trends*, page 20), PCs powered by these chips are no longer confined to the money-is-no-object crowd.

But people on a stricter budget might still want to consider single-core 64-bit CPUs, such as AMD's original Athlon 64 chips—not because Windows Vista will require 64-bit technology (both a 32-bit and a 64-bit version of the OS will ship simultaneously), but because by the time Vista ships, 64-bit applications that can truly take advantage of the power of such computing should also appear.

Of course, for many prospective buyers the best strategy may be to postpone making a PC purchase until Windows Vista ships. "[Vista] will be the catalyst that brings together all the components of 64-bit computing for consumers, and we're going to see more and more systems being built for specific types of users," predicts Shane Rau, PC chip analyst for research firm IDC. "The consumer ▶

market will transition to a 64-bit platform only when it can do so for free."

As for RAM, Microsoft recommends a minimum of 512MB; but if you've survived previous Windows upgrades and lived to tell the tale, you know better.

Our advice? Don't skimp on RAM, especially since a boost in RAM will give you the best bang for your buck. Start with a gigabyte and go from there. And regardless of how much memory you purchase now, make sure that your slots can handle additional or bigger modules (or both) in case you decide later to upgrade to 2GB or even 4GB of RAM.

GRAPHICS GALORE

ONE OF VISTA'S MOST highly touted features is its enhanced graphical interface, which includes file management using thumbnail images of documents and such gee-whiz effects as the transparent ("Glass") window frames of the Aero desktop theme. It sounds great, but keep in mind that to take full advantage of these features you'll need cutting-edge graphics (again, no details from Microsoft, but it's safe to assume that you'll be better off with a discrete graphics card that has its own memory than with integrated chips that use system memory), as well as a graphics driver that supports the Windows Vista Display Driver Model. Though most graphics boards that are being sold today should support Windows Vista, check with the vendor to be sure.

> Make sure your memory slots can handle additional or larger modules.

Another component to consider in your quest for a future-proof PC is the system's optical drive. Here, you really have no safe bet. To provide the huge storage capacity that high-definition digital content will require, two next-generation optical-drive technologies—Blu-ray and HD DVD—are currently duking it out for a place in your future PC (and your living room).

But experts I spoke with say it's far too early to speculate on which format will prevail, much less when such PC drives will appear. So if you're planning to purchase a PC (or a stand-alone optical drive) today, get the fastest multiformat rewritable DVD drive you can find, and make sure that it supports the formats of any living-room DVD recorder you own.

It's also worthwhile to check the drive maker's Web site to see whether the company routinely provides firmware updates for such things as improved speeds and media support. For more information on how to choose a rewritable DVD drive, see find.pcworld.com/49374.

NOTES ON NOTEBOOKS

AS PORTABLE SYSTEMS become increasingly powerful and affordable, more and more desktop users are cutting the cord and going mobile. Again, Microsoft has been tight-lipped about how the Windows Vista–Ready PC program will apply to notebook systems, but IDC's Rau speculates that Vista-based notebooks will ▶

PRIVACY WATCH

Portable Drives That Protect Your Data

USB FLASH DRIVES are ideal for transporting large quantities of data, but they have a knack for getting lost. Luckily, several new models are designed to protect data. Here are a few.

The CryptoStick by CryptoBuddy ($180 for 1GB, find.pcworld.com/49382, ★★½☆☆) uses the secure Blowfish algorithm to encrypt files. A utility for caching your Web browsing history on the CryptoStick prevents others from checking the hard drive to see what sites you've visited—useful when you surf on PCs you don't own. The company says that its encryption software can also compress some data by a factor of three, freeing up precious memory-key space, but your real-world compression results will vary depending on the content you encrypt. A free file-decryption tool on CryptoBuddy's Web site lets you send encrypted files to people who don't own a CryptoStick. Physically, this drive is the sturdiest model I've seen, but its relatively high price might put some people off.

Kanguru has two offerings with impressive capabilities: the Micro Drive AES ($130 for 1GB, find.pcworld.com/49383, ★★★☆☆) and Bio Drive ($220 for 1GB, find.pcworld.com/49384, ★★★☆☆). The oval Micro Drive AES (for Advanced Encryption Standard, a tough form of encryption) can scramble data on the drive and secure your PC. To lock down the system, just remove the drive from the USB port. The rectangular, pricey Bio Drive, which includes a biometric fingerprint reader, resembles a pocket voice recorder; a copper-colored finger-scanner hides beneath a removable black plastic lip. When biometric protection is enabled, the drive encrypts the data and then hides the data partition until you log in with a fingerprint.

SanDisk's Cruzer Profile Biometric ($102 for 1GB, find.pcworld.com/49385, ★★★½☆) offers the best value in this group: It encrypts data and has a fingerprint reader that provides biometric security for that data and for Windows. Using a text password or your fingerprint as the key, you can encrypt individual files or the entire storage area. You can also use your fingerprint instead of a typed password to log in to Windows. The Cruzer Profile Biometric's memory chip and USB connector are built into one half of the device; the fingerprint reader is built into the other half. A thick, shielded cable attached to each half connects the two, even when you pull them apart to expose the USB connector and the scanner. While making the unit more compact, this slightly increases the risk of mechanical failure. But if the fingerprint reader becomes detached, you can still use the text password to access your data.

–Andrew Brandt

ILLUSTRATION: MARK MATCHO

JACKPOT

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ON YOUR SIDE

Office Depot Pricing Blunder

I ORDERED TWO Sony HDR-FX1 digital camcorders from Tech Depot by phone after seeing them offered for a good price on this Office Depot-owned Web site. E-mail confirming the order said that the HDR-FX1 was on back order. But when I checked online the next day, I noticed that my order was now linked to a cheaper camera. When I called Tech Depot to complain, a rep told me the change was made because the price I originally saw for the HDR-FX1 was a mistake—it actually cost nearly twice as much.

Name withheld by request

On Your Side **responds: Office Depot's Casey J. Ahlbum says the pricing problem resulted from a data entry error that was not discovered until after the reader placed his phone order and received e-mail confirmation. Like many Web stores, Tech Depot says on its site that it is not responsible for typographical errors or technical inaccuracies. After we called, Tech Depot offered to match any price on the Web for a new HDR-FX1. The reader canceled the order, however, and Office Depot sent him a $150 gift card for the inconvenience.**

–Amber Bouman

lag behind the desktop market by at least six months. "With mobility comes more complexity," Rau explains, adding that consumers might not see notebooks with Vista preinstalled until sometime in 2007.

Are you shopping for a notebook that's ready for a long-term relationship? Make sure it has an up-to-date integrated Wi-Fi card (the current standards are 802.11b/g), accessible and upgradable RAM and hard drive, both CardBus and ExpressCard PC Card slots, and perhaps a security feature such as fingerprint recognition. You may not need Wi-Fi capability or a fingerprint scanner to future-proof your notebook, but they will make you happier right now.

Nothing lasts forever, of course, and every gadget you get will someday end up in the recycling heap. But if you do a little homework and look toward the future before you buy, you just might get yourself a system that will stick around long enough to earn its retirement. ■

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.*

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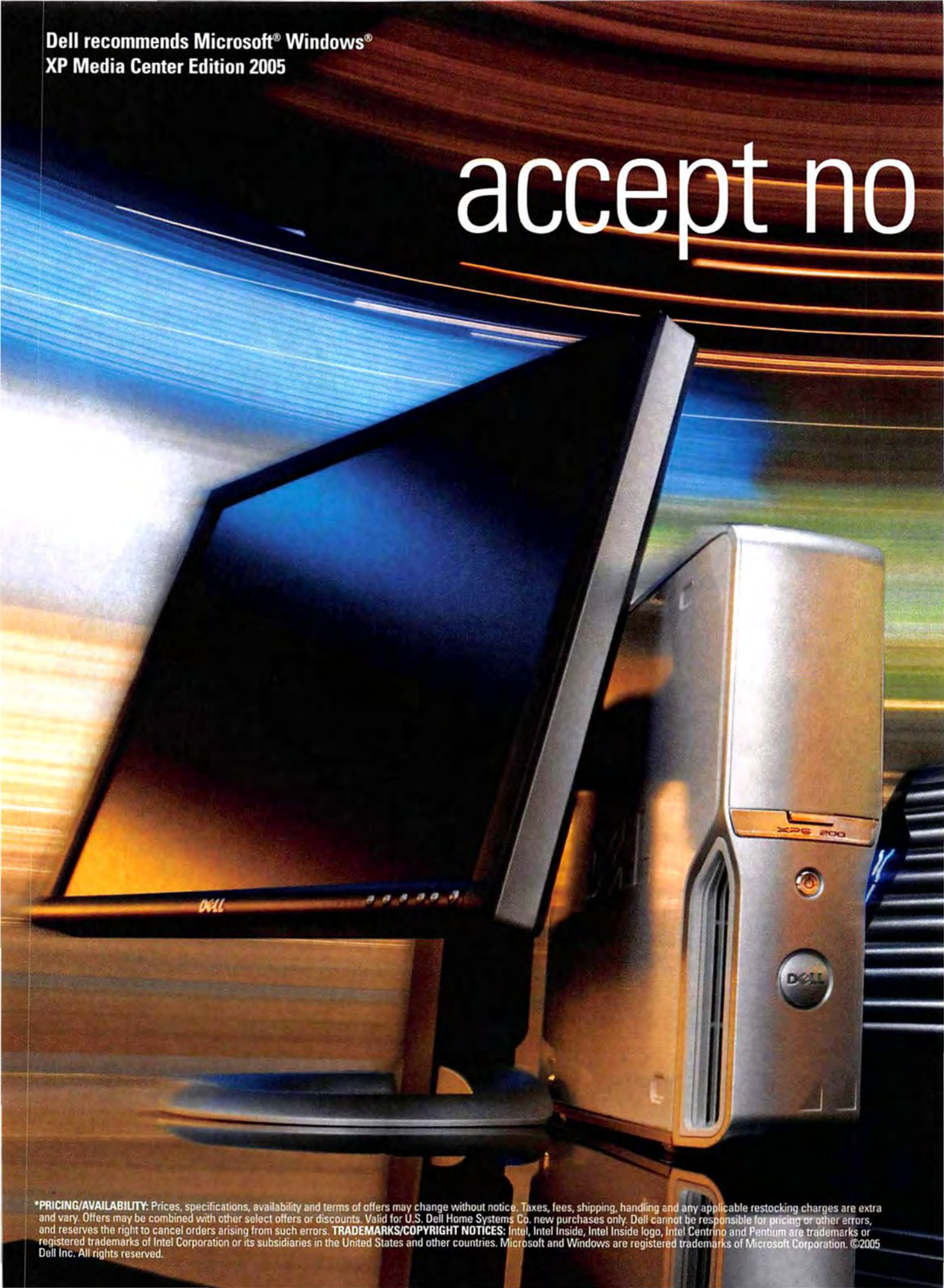
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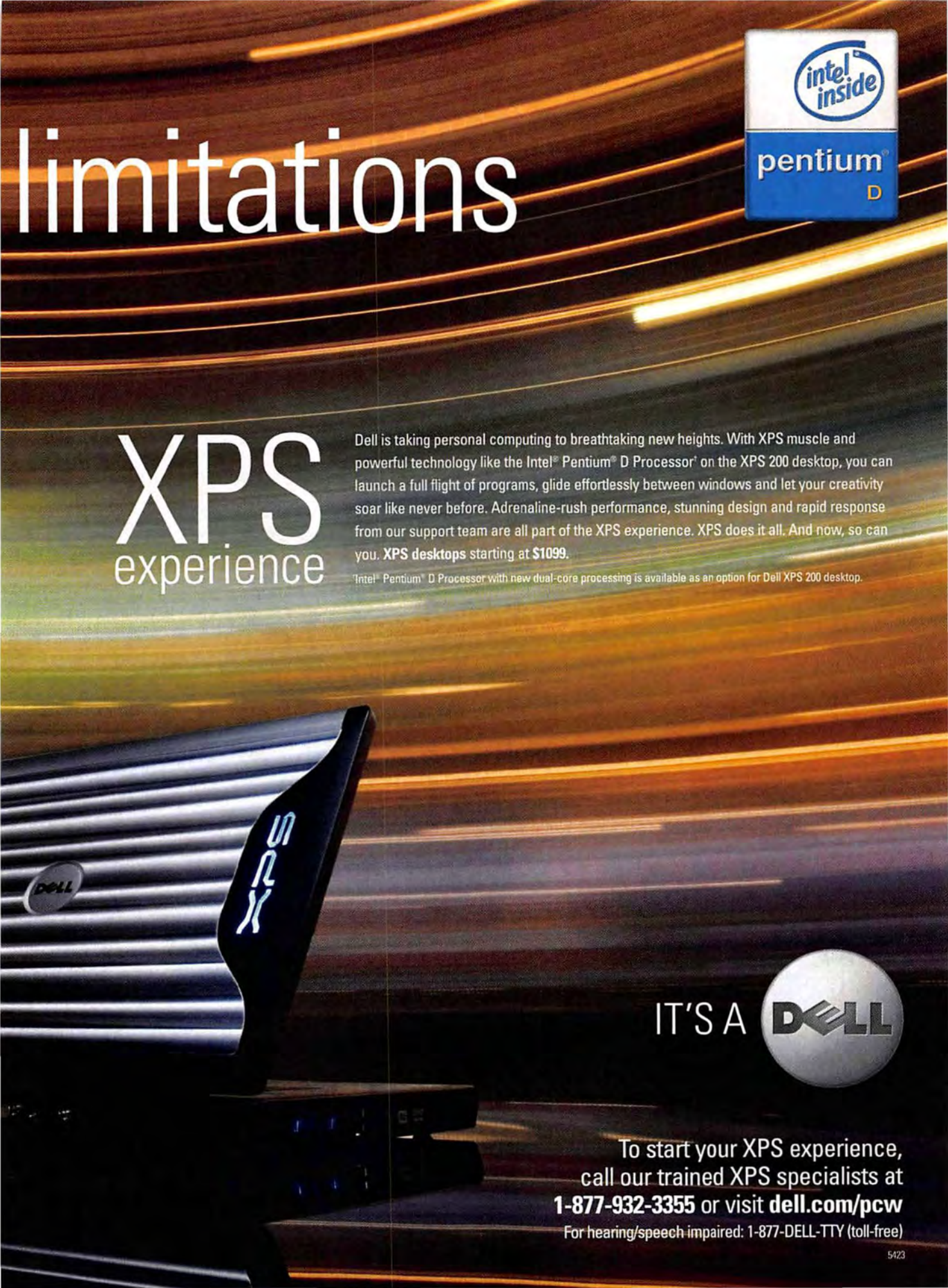
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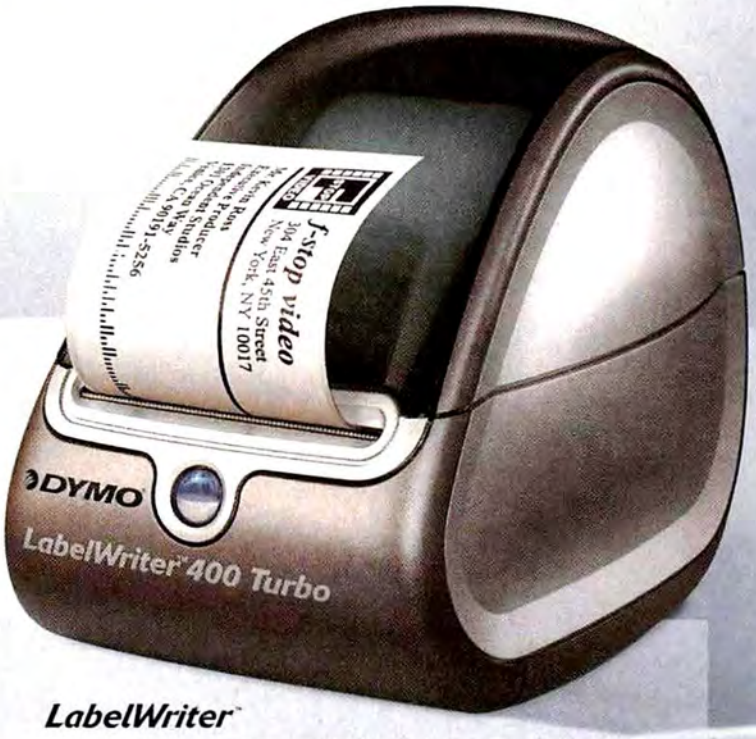

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HASSLE-FREE PC

STEVE BASS

Smart, Free Fixes for Your USB Hassles

Make that kudzu-like array of USB devices and ports work—once and for all.

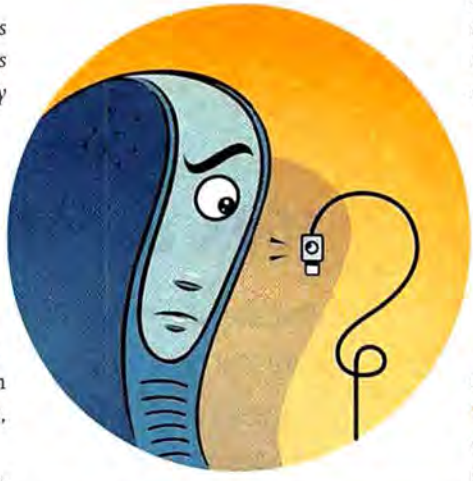
WHEN USB WORKS, it's great. But half the time, it's as flaky as Boston Red Sox slugger Manny Ramirez. Sit tight. I've discovered what could be the sources of your USB problems, and—miracle of miracles—how you can fix them.

The Hassle: *Some days, my computer does not see my USB scanner, while on other days it does; the same thing happens with my external hard drive.*

The Fix: The culprit here may be overcurrent, either on the PC's USB ports or on a powered USB hub. Overcurrent occurs when too many power-draining USB peripherals are turned on at once, causing some devices not to be seen by the PC. This glitch usually arises with devices that need power from the USB port, such as unpowered hubs, memory card readers, and flash drives.

There are three possible workarounds. First, try connecting the problem device after the system boots. No luck? Then switch the position of the devices, either on your PC's USB ports or (if you use one) on a powered USB hub. Lastly, you can spread out the devices. Start by connecting a powered USB hub to your PC; make sure you provide power to USB devices that have that option, and distribute the unpowered and self-powered devices across two hubs. You may have to experiment to get the right combination.

Yet another problem solver: Determine whether your PC has the most current USB drivers with Intel's free USBReady utility (find.pcworld.com/49159).



HIBERNATION BLUES

The Hassle: *When my system comes back from hibernation or standby mode, some of my USB devices just keep on dozing.*

The Fix: That happens because Windows XP wants to conserve power, so it turns off the USB root hubs. You can change the default setting: Open *Control Panel•Performance and Maintenance* (if in Category view)•*System•Hardware•Device Manager*, and click *Universal Serial Bus controllers*. Double-click *USB Root Hub*, choose the *Power Management* tab, and then uncheck *Allow the computer to turn off this device to save power*. Repeat this procedure with each occurrence of a USB root hub. On a notebook, this trick will cost you some battery life.

The Hassle: *When I plug my external hard drive into my PC, it gets recognized. But when I unplug the drive and then plug it back in, my system ignores it.*

The Fix: Depending on the device involved, your PC's operating system may take as long as 5 minutes to find a peripheral (a process officially known as enumeration). External hard drives, including flash drives, can take up to a minute to be seen. My rule? Plug it in, don't fiddle with anything, and have patience. If you use a notebook and an unpowered hub, limit the number of devices to two. Better, buy a hub that offers a power option.

The Hassle: *My USB printer is printing out gibberish. Any idea why? And where can I find a good hardware exorcist?*

The Fix: Data starts petering out when transmitted through cables longer than 5 meters (about 16 feet). If you must use long cables, buy a $20 active extender or repeater cable; some are available online at find.pcworld.com/49158. ■

Contributing Editor Steve Bass is the author of PC Annoyances, *published by O'Reilly (see find.pcworld.com/43818). Contact him at hasslefreepc@pcworld.com.*

TOOL OF THE MONTH

Smart USB Diagnostics

IF YOU'RE HAVING USB problems, take a look at USBInfo, a pricey but indispensable diagnostic tool. On one screen, USBInfo identifies all your USB 1.1 and 2.0 devices and ports, including the way that they're connected, the device specs, and the peripheral names. The program neatly displays all ports, hubs, add-in controllers, and connected peripherals in a handy tree view. The utility also tests each USB device or controller to determine whether its actual speed matches the manufacturer's claimed speed. USBInfo works with all current editions of Windows; grab a trial version of the $40 tool at find.pcworld.com/49161.

ILLUSTRATION: MARK MATCHO

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BUGS & FIXES

STUART J. JOHNSTON

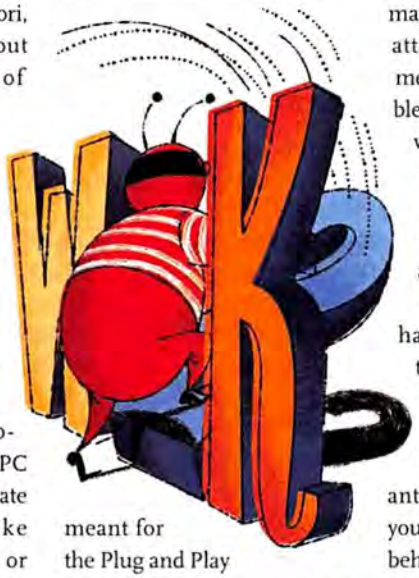
Attackers Exploit Bug in Windows 2000

Plus: New patches for Internet Explorer, Adobe Acrobat, and Adobe Reader.

HOW QUICKLY MALWARE writers can take advantage of newly disclosed holes was dramatically illustrated this past summer when Zotob, Botzori, and other worms came out within a week or more of Microsoft's posting of a patch intended to block such attacks (go to find.pcworld.com/49626 to download it). This was the first major worm epidemic since Sasser about a year and a half ago.

These worms were particularly sneaky because they planted bots—programs meant to turn your PC into a "zombie" to participate in mass Net attacks like denial-of-service assaults or spam broadcasts. (For more information on bots, hop to find.pcworld.com/49646.)

The worm writers took advantage of a bug in Plug and Play, a portion of Windows that lets your computer recognize peripherals like cameras, external hard drives, or printers. The worm sends a network message that enters your PC unbidden over the Internet. Since the message is



meant for the Plug and Play part of Windows, you don't have to click anything to be infected. And it causes that portion of the system to crash in such a way that an attacker's program can then gain access to your PC—and even your home network. Anything that you can do, it can do.

The hole is dangerous primarily to PCs running Windows 2000. Microsoft says that some Windows XP machines may also be at risk, though no attacks have yet been documented. You may be vulnerable if you're running XP Service Pack 1 and you have enabled Simple File Sharing by manually running the Network Setup Wizard and choosing the feature.

Since a widespread attack had not occurred for some time, it was easy to become lax about installing new security patches. But Zotob and its many variants have demonstrated that you're still vulnerable if you're behind, even by a day or two.

WIN2K UPDATE

MICROSOFT HAS REISSUED Windows 2000 SP4 Update Rollup 1. Some users ran into problems after installing the original update: They couldn't restart their PCs or save Office files to a floppy. Microsoft says only a few users were affected, but millions have downloaded the update, partly on our say-so (find.pcworld.com/49630). For details on the hitches and the workarounds, jump to find.pcworld.com/49631. ■

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

FIX INTERNET EXPLORER WITH ONE PATCH

MICROSOFT HAS RELEASED a new cumulative update for Internet Explorer 6 that blocks with a single patch three dangerous holes in the ubiquitous browser, including a new vulnerability in the way IE processes JPEG images. If you click a poisoned JPEG image in an e-mail or on a malicious Web site, your machine could be taken over by an attack program. The update includes all security fixes that have ever come out for IE 6. So if you haven't patched IE in a while, here's your chance to get fully up-to-date in one step. Get more information and the patch at find.pcworld.com/49627.

IN BRIEF

Adobe Fixes Flaws

ADOBE HAS PATCHED new holes in Acrobat and Reader that could let an attacker crash your PC, and possibly worse, if you click an envenomed PDF file. There are no telltale signs that a PDF is bad, and your antivirus program is unlikely to catch it. The problem is in one of the readers' core application plug-ins—Adobe isn't saying which one. Get the patch at find.pcworld.com/49628.

Help for Windows Patching Problems

MICROSOFT NOW requires users to validate their copy of Windows via Windows Genuine Advantage before they can download patches. Though the change has been painless for most users, some have had problems getting WGA to validate their copies of Windows on brand-name PCs. For help from other users and Microsoft techs, go to find.pcworld.com/49629.

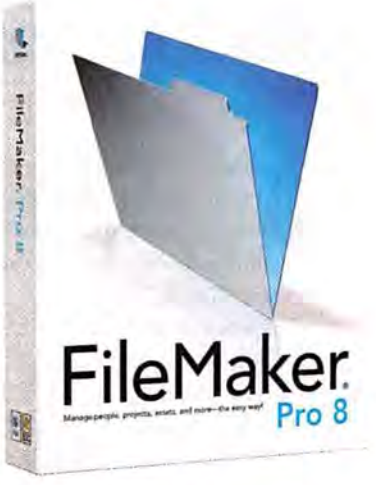
BUGGED?

FOUND A hardware or software bug? Tell us about it via e-mail at bugs@pcworld.com.

ILLUSTRATION: EDWIN FOTHERINGHAM

SUPERCHARGE your business

New FileMaker Pro 8 ushers in the next era of productivity for small businesses.



SMALL BUSINESSES HAVE A DISTINCT ADVANTAGE OVER BIGGER COMPANIES: They can be more nimble when responding to business changes.

For example, rather than paying sky-high city rents, small businesses can set up shop in outlying areas and hire great local talent. They can trim costs further by hiring excellent people willing to work at home.

Of course, the small business needs superior technology to support remote workers and other business-critical functions. Lacking the IT staffs of bigger companies, small firms need technology that is easy to deploy and even easier for users to put to work. And like the big guys, small businesses need security to protect vital information and essential customer data.

For millions of users at tens of thousands of small companies worldwide, FileMaker Pro from FileMaker (www.filemaker.com) has proven itself to be a "Swiss army knife," with starter solutions for instant productivity and the power to customize and grow as the business grows.

Now FileMaker has once again elevated the bar of excellence with its most innovative database software ever, FileMaker Pro 8. Small business owners and employees can work measurably faster and more productively while sharing information with others more easily than ever imagined.

Top ways new FileMaker Pro 8 can help supercharge your small business:

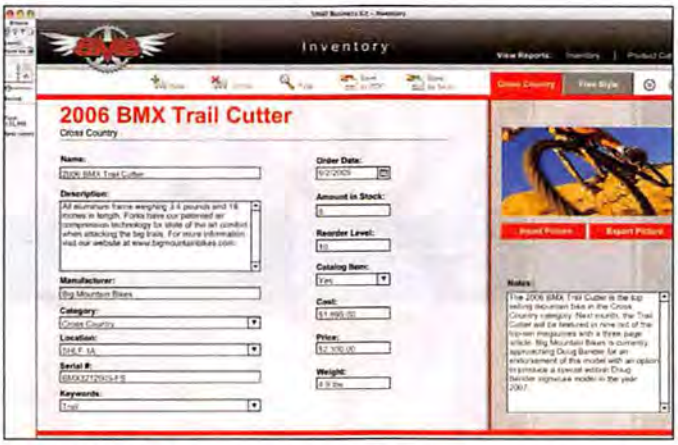
1. Process sales orders and print invoices with a click, then use FileMaker Pro 8's new *PDF Maker* to instantly save them as PDF files to send to customers or suppliers.
2. Produce sales and inventory reports in multiple, easy-to-read formats, and use the new *Excel Maker* to instantly convert the reports into Excel files to share with your accountant.
3. Get immediate access to contact details, including names, numbers, email addresses, recent orders, and related contacts instantly with FileMaker Pro 8's new *Fast Match* feature that lets you scour your data quickly, without any typing.
4. Build a mailing list of customers and prospects and seamlessly perform email merges to send personalized messages or newsletters to as many customers as you like with FileMaker Pro 8's new built-in *Email Merge* feature, or easily print out mailing labels and personalized letters.
5. Store product details, complete with part numbers and pictures, and link the information to your sales order database to eliminate duplicate data entry.
6. Produce a catalog of your products and publish it to the Web in just a few clicks.
7. Keep projects and assigned tasks on track.
8. Manage and build your business more efficiently than ever before!

FULFILLING THE SMALL BUSINESS WISH LIST

The core value proposition of FileMaker Pro 8 is like a small business wish list for simplifying myriad routine office tasks, increasing efficiency, and improving customer service.

FileMaker Pro 8 is a small business "efficiency engine" offering many ways to streamline business processes. For example, small businesses can keep stock of inventory and automatically track orders and manage order processing. Or, FileMaker Pro 8 can be used as an easy project management solution to keep track of tasks, production schedules, and time spent on development. Customer service will get an immediate boost with FileMaker Pro 8's ability to efficiently manage customer contacts, orders, invoices, and project status. FileMaker Pro 8 also makes it easy to create and share a product catalog, order information, or an online knowledge base with customers via the Web.

And the legendary user-friendliness of FileMaker Pro software really shines when it simplifies office tasks in the small business. Included in this do-it-yourself kit for small businesses are ready-to-use solutions for managing contacts, organizing products and



FileMaker Pro 8 lets you store your product details, such as part number, inventory, and pictures, and link the information to your sales order database, eliminating duplicate data entry.

inventories, producing invoices and processing sales orders, sending targeted customer mailings, managing events and employee time sheets, and producing automatic notifications and warnings when inventories rise or fall beyond user-prescribed limits.

The accolades for FileMaker Pro 8 have poured in from a wide variety of small businesses and organizations that got an early look at the latest version of the most-awarded desktop database software.

"With FileMaker Pro 8, one no longer needs to be an expert to do a bunch of really neat things that used to require loads of programming, but are now built-in and take just a couple of clicks," says Chris Manton of London-based BabelFix Limited.

Adds Arthur Evans of the AWE Consultancy based in London, "With the release of FileMaker Pro 8, the company has shown it has really listened to what small business owners have been asking for."

EXPANDING EXISTING BUSINESS INVESTMENTS

With support for both Apple Macintosh and Microsoft Windows operating systems, and easy integration with Microsoft Office and other software applications, FileMaker Pro 8 extends the technology investments small businesses have already made. FileMaker data can be shared over the Web, and new features allow FileMaker data to be instantly saved in Adobe PDF and Microsoft Excel formats. As a result, information can be shared easily with people outside the immediate workgroup, such as customers, suppliers, and partners.

"The PDF Maker in particular is a great innovation," beams Russell Wilkinson of Alastair Sawday Publishing. "It will transform the way we do some of our work and save us lots and lots of paper."

FileMaker Pro 8 contains a wealth of features that small businesses desire, such as the ability to store and manage an almost limitless volume of data—in just about any format, including PDFs, photos, spreadsheets, documents, video, and many others. Small businesses can also use the new Email Merge feature in FileMaker Pro 8 to send targeted email to their customers to alert them to specials or to dispatch monthly newsletters on the latest offerings. With a single click businesses can publish information such as inventory, catalogs, progress statements, and so on, to coworkers, vendors, and clients over the Web. And advanced security features keep information safe from prying eyes. These features include the use of account names and passwords as well as the simple and easy assignment of custom privileges.

IN STEP WITH SMALL BUSINESSES

"FileMaker Pro is basically the lifeline of our company," says Joe Scott, president of IntelliSound of Ashville, N.C., maker of custom-designed on-hold programming. "Every single conversation we have with our clients goes into the database, all their contact information, all their schedules for when they need to receive updates, and when they need to receive programs—everything is in our FileMaker Pro database. FileMaker Pro allows a small number of people to keep up with a huge client base. It keeps things extremely organized and makes everybody's life easier."

In other words, what makes FileMaker Pro 8 so appealing is that it has been designed from the bottom-up to help small businesses work faster and share more, enabling them to meet today's most pressing issues and challenges head-on with success.

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Try before you buy

If FileMaker Pro 8 sounds too good to be true, try it out for yourself at no obligation with FileMaker's 30-day free trial offer available at www.filemakertrial.com/smb. With the free trial download users can also get the new Business Productivity Kit, fully equipped with a powerful set of predesigned and ready-to-use solutions for the following tasks and more:

- ✔ **Managing contacts and companies**
- ✔ **Organizing products and inventories**
- ✔ **Processing sales orders**
- ✔ **Tracking projects and production**
- ✔ **Sending targeted mailings**
- ✔ **Producing invoices and reports**

Download these six essential solutions for small businesses today to become more organized, more productive, and more successful.

NEW PRODUCTS

EDITED BY CATHY LU AND MELISSA J. PERENSON

Cheap Photo Fixers

Two popular image editing and photo organization applications get distinctive makeovers.

IMAGE EDITORS

MOST IMAGE editing applications share enough common features and tools that, if you decide to switch, you can learn how a new one works pretty easily. But Adobe's $99 **Photoshop Elements 4** and Corel's $129 **Paint Shop Pro X** have new features that other packages will have trouble imitating.

Like previous versions, Adobe's Photoshop Elements 4 includes an image editor and a photo organizer. Paint Shop Pro X, the first version of the image editor that Corel has released since it acquired Jasc Software, includes a version of Photo Album 6, Corel's standalone photo organizer. But with either Adobe or Corel, you'll often run its two applications simultaneously, and switching between them isn't nearly as easy as working with a single application would be.

EDITING SKILLS

PAINT SHOP PRO X'S new Learning Center works much like the How To palette that Photoshop Elements has had since version 1. Both walk you through how to use various tools. Most of Paint Shop Pro's tips are excellent, but many editing tasks require you to work in dialog boxes, which don't work with the Learning Center.

The shipping version of Paint Shop Pro that I tested includes the new One Step Purple Fringe Fix, which does a good job of correcting problems often found around the edges of highly backlit objects. The new Makeover tool lets you click to fix blemishes, whiten teeth, or give your subject a suntan. The tool's blemishes mode works mostly by blurring, and thus is less precise than Elements' healing brush, which feathers in nearby pixels. The teeth whitener is quick, easy, and effective. The tanner uses a brush that you are supposed to wipe over someone's face (or other body part); it's easy to miss a spot, and you can't adjust the level of effect. A new Object Remover is supposed to help you erase unwanted items in just a couple of steps—kind of like a clone tool—but I noticed remnants of removed objects in my photos.

WHEN CREATING slide shows in Photoshop Elements 4, you can choose the types of transitions between slides and vary their duration.

Looking for a little guidance in your editing efforts? Paint Shop Pro's Smart Photo Fix suggests ways to improve an image. Choosing the tool pops up yet another dialog box, in which you click Suggest Set-

Photoshop Elements 4
Adobe Systems
★★★★½
Not every new feature is a star, but this is still the best low-cost image editor/organizer around.
List: $99
find.pcworld.com/49620

Paint Shop Pro X
Corel
★★★½☆
Decent image editor upgrade is paired with a weak (but fast) organizer.
List: $129
find.pcworld.com/49621

50 IMAGE EDITING
Adobe Photoshop Elements 4, Corel PaintShop Pro X

52 INSTANT MESSAGING
Google Talk

SOUND CARD
Creative X-Fi Elite Pro

GRAPHICS BOARD
XFX GeForce 7800 GT

53 DIGITAL CAMERA
Panasonic Lumix DMC-LX1S

56 PHOTO PRINTER
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58 AUDIO PLAYER
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OCR SOFTWARE
ScanSoft OmniPage Professional 15

60 MOBILE COMPUTING
Dell Axim X51v, HP iPaq rx1950

INPUT DEVICE
Apple Mighty Mouse

61 PROJECTOR
Mitsubishi PocketProjector

62 ACCOUNTING SOFTWARE
Microsoft Office Small Business Accounting 2006

53

tings. But instead of providing ideas, the tool actually makes the changes and then gives you the option of overriding what it has done.

Photoshop Elements 4 isn't without faults, either. Its new Magic Selection brush is supposed to help you create selections quickly and easily: Brush in the area where you want the selection to occur, and the application will look for edges and color similarities to use in making it. The tool in the beta version I tested worked very slowly, however, and it didn't perform well except in photos where other selection tools would have had little trouble themselves. Elements 4's new Skin Tone Adjustment feature alters the color of the entire image (not just of specific pixels); consequently, on some photographs it worked subtly, while on others it altered hues dramatically—and incorrectly.

One welcome improvement to Elements involves inclusion of the spot healing brush introduced in Creative Suite 2, the full version of Photoshop; it analyzes nearby pixels to determine the best way to clone over an area, without requiring you to establish a reference point. Elements 4 has gained simplified versions of two other Photoshop CS2 tools as well: shadows and highlights, and noise reduction. Both of these worked superbly (and the latter is easier to understand than its counterpart in Paint Shop Pro).

PAINT SHOP PRO'S Smart Photo Fix feature suggests ways to improve your photo and permits you to tweak those settings further.

ORGANIZATION SKILLS

THE FEATURE IN Elements 4's organizer that I like the best is its tags. Dragging large, luggage-tag icons onto images categorizes them according to, say, place (such as "England") or person (such as "Bob"). A new Face-Tagging feature is designed to speed up the tagging process: After you select a group of images, it isolates just the faces in them. But preselecting the images takes time, and so does the analysis. I found it quicker to search for untagged images.

When importing images, you can instruct the application to eliminate any red-eye that it finds. Alternatively, you can opt for a single-button red-eye fix; either method works better than any other red-eye tool I've ever used, one click or not.

Elements 4's slide-show creator is pretty snazzy, too, containing features that appear in many video editing applications. Besides being able to pan and zoom photos during the show, you can choose different transitions, set varying transition times, and insert graphics or narration.

You can also create HTML-based e-mail, but with one flaw: an advertisement for Elements at the bottom of the e-mail that you can't get rid of.

Corel's Photo Album has few extras, and its tagging system is much less attractive and less functional than Elements'. Whereas Elements lets you create picture-based tags, Photo Album has only text labels. Its slide shows are basic, and you can merely attach images to an e-mail—no fancy stuff allowed.

Photo Album's one real advantage over Elements 4's organizer is its speed: Despite performance improvements in Elements 4, its organizer operates slowly. In contrast, Photo Album 6 romps through images, even if you choose to view All Photos (which a new command lets you do).

PHOTO FINALE

DESPITE DRAWBACKS involving a couple of its new tools, Elements 4 is still the best low-priced image editing and organization application you can buy. Paint Shop Pro is a powerful, complicated editor, and the additional handholding that version X offers will certainly benefit users; unfortunately, the package sorely needs a better photo organizer.

—Alan Stafford

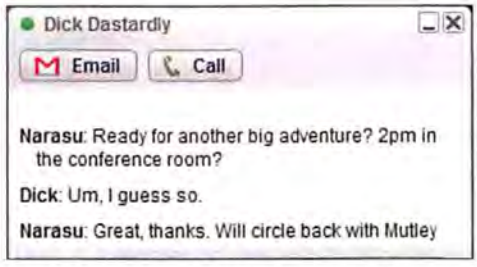
PHOTOGRAPH: MARC SIMON

Google Talk: It's a Start

INSTANT MESSAGING

GOOGLE TALK—the new instant messaging service and software—offers no-frills text and voice chats for free. It's adequate at what it does, but as yet that's not much.

For the full Google Talk experience, you will need a Gmail account and the downloadable client software. At press time, there were no emoticons, no file transfers, and no Mac client. Mac users will have to go through iChat. In fact, you can use any IM client that supports the open Jabber/XMPP protocols for instant messaging. I easily set up Google Talk using both iChat and Trillian Pro 3.1.



THE SPARSE, SIMPLE Google Talk client lets you call and instant-message others using the same app.

The best word to describe the Google Talk interface is *austere*. Its white window can display all Gmail contacts or just the ones for Google Talk users. Hovering over a name will reveal whether that person is online or offline. If you are conducting several chats at once, you can collapse the various panes into a stack of title bars to save screen space.

Using a Sony headset and microphone, I conducted a number of voice chats that sounded clear and produced no distinguishable lag. Voice chat is supported solely through the Google Talk client, though, and the only way you can call is PC to PC. The service lacks voice mail, conference calling, and audio-chat recording capabilities. But Google says that it is currently working with Sipphone and EarthLink to extend VoIP capabilities across service providers.

Although I like Google Talk, I don't need it. My friends use AIM and ICQ, so Trillian and iChat serve me just fine. But when I know more Gmailers, or when Google adds extra features, I might look again.

—Narasu Rebbapragada

Google Talk
Google
★★½☆☆
Good at basic text and voice chat, but offers few extras.
Free
find.pcworld.com/49514

QUICK TAKE

Snazzy Sound Card

CREATIVE'S NEW X-Fi audio processor produces impressive 24-bit effects that can improve the sound of MP3s, broaden stereo tracks into surround sound, and strengthen 3D audio in games. The preproduction $400 **X-Fi Elite Pro** package I tested would be overkill for most users, but audiophiles will drool over the array of inputs, outputs, and controls on its huge breakout box. It even packs 64MB of dedicated RAM, which helps improve gaming performance.
find.pcworld.com/49618

–Eric Dahl

Great Graphics, Better Price

GRAPHICS BOARD

WHEN NVIDIA launched the GeForce 7800 GTX, several months ago, its stellar performance blew us away—but so did its scary $600 price. The latest nVidia chip is the $400 7800 GT, which features great performance for power users on a slightly tighter budget.

To make the 7800 GT, nVidia slowed down its 7800 GTX chip (see find.pcworld.com/49442) and turned off a few pipes. But card vendor XFX has sped things up by slightly overclocking its PCI Express–based **GeForce 7800 GT** board, allowing it to keep pace with a previously tested 7800 GTX reference card, and to easily outrun a high-end ATI Radeon X850 Platinum Edition card.

In our Doom 3 test, the 7800 GT posted 62 frames per second at 1600 by 1200 resolution, close to the 7800 GTX's score of 64 fps and well ahead of the X850's 45 fps. With antialiasing on, the 7800 GT mustered 41 fps; the 7800 GTX and the X850 managed 42 and 31 fps, respectively.

XFX'S GEFORCE 7800 GT provides a nice gaming boost without shocking your wallet.

At the same resolution but with antialiasing turned off, tests with Far Cry produced similar results: The 7800 GT achieved 77 fps; the 7800 GTX, 80 fps; and the X850, 67 fps. With antialiasing switched on, the 7800 GT reached 47 fps, while the 7800 GTX managed 50 fps and the X850 hit 17 fps.

If those frame rates mean something to you, the 7800 GT is well worth considering.

—Tom Mainelli

GeForce 7800 GT
XFX
★★★★☆
Near top-of-the-line graphics performance at a somewhat palatable price.
Street: $400
find.pcworld.com/49450

PHOTOGRAPHS: MARC SIMON

Panasonic's Powerful Digicam

THIS 8.4-MEGAPIXEL camera offers tons of advanced options.

DIGITAL CAMERA

"SMALL AND POWERFUL" is no contradiction in terms with the latest point-and-shoot digital cameras. But Panasonic's $600 **Lumix DMC-LX1S** is even better equipped than most, starting with its amazing 8.4-megapixel CCD and wealth of advanced exposure controls.

The camera's most intriguing feature, though, is its array of three image aspect ratios: 4:3, the typical digital camera ratio; 3:2, a match for 35mm film and perfect for 4-by-6-inch prints; and 16:9, the standard for wide-screen displays.

Most cameras that offer a 16:9 aspect do so by trimming from the top and bottom of your photo, which means losing some resolution. The Panasonic gives you the full 8.4 megapixels at 16:9, and lower resolutions at the 3:2 and 4:3 settings (approximately 6 and 7 megapixels, respectively).

Notwithstanding my shipping unit's lack of an optical viewfinder, I found a lot to like in the camera's design. It's small enough to fit in a cargo-pants pocket, yet easy to hold. The 2.5-inch LCD is viewable in all light, and the optical image stabilization is handy for taking shots indoors without a flash. You can also shoot in RAW and TIFF formats.

Image quality was generally good in *PC World* tests: Photos appeared relatively sharp and well exposed, though our lab shot of a mannequin model, using the built-in flash, looked a little gray. A still life, shot with daylight-balanced floodlights, was a bit underexposed and had a slight greenish cast. My own outdoor test shots yielded accurate, though slightly muted, colors.

More than a run-of-the-mill point-and-shoot, the DMC-LX1S is for advanced users who want a small, light, and powerful camera.

—Tracey Capen

Lumix DMC-LX1S
Panasonic
★★★★☆
Great design and high-end features make this a good choice for serious photographers.
List: $600
find.pcworld.com/49616

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Ricoh dependability moves your ideas forward.

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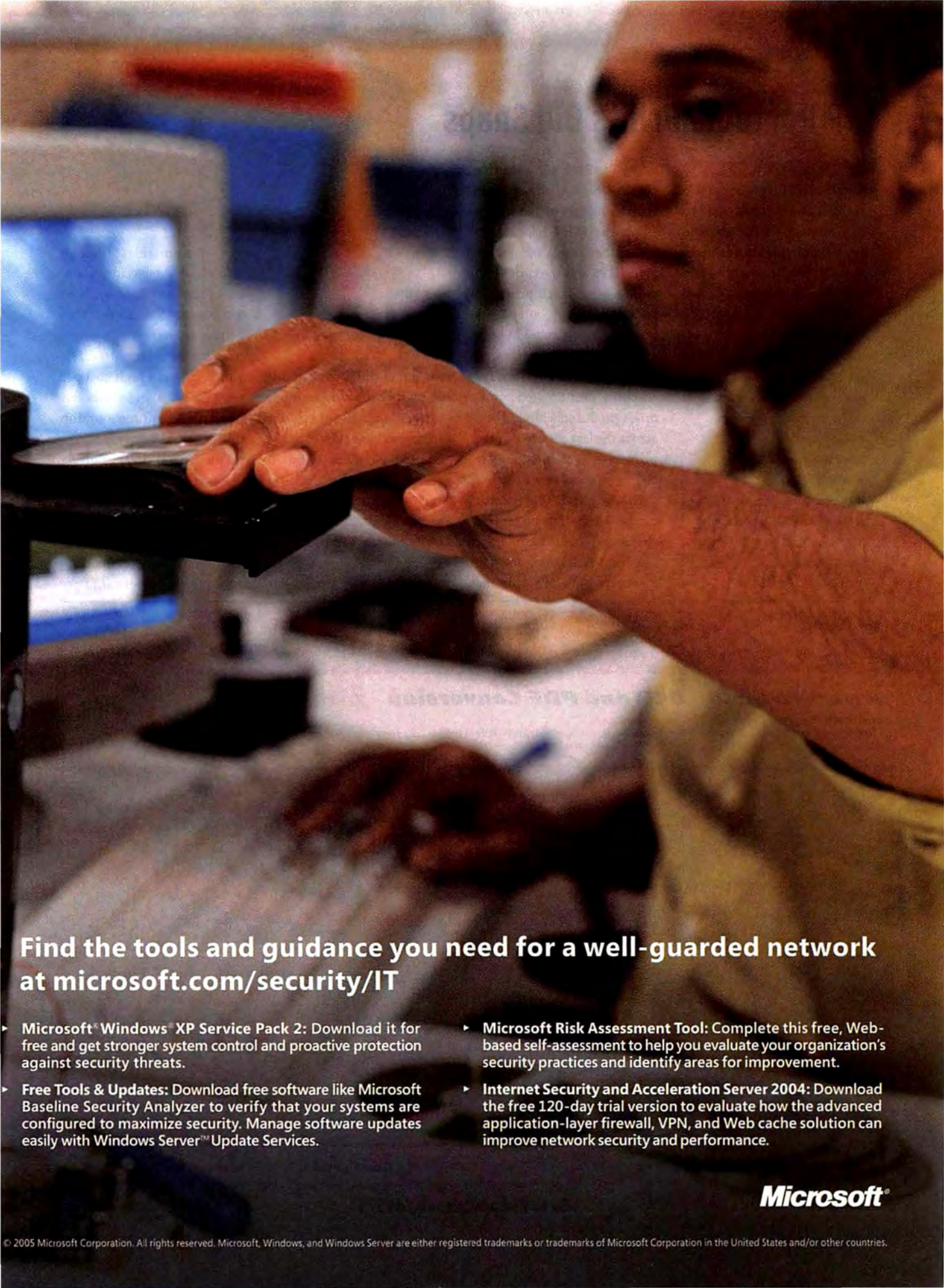

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HP Portable Prints Big Snaps

HP'S TRIM photo printer stows away a 1.5GB hard drive.

PHOTOGRAPH: MARC SIMON

PHOTO PRINTER

HP'S $280 PHOTOSMART 475 delivers easy printing and picture storage on the go. And several unique features make it more flexible than its sibling, the Photosmart 375, and rival portable printers.

The biggest news is the addition of a 1.5GB hard drive for storing photos. The unit also has four media-card slots and a PictBridge-compatible port. A USB port allows you to transfer images to and from a PC, but at USB 1.1 speeds.

The device's other major upgrade is its ability to print borderless 5-by-7-inch prints, in addition to 4-by-6 snaps. My test prints generated at both sizes showed rich colors and sharp details. Regrettably, the shipping unit I tested sometimes produced a slight band across the last edge to exit the printer—a flaw most noticeable in blue sky or water.

The bright 2.5-inch color display on top flips up for previewing and editing images. The front panel folds down to act as an output tray, while the rear panel pulls back about half an inch to reveal an input tray that holds 20 sheets. You can connect the unit to a TV, and use the remote control to present a slide show, during which you can print any shot. For more portability, you can buy an $80 rechargeable battery or a $40 car power adapter. Its printing times are fine for a portable, although slow by desktop standards: 4-by-6 prints emerged in about 1 minute, 45 seconds. This printer uses the same three-color ink cartridges as the 375, which posted a high cost per print (81 cents) in tests for our April photo printer roundup (find.pcworld.com/49726).

You can get cheaper prints of equal quality from Epson's PictureMate Deluxe. The Photosmart 475, though, provides the added advantage of letting you archive shots on the run.

—Paul Jasper

Photosmart 475
Hewlett-Packard
★★★★☆
With internal storage, this is one of the most versatile portable printers around.
Street: $280
find.pcworld.com/49500

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Apple's Minuscule iPod Nano Dazzles

AUDIO PLAYER

THE FIRST THING you notice about the flash-based **iPod Nano**, of course, is its tiny size. But what's really impressive about the Nano—and represents a breakthrough for the category of lilliputian MP3 players—is its bright, crisp color display, which makes navigating your tunes a snap.

The slim Nano costs $249 for the 4GB version; a 2GB model sells for $199. It weighs 1.5 ounces and is about 0.25 inch thick—so small that you scarcely feel it when you have the Nano in your shirt pocket. Surprisingly, its size was no impediment to functionality: I navigated the Nano's menus, displayed on its barely-larger-than-a-postage-stamp display, without difficulty. The unit's screen resolution is sufficiently high that it can fit as many as 27 characters across, in extremely readable type.

But as good as the display is, you shouldn't get too excited about the Nano's ability to display photos: The shots I viewed looked dark, and even high-quality photos don't look so great when they are shrunk down to 1.5 inches across.

Whereas most flash-based players top out at 1GB, the Nano falls into the midcapacity range once exclusively the domain of players that carried internal hard drives. I put 433 songs (encoded at anywhere from 128 kbps to 192 kbps) on the 2GB model I tested. Because it uses flash memory, the Nano should be more rugged than its hard-drive counterparts, and thus more attractive to joggers, bicyclists, and others unwilling to risk ruining a hard-drive player during their exertions.

My chief complaint about the Nano involves the unfortunate design decision of positioning its headphone jack at the bottom of the player. This arrangement prevents users from standing the player up on a table while listening to it.

But if you're an iTunes devotee already—or if you want a featherweight, fashionable MP3 player—you'll find plenty to love about the iPod Nano.

—Edward N. Albro

APPLE'S IPOD NANO scores a home run for its sleek physique and 4GB of flash memory.

iPod Nano
Apple
★★★★½
Its high-capacity flash memory and crisp color screen make this stylish music player a standout.
List: 2GB $199, 4GB $249
find.pcworld.com/49656

First-Class OCR for a Price

OCR SOFTWARE

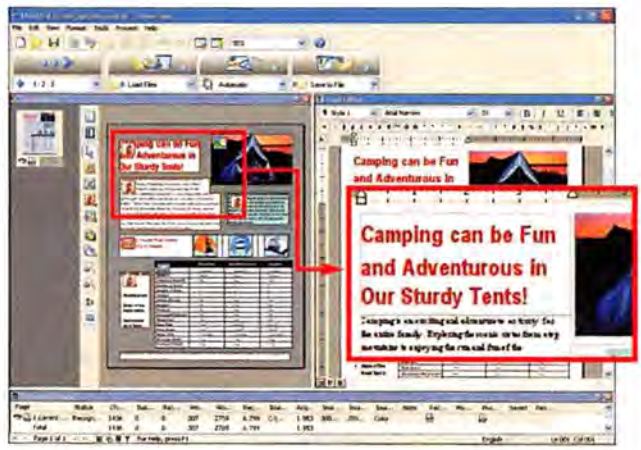
SCANSOFT'S LATEST iteration of its optical character recognition package, **OmniPage Professional 15**, packs in advanced workflow and batch management capabilities, too. Predictably, its price reflects these features: At $450 (street), OmniPage Pro 15 will appeal primarily to users in workgroups and other professional environments who need regular access to OCR tools tailored for offices that have to convert stacks of pages. (The scaled-down version, OmniPage 15, lacks some of the advanced features and sells for $150.)

OmniPage Pro does an excellent job of accurately converting paper documents or image files that contain words into editable text or otherwise viewable files. When I tested a shipping version of OmniPage Pro 15 with scanned documents of varying complexity, the tool made its conversions with pleasing proficiency.

Its workflow capabilities are similarly impressive. Using the program's wizard-driven Workflow Assistant, for instance, I easily set up a document conversion process that could later be applied to additional batches of documents. Those results, in turn, were automatically postable via Microsoft SharePoint, e-mail, or FTP. Another new feature: OmniPage can turn any digital document format into a searchable and secure PDF file for sharing and archiving. Separate bundled PDF utilities make it easy for you to create and convert PDF files while using other programs.

Time-saving automated features enable OmniPage Pro 15 to boost productivity easily.

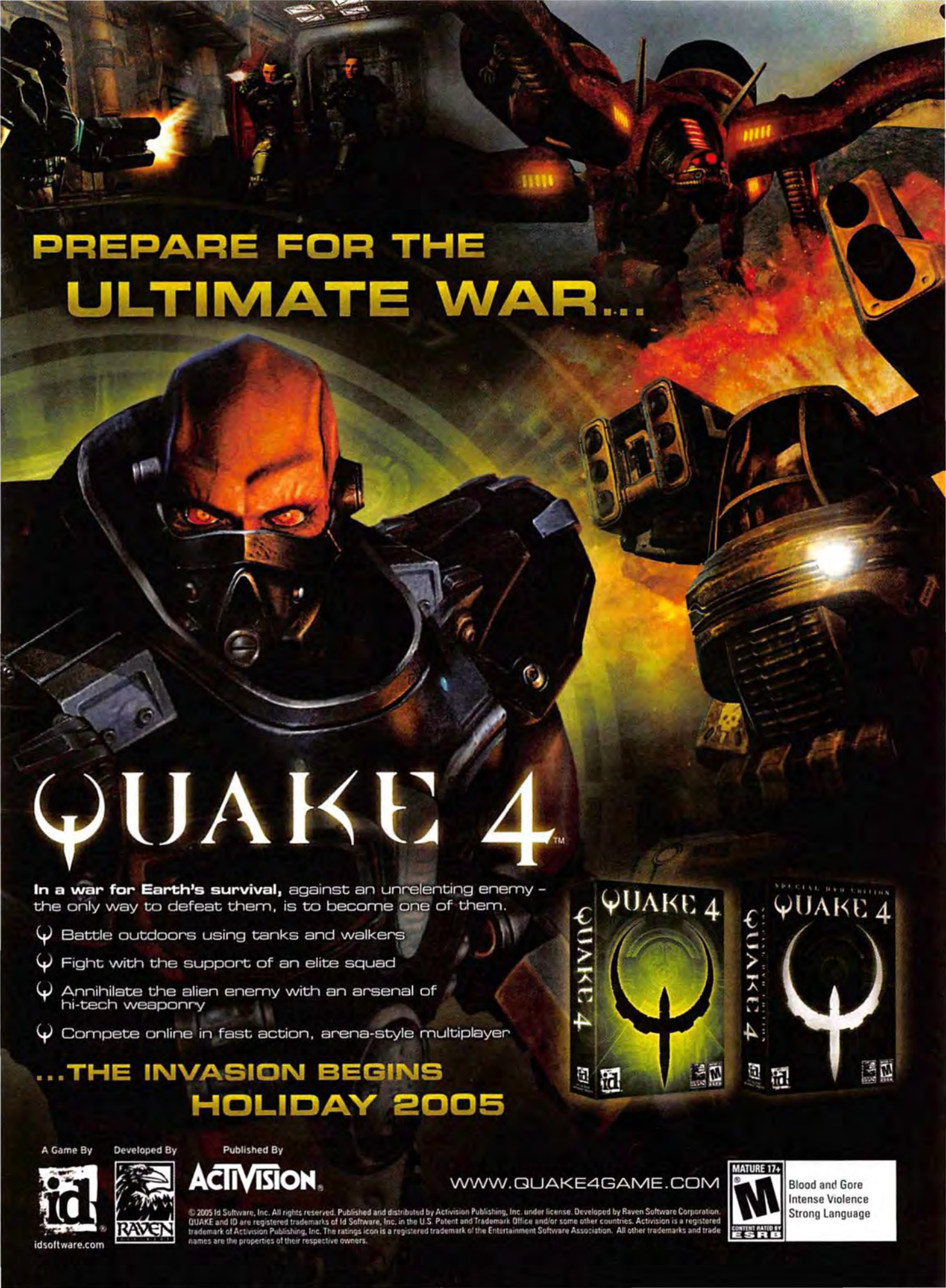
—Richard Jantz



OMNIPAGE PRO 15 analyzes scanned documents (left half of screen) to turn sections into editable text (right half of screen and callout box).

OmniPage Professional 15
ScanSoft
★★★½☆
Pricey OCR processor has batch-management and workflow tools well suited for business use.
Street: $450
find.pcworld.com/49519

PHOTOGRAPH: MARC SIMON



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Handhelds Get a Boost From Windows Mobile 5

MOBILE COMPUTING

WHETHER YOU PREFER your personal digital assistants tiny and svelte, or are willing to add an ounce or two in exchange for increased power and performance, new Wi-Fi–enabled models from Dell and Hewlett-Packard promise to fit the bill. Judging from our tests of preproduction versions of Dell's **Axim X51v** and HP's **iPaq rx1950**, these first Pocket PCs based on Windows Mobile 5 substantially deliver on Microsoft's claims that the latest edition of its operating system for handhelds would improve devices' capabilities for both work and play.

The $499 Axim X51v targets the bigger-is-better crowd with such top-of-the-line hardware as a 624-MHz Intel XScale processor, Intel's 2700 handhelds graphics accelerator (including 16MB of memory for better video streaming), 256MB of flash ROM, 64MB of SDRAM, both SD Card and CompactFlash slots, and a full VGA (640 by 480), 3.7-inch display.

The iPaq rx1950, in contrast, takes the "pocket" in Pocket PC seriously: At 4.4 ounces, it weighs nearly 2 ounces less than the Axim, and it's smaller and thinner, too. The device is also $200 cheaper ($299 street), but its hardware specs are far less impressive: a 300-MHz Samsung CPU, 64MB of ROM, 32MB of SDRAM, an SD Card slot, and a 3.5-inch QVGA (240 by 320) display.

DELL'S AXIM X51v (above) packs more power than the HP iPaq rx1950; it also sports a larger screen. But the iPaq is smaller and slimmer.

The two units have removable, rechargeable lithium ion batteries (the Dell included a recharging cradle with a slot for a spare battery; the HP hooked up via a simple USB cable). Both came with Bluetooth and Wi-Fi radios that were easy to configure through vendor-provided utilities and Windows Mobile 5's own software. And the two devices performed well with Windows Mobile 5's most notable applications (see find.pcworld.com/49522): Word and Excel.

In fact, Word and Excel documents rendered almost perfectly (one flaw: a couple of small images on a document containing text and graphics dropped out during the conversion). I had no problems using Windows Media 10 Mobile to load and play tunes from the popular Rhapsody subscription service. I don't use Outlook as my calendar and address book, however, so I was dismayed to see a message warning of limited functionality without Outlook; this notice popped up whenever ActiveSync 4 (the latest version of the Windows Mobile desktop software) detected that I had connected one or the other handheld to my PC.

Users seeking a workhorse with lots of storage plus the power to run heavy-duty business apps or games should check out the Axim X51v. People who want to send and receive e-mail, browse the Web, or listen to music on a device sized for a shirt pocket should consider the iPaq rx1950.

—Yardena Arar

Axim X51v
Dell
Preproduction model, not rated
Big-time hardware features make this affordable model attractive to power-hungry mobile users.
Street: $499
find.pcworld.com/49520

iPaq rx1950
Hewlett-Packard
Preproduction model, not rated
This skinny, lightweight device is great if you don't demand too much of a connected handheld.
Street: $299
find.pcworld.com/49523

PHOTOGRAPHS: MARC SIMON

QUICK TAKE

Apple's Multibutton Mouse Takes On Windows

DUBBED THE **Mighty Mouse**, Apple's $49 USB pointing device includes four buttons and a multidirectional scroll ball, and works with both Macs and PCs. The Mighty Mouse bears Apple's trademark minimalist look: The touch-sensitive left and right buttons reside unmarked under the white plastic, so getting used to pressing down on them takes a few minutes. All that protrudes from the upper surface of the mouse is the tiny white multidirectional scroll ball, which doubles as a third mouse button (under Windows, it acts strictly as a panning wheel). You activate the fourth mouse "button" by simultaneously clicking the two buttons on either side of the mouse. Unfortunately, the Mighty Mouse's ergonomics didn't thrill me: The side buttons don't press in very deeply (you squeeze them more than push them in), and I had to use a bit more pressure than I'd have preferred, particularly on repetitive tasks. find.pcworld.com/49524

–Narasu Rebbapragada

APPLE'S sleek Mighty Mouse has a streamlined look.

Small Mitsubishi Projector More Toy Than Tool

REALLY, IT'S palm-size. Mitsubishi's PocketProjector is supersmall, but limited.

PROJECTOR

MITSUBISHI'S $799 **PocketProjector** is a marvel of compact projection technology. Weighing barely 14 ounces, this palm-size (4.8 by 1.8 by 3.8 inches) unit is no trouble to carry and is easy to hook up to a notebook, DVD player, digital camera, or gaming console. To make the PocketProjector even more convenient to tote, an optional rechargeable battery (which costs an extra $199) snaps onto the projector's bottom and gives you about 2.5 hours of power.

PocketProjector
Mitsubishi
Preproduction model, not rated
Tiny projector's limitations in bright light leave it better suited for dark environs.
Street: $799, battery pack $199
find.pcworld.com/49525

The PocketProjector uses Texas Instruments' Digital Light Processing technology to project native SVGA (800 by 600) resolution images. Because it works with LED-based bulbs (three Lumileds LEDs) and is rated at a brightness level of only 250 lux (an industry measurement of light output), the PocketProjector is no match for conventional portable projectors equipped with more-powerful lamps.

I found the preproduction version I tested best suited for use in a dark room or under very low ambient light conditions. At night, the PocketProjector produced images that were rich in color, with good contrast and sharp details. But during daytime hours and under low ambient light, images were harder to see, and color and details were lackluster.

The PocketProjector has a short-throw lens, so it can produce a fairly large image (up to 60 inches) at close range. It's suitable for after-hours use, but less so for workday business presentations.

—Richard Jantz

Ricoh dependability moves your ideas forward.

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Microsoft Makes Keeping the Books Easy

FINANCIALS IN COLOR: Small Business Accounting's home page can aggregate information, such as cash flow, for quick viewing.

ACCOUNTING SOFTWARE

MICROSOFT'S $179 (single-user) **Office Small Business Accounting 2006** is rich with easy-to-understand flowcharts that help guide nonaccountants in using it. The software is designed to meet the needs of small businesses with up to 25 employees and five accounting users—the same market now served by Intuit's QuickBooks and Best Software's Peachtree Accounting.

I looked at Microsoft's shipping version and found it to be a capable program. SBA's strength rests in its ties to the customer relationship management features found in the updated version of Microsoft Outlook 2003 with Business Contact Manager. Both SBA and the updated Outlook are included in Microsoft Office Small Business Management Edition 2006 (if your version of Office lacks BCM for Outlook, you'll need to buy it).

Business Contact Manager lets sales reps create quotes and start the order process; Word can customize accounting forms, while Excel can transfer financial data.

SBA, in turn, tracks sales, customer accounts receivable, disbursements, and vendor accounts payable, along with banking and financial reporting. Basic paycheck preparation is included, too.

SBA is a logical step up if you now use an Excel spreadsheet to keep your books. ■

—Richard Morochove

Office Small Business Accounting 2006
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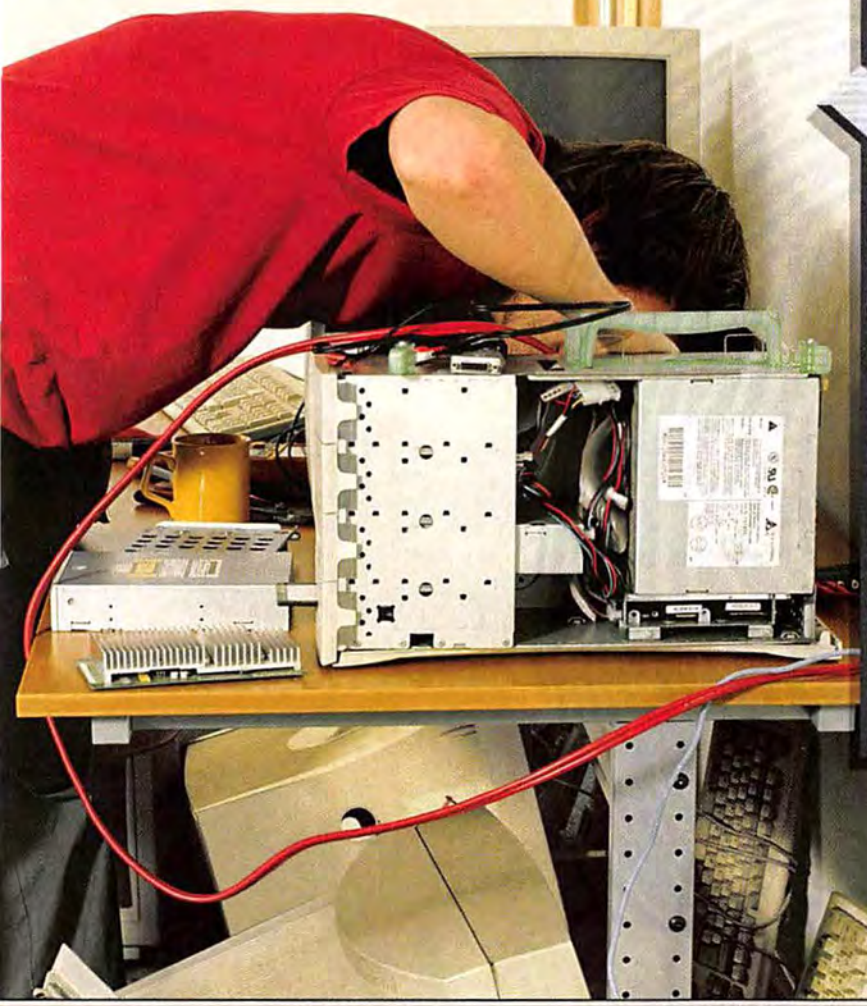

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ThinkPad R50e

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PCI Express technology.

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ThinkCentre A51

PCI Express technology.

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Microsoft® Windows® XP Professional
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6 USB 2.0 Ports (2 frontside)
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The New Security War

THE HIDDEN MONEY TRAIL 71 BEST DEFENSES 85

Adware makers get money from major businesses. Here's the inside story.

We rate new and **potent tools** for killing invasive, PC-clogging spyware dead.

EVER-INCREASING THREATS TO OUR DATA, to our privacy, to our businesses, and to the Internet itself have made computing a hazardous endeavor. Familiar offenders like viruses and spam have been joined by more insidious threats—from spyware and adware infecting your PC to identity thieves who attack major databases of personal information to organized criminal gangs roaming cyberspace. In this report, we examine the new perils menacing users. The situation may look grim, but you can strike back. We review the latest spyware fighters. And we boil security down to ten tips that will help shield you from current threats—and from ones the bad guys haven't even dreamed up yet. For more information, visit find.pcworld.com/49712. ▶

»PLUS

THREAT ALERT

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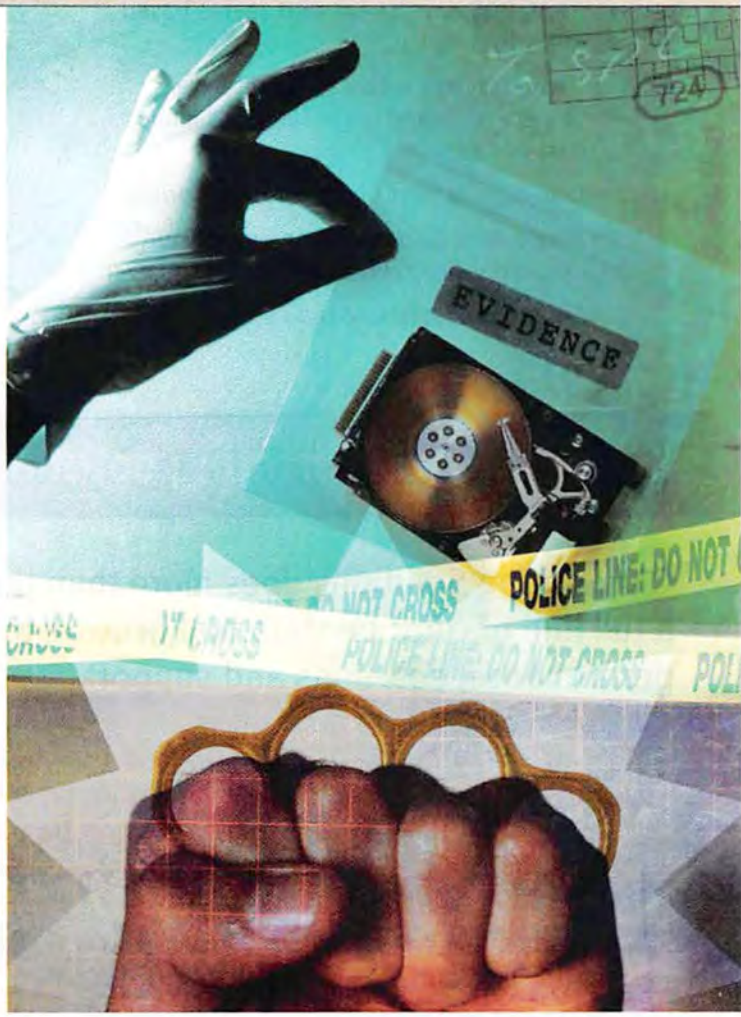
Beware: **Your information** is up for sale and up for grabs. What can you do?

IS THE NET DOOMED? 111



The Net is an international **crime scene**. We look at the bad news and at ways to fix it.

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August 2004	February 2005	May 2005	August 2005

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ADWARE

The Hidden Money Trail

Those programs that pelt you with ads and bog down your PC are financed by some of America's largest companies.

BY DAN TYNAN AND TOM SPRING

ALLISON SMITH WILL NEVER FORGET the week before Memorial Day 2005.

Roaming the Internet looking for some free clip art, Smith found a site that looked perfect. But before she could download as much as an icon, her PC was infested with adware.

"All of a sudden I was besieged with pop-up ads," says Smith, a CPA who runs an accounting firm in Conway, Arkansas. "Boom boom boom boom boom—I had so many Internet Explorer windows [open] that they completely stalled my computer."

Many of the ads Smith saw on her desktop bore a calling card from their creator: an ▶

ILLUSTRATIONS BY STUART BRADFORD

31% of businesses rate spyware as a major threat for the next year. [DELOITTE GLOBAL SECURITY SURVEY, 2005]

adware program called Aurora, made by New York-based Direct Revenue.

Using another computer, Smith googled "Aurora" to learn more. She ineffectively tried using anti-spyware programs to remove it, tried killing the adware using Task Manager, and eventually hired a computer technician, who spent three days (at $50 an hour) trying to fix the problem. Each time he removed the software, she says, it would automatically reinstall itself under a different name.

Between repairs and lost revenue from downtime, Smith says her adware debacle cost her close to $5000. "What really surprised me was that the ads were from reputable companies, names you'd recognize," she says. "I got really angry that legitimate businesses would advertise their products using a program like this."

Smith's experience is not that uncommon. Many companies' products and services are promoted via adware, software that runs on a user's PC and displays ads, often in response to your Web activities. When we installed various adware programs on test PCs, we saw ads from such well-known brands as Chrysler, Expedia, Microsoft, Priceline, and Travelocity.

Direct Revenue's CEO, Jean-Phillipe Maheu, doesn't dispute that Smith had Aurora on her PC. But, he says, Aurora doesn't pop up as many ads as Smith complained about, indicating that she likely had more than one type of adware installed on her PC. Maheu said his company doesn't condone "drive-by installations," in which the software is loaded on PCs without alerting the user. If Direct Revenue finds that a partner is using this tactic, Maheu says, Direct Revenue severs ties with the partner.

Estimates of the annual revenue of the adware business range from $200 million to $2 billion.

NASTYWARE: CoolWebSearch puts links to advertisers on any Web page you visit. Site owners have no control over the links.

IS ADWARE SPYWARE?

ARE PROGRAMS LIKE the one that hit Smith's computer *adware* or *spyware*? Depending on who you ask, experts define the word spyware differently.

Some use the word to describe tools that steal passwords and other personal data. Others consider a program spyware if it installs itself without your clear knowledge and permission. So the same program could be considered spyware or adware, depending on the circumstances under which you got it.

It's surprising to find that nobody knows for certain how much money the adware industry takes in annually—estimates range from $200 million to $2 billion a year in revenue—but if investments are any indication, business is booming.

Venture capital firms are bullish on adware companies, including Direct Revenue, WhenU and 180solutions. According to SEC filings, Technology Investment Capital invested $4.4 million in Direct Revenue, after giving them $6.7 million last year. Trident Capital committed $15 million to WhenU this past summer. And, last year, Spectrum Equity invested $40 million in 180solutions.

How do VCs explain giving money to companies who monitor users' Web browsing habits? "Adware is here to stay," says Venetia Kontogouris, a managing director at Trident Capital. "Privacy for the [Internet] consumer is a lost war."

Adware makers and their funders are only one part of this complex new industry; millions of dollars also come from advertisers, and from the ad brokers who work for them. These people in turn pay search engines (on which brokers place ads), software bundlers that distribute adware, and vast networks of affiliates and subaffiliates. (See "Following the Money: How Adware Gets on Your PC," page 74, for an illustration of the process.)

A LONG, WINDING ROAD

THE PATH ADWARE takes to get on your PC is murky. Many intermediaries help adware do its job, for a cut of the profits.

Typically, an advertiser hires a broker or an ad agency to purchase ad space. The broker or agency buys space from adware firms, like Claria or WhenU.

The adware makers have myriad ways of getting their program on your PC. You can get it directly from the adware company when you download software, like Claria's ScreenScenes screen saver and Gator eWallet software. Or you may have to get adware in order to access Web-based games or other online content, such as that found on Zango.com, a site owned by 180solutions.

Many adware companies also have networks of partners that help distribute and promote their adware. *Bundlers* package adware with other programs—for example, we received WhenU's Save when we installed the BearShare file sharing program. *Affiliates* help market the adware by, for example, buying keyword-based ads on search engines; they may

also purchase banner ads on Web sites.

Reps from several adware companies say they hold their business partners, affiliates included, to a code of conduct that forbids secret, or "drive-by," downloads.

But, because affiliates can be swayed by the potential to earn a lot of money quickly and often operate with little or no oversight, some go "rogue" and use stealth installations or other deceptive tactics to force adware onto PCs. Affiliate programs are "where bad things happen," according to Direct Revenue's Maheu.

PHOTOGRAPH: STEVE JONES

BATTLING ROGUES

ROGUE AFFLIATES both help and harm adware makers. On one hand, they do a remarkably good job of getting the adware installed on PCs. On the other, rogues can anger consumers, embarrass advertisers, and draw lawmakers' ire.

Adware companies we spoke with say they don't tolerate rogue affiliates. Companies cancel affiliate contracts if someone complains, and some conduct internal investigations to ferret out rogues.

"I GOT REALLY ANGRY THAT LEGITIMATE COMPANIES WOULD ADVERTISE THEIR PRODUCTS...LIKE THIS."

–ALLISON SMITH, TAX ACCOUNTANT WHOSE OFFICE PC WAS INFESTED WITH ADWARE

Direct Revenue's Maheu, who joined the company in May 2005, says "we give our distributors our guidelines, and if they don't comply, we shut them off." He adds that the company recently cancelled distribution agreements with 8 of the 30 distributors Direct Revenue works with.

"All our distribution will be affiliate-free by the end of the year," Maheu says.

But not all companies are getting rid of affiliates. Affiliates distribute about 80 percent of 180solutions' adware, notes Sean Sundwall, director of corporate communications, adding that he characterizes as "rogues" less than 5 percent (or fewer than 500) of the company's roughly 8000 distribution partners. Last January, 180solutions hired a team to identify and remove deceptive distributors.

In June, 180solutions also took the unusual step of sending pop-ups to 20 million users to notify them that they had its software installed, and to provide removal instructions. In August, the company sued seven former distributors for surreptitiously distributing its software via networks of "zombie" PCs; each zombie was infected with a Trojan horse that let the rogue affiliate control the PC.

FAIR WARNING?

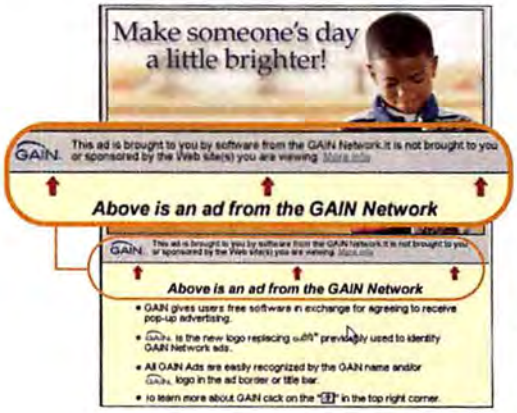
EVEN AS ADWARE companies are going after rogue behavior by affiliates, some of them continue to act in ways that privacy-sensitive consumers consider deceptive.

Not all bundled programs give you a clear warning about the adware you're about to install. In some cases, a disclosure may be buried many paragraphs deep in an End User License Agreement (or EULA) that you may or may not read. Even a careful EULA reader might not realize that a paragraph about "third-party software downloads" is, in fact, a subtle reference to adware.

In contrast, when you install the free BearShare peer-to-peer program, you must agree to EULAs from both BearShare and WhenU. You'll see screens describing this "ads for apps" trade-off before and after the installation.

Many prominent adware firms also label their ads. In our testing, we saw Direct Revenue's labels for Aurora appear on the title bar of its ad windows. 180solutions included an icon in the title bar. And Claria and WhenU put both the ▶

33% of scanned enterprise PCs were infected with adware. [WEBROOT STATE OF SPYWARE, Q2 2005]



GAIN'S NOTICE on the first Claria ad you see explains how the company identifies itself.

name of the adware application and its logo in one part of the advertising window.

But while some adware companies are trying to make their activities more transparent, other companies do anything they can to obscure their origin. CoolWebSearch (CWS) is a prime example.

All of the more than 40 variants of CWS get on your PC by means of drive-by installations, or by exploiting other security bugs, according to anti-spyware experts. CWS has no EULA, or even a Web site. (The owners of the coolwebsearch.com domain posted a notice disavowing any affiliation to the CWS spyware program, but didn't respond to requests for comment.) And none of the CWS ads we saw in our tests were labeled.

In fact, even the authorities don't know who's behind CWS: The individuals and companies involved shroud themselves in secrecy, using a jumble of servers, located all over the world, to obscure their network, and registering domain names using fake contact information.

In our tests, CWS inserted its own links into Web pages displayed in Internet Explorer. Clicking one of these CWS-inserted links brought us to "search portals"—sites designed to mimic search results pages from Google or MSN Search—featuring ads from well-known companies. The tested version, and other variants of CWS, also add bookmarks to the Internet Explorer Favorites list; put shortcuts to porn and gambling sites on the desktop; change your browser's home page; and/or alter browser security settings. It also actively fights your attempts to remove it from affected PCs, using techniques similar to those viruses use.

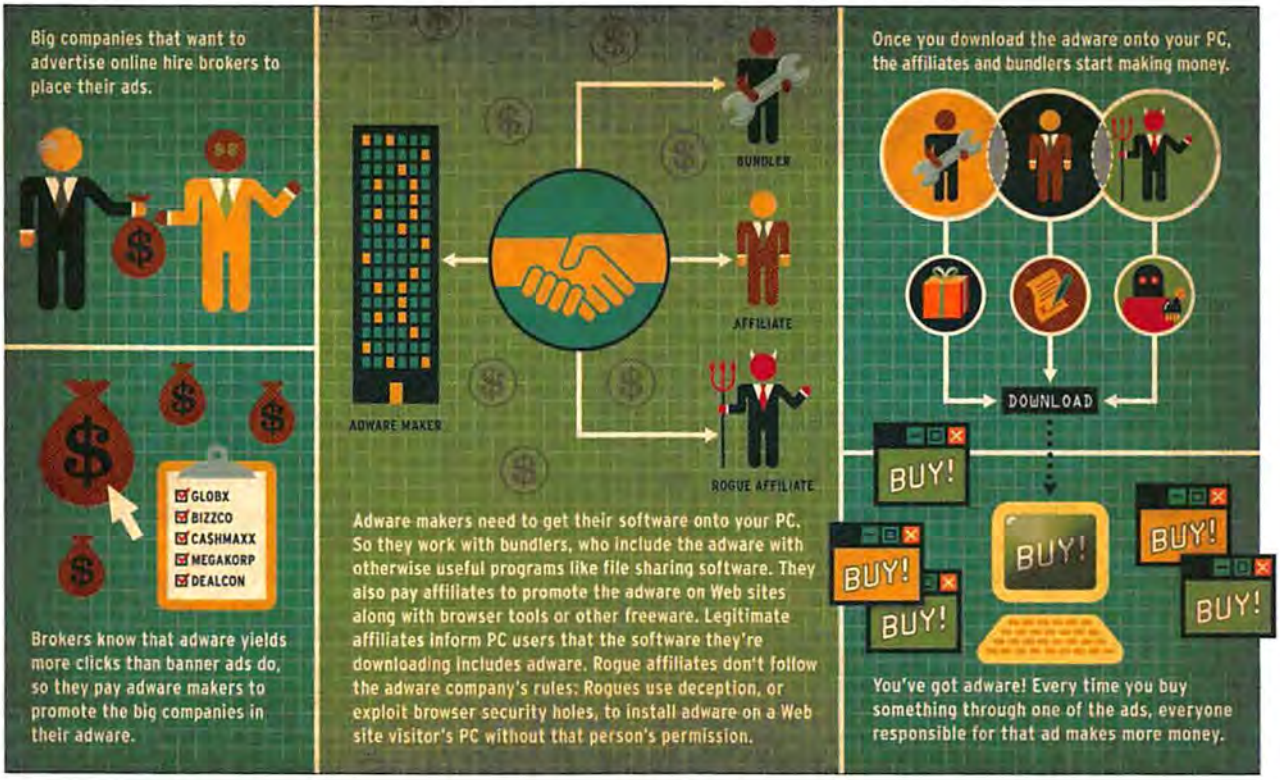
WHEN ADS GO BAD

COMPANIES THAT say they want no part of adware may end up promoted through adware pop-ups anyway, due to the complex networks of partners and affiliates.

At one time Dell had affiliate relationships with both 180solutions and adware vendor Exact Advertising, but not anymore. "We do not advertise via adware," says spokesperson Jennifer Davis. "And if we learn of a partner of ours doing so, we investigate and deal with it."

However, when we clicked a CoolWebSearch link, it led us to the Dell homepage. But not directly: In the space of a few seconds, our browser loaded a series of Web pages automatically, jumping ▶

» FOLLOWING THE MONEY: HOW ADWARE GETS ON YOUR PC



INFOGRAPHIC: HEADCASE DESIGN

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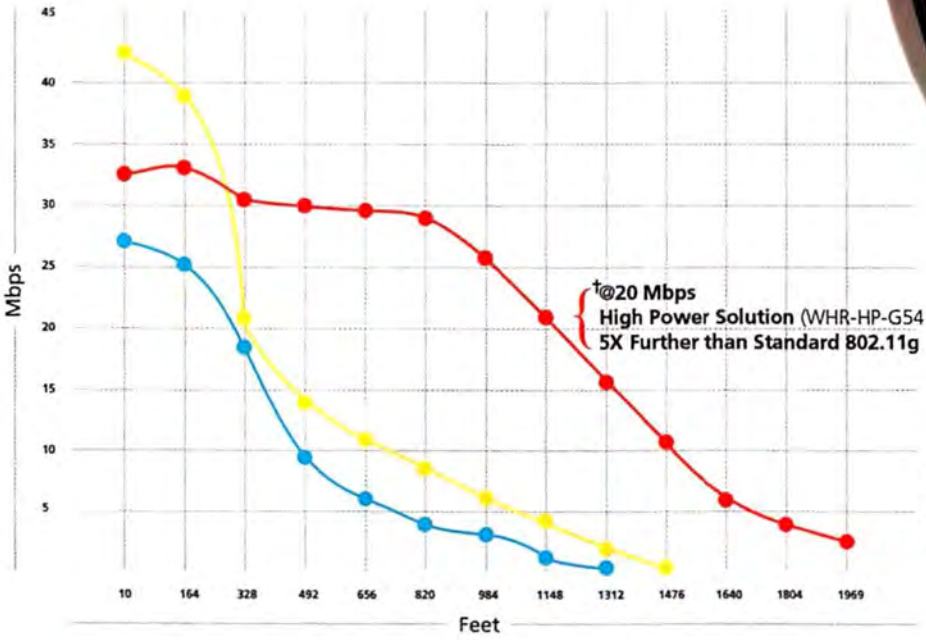
- Easy Setup with AirStation One-Touch Secure System™ (AOSS™)
- Great Value. Higher Performance than High Speed 802.11g Solutions at Comparable Prices

WHR-HP-G54
WLI-CB-G54HP



Products Tested

- MIMO Solution — 1. WZR-G108 & WLI-CB-G108
- High Power Solution (Turbo G) — 2. WHR-HP-G54 & WLI-CB-G54HP
- Standard 802.11g — 3. WBR2-G54 & WLI-CB-G54S

†Source: Buffalo Internal Testing 2005

PC1 (Client): Celeron 1.6GHz • 112MB • WindowsXP Pro SP1
PC2 (Server): Celeron 1.8GHz • 256MB • WindowsXP Pro SP1
Software: Chariot
PC1 has the wireless PC card, and PC2 is connected to an AP by wire.
Throughput transfer between PC 1 and PC 2 using Chariot (July 2005)
Wireless throughput and distance vary by testing environments.

Having speed and distance problems with your current wireless LAN?

If you already have a wireless network at home and are experiencing wireless range and speed problems, Buffalo has the solutions for you.

✪ When compared with standard 802.11g products

Step1 Eliminate your dead spots by changing your client adapters!

Up to 2.1X✪ further than standard 802.11g

WLI-CB-G54HP

WLI-TX4-G54HP

Step2 Extend your wireless range and increase performance with a high gain antenna!

Up to 3.2X✪ further when combined with Step 1

Up to 1.7X✪ further than standard 802.11g

For use with WLI-CB-G54HP

WLE-MYG

WLE-DA2

For use with WLI-TX4-G54HP

WLE-AT-DACW
WLE-AT-DACB (black)

WLE-AT-NDRHW
WLE-AT-NDRHB (black)

Step3 Extend range and increase performance even further by changing your wireless router.

Up to 5X✪ further when combined with Steps 1 and 2

Up to 1.8X✪ further than standard 802.11g

WHR-HP-G54

Step4 Future High Power Repeaters

Products Coming Soon!

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BUFFALO™

© 2005 Buffalo Technology (USA), Inc. Buffalo Technology, Buffalo Technology logo and AOSS logo are registered trademarks of Buffalo Technology (USA), Inc. The names and logos of other companies mentioned herein belong to their respective owners. *When operating in High-Speed Mode™, this Wi-Fi device achieves an actual wireless network data transfer rate of up to 34.1Mbps, which is the equivalent data transfer rate of a system following 802.11g protocol and operating at a signaling rate of 125 Mbps.

Go to find.pcworld.com/49556

80% of scanned consumer PCs were infected with spyware. [WEBROOT STATE OF SPYWARE, 2Q 2005]

from a CWS search portal, through Abcsearch.com, FindWhat.com, and Resolution Media's site, before ending up on Dell's site. As each new page loaded, a server recorded the affiliate ID. URLs that contain affiliate IDs make it possible for affiliates to get paid for each click.

We interviewed the companies involved to find out how the deal happened. Dell hired Resolution Media, a search-engine marketing firm based in Chicago, to purchase ads on Dell's behalf. Resolution Media placed ads with several small search engines, including Miva's FindWhat.com. FindWhat distributed the ads to its network of search affiliates, including Internext Media's Abcsearch.com. According to Abcsearch vice president David Senet, one of the site's subaffiliates (whom Senet declined to name) placed the Dell ad on the page that our CWS-infected PC brought us to.

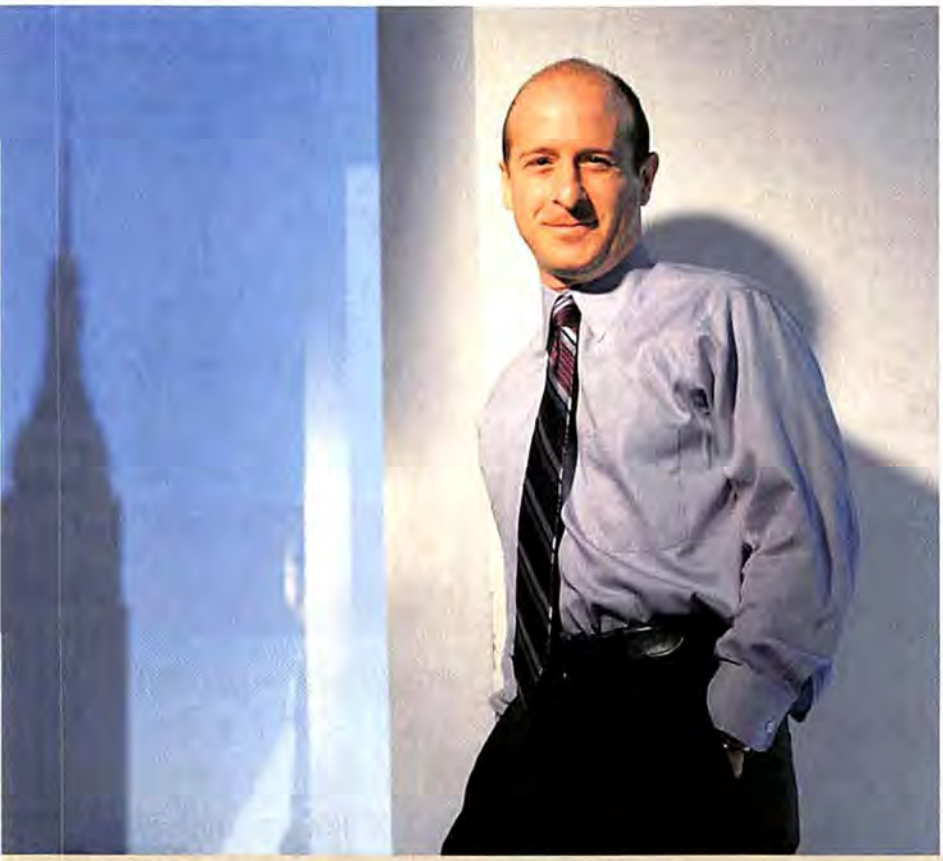
Following our discussion with Dell, the company said it terminated its relationship with FindWhat.com, and Abcsearch said it no longer uses the unnamed affiliate. All of the firms we contacted claim that when they detect fraud, the advertiser isn't charged and the affiliate isn't paid.

We also saw the Netflix logo appear—alongside those from American Express, Citibank, and Toshiba—in ads displayed by Metareward.com on Direct Revenue's ABetterInternet adware (a predecessor to Aurora that, according to Maheu, his company longer distributes).

Netflix director of corporate communications Steve Swasey said the company forbids the use of adware by its affiliate partners; he confirmed that Netflix partnered with Metareward, but not Direct Revenue. Metareward did not respond to requests for comment; the company is a division of Experian (one of the big three credit reporting agencies).

Consumer advocates insist that all parties involved in the ad industry must do a better job of policing their practices.

"The question becomes, 'Can't you think of some way to design a system that's not such an invitation for scams, fraud, cheating, lying, and thievery?'" asks anti-spyware advocate Ben Edelman. "Is this really the best you can do?"



PHOTOGRAPH: JOHN ABBOTT

PAYDAY FROM CLICKS

WHILE SOME ADVERTISERS stumble into adware unawares, others are unapologetic about their use of it.

"We wouldn't do it if it wasn't effective," says Kelly Ford, vice president of marketing for New York–based Travelzoo, a media company specializing in such clients as airlines and online travel sites.

Ford's company works with Claria and Soho Digital, an arm of Direct Revenue. However, he says Travelzoo spends only a small percentage of its total media budget on adware contracts. "We try to do just enough to make an impression in the marketplace without being overly intrusive," Ford explains.

"Advertisers are a notoriously demanding bunch," notes Trevor Hughes, executive director of the Network Advertising Initiative, a trade group for online advertisers. "If adware pop-ups didn't work, they wouldn't buy them."

Still, many advertisers and agencies shy away from using adware. Avenue A/Razorfish, which places ads with 180solutions and Claria, says less than 2 percent of its total billings went toward adware in the first quarter of 2005.

"WE HAVE TO DO AN OVER-THE-TOP GOOD JOB OF PROTECTING USERS' PRIVACY IF WE'RE TO GAIN THEIR TRUST."

–AVI NAIDER, PRESIDENT OF WHENU, AN ADWARE COMPANY

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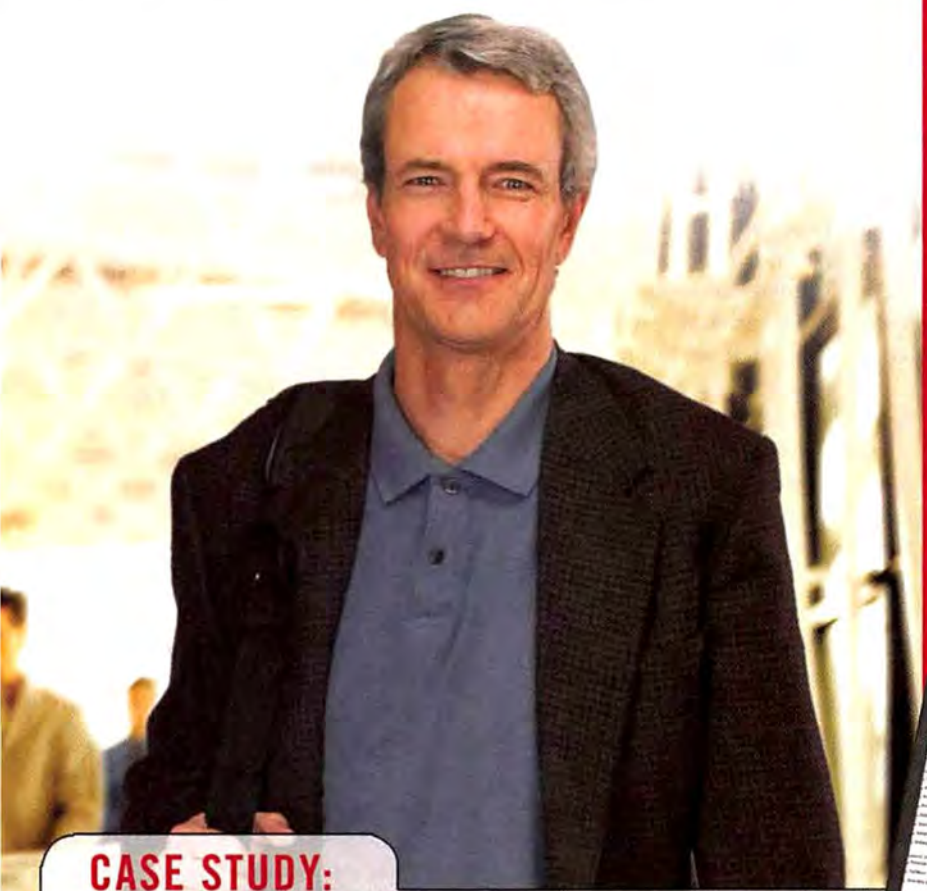

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65% of businesses plan to invest in new or additional anti-spyware tools. [FORRESTER RESEARCH, 2005]

COOLWEBSEARCH REDIRECTIONS like this one often lead to the Web sites of large, well-known companies.

FROM ADWARE TO NOWHERE?

ADWARE VENDORS want to legitimize their business model; to do so they must obtain users' informed consent before they install adware on PCs. But nearly 80 percent of people who get adware end up uninstalling it (according to several adware executives), so it's clear most people don't want the programs.

If adware companies don't clean up their act, Uncle Sam might do it for them. Congress is considering a handful of anti-spyware bills, including the SPY BLOCK Act (S. 687) and the Spy Act (H.R. 29). Both would penalize companies that engage in deceptive practices, secretly install software or secretly collect data about users, or make software difficult to remove. Senate Bill 687 has yet to be voted on, while the Spy Act has passed the House and was in Senate committee at press time.

Consumer advocates aren't optimistic about the proposed regulations. "Laws alone won't do that much to stop spyware," cautions Ari Schwartz, associate director of the Center for Democracy and Technology. Schwartz says spyware legislation will likely make some forms of intrusive behavior lawful.

» MORE ON THE WEB

FOR THE LATEST reports from Ben Edelman about adware companies, visit benedelman.org. Got spyware yourself? Find help at spywarewarrior.com.

With an eye toward compliance with the potential adware laws, some adware companies are trying to use less-obtrusive, or more-targeted, ads to convince users to keep the apps.

Earlier this year Claria announced its BehaviorLink adware program. Instead of delivering pop-ups, it will embed highly targeted ads into pages on Web sites that have signed up with the company. So if you just had a baby, for example, prepare for a steady diet of diaper and infant-formula ads.

Claria manages this process by collecting a trove of non–personally identifiable data about each user, such as marital status, zip code, age range, and gender. Mainstream applications, such as instant messaging clients and media players, will bundle BehaviorLink.

"We don't want to be on 40 to 50 million desktops, we want to be on 140 million to 250 million desktops," says Scott Eagle, Claria's director of marketing.

WhenU's Save app targets ads based on a user's surfing habits, says president Avi Naider, but Save doesn't send that data to WhenU—it stays on your PC.

Naider says he hopes that cleverly designed, targeted ads and an unusual level of openness about his company's business practices will convince users to keep WhenU installed.

"Given the history of the adware industry, we have to do an over-the-top good job of protecting users' privacy if we're to gain their trust," he says.

Real change in adware practices may be on its way. But until most PC users are convinced that adware makers have truly changed the way they do business, trust in these vendors' promises may remain elusive. And one way or another, the ads will keep on coming. ■

PC World Contributing Editor Dan Tynan is author of Computer Privacy Annoyances *(O'Reilly Media, 2005). Tom Spring is a senior reporter for* PC World. *Senior Associate Editor Andrew Brandt also contributed to this story.*

Spy-Free Computing

THESE STEPS CAN help keep spyware and unwanted adware off your system.

- **Use firewall and antivirus software:** Antivirus tools may be able to prevent an accidental installation. A firewall, such as ZoneAlarm, that watches applications can notify you if an adware program decides to phone home–and can put a stop to it.
- **Use Internet Explorer only when absolutely necessary:** ActiveX makes IE vulnerable to some drive-by installations. Alternative browsers, such as Firefox or Opera, don't use it.
- **Avoid sketchy sites:** Certain kinds of Web sites–particularly some that offer hacking tools, free spyware scans, porn, and the like–tend to attempt drive-by installations.
- **Check the EULA on each download:** Beware of EULA references to "third-party applications" that download advertising or their own updates.
- **Spurn "warning" pop-ups:** Ads that look like a Windows dialog box and warn that you have spyware installed are just slick come-ons designed to lead you to sites that actually install spyware. Instead, use a known spyware remover–like the ones we review in "Best Defenders," on page 85.

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ANTI-SPYWARE

Best Defenders

No, you don't need to put up with PC-clogging, privacy-invading spyware. We rate new and potent tools for killing it dead.

BY MARY LANDESMAN

SPYWARE IS GETTING SMARTER. The newest threats are better than their predecessors from just a few months ago at hijacking your browser, watching your Web surfing, and stealing your data. Your current anti-spyware program may not be up to the challenge.

The good news is that spyware fighters are evolving, too. For this review we tested an array of updates and new products. Our test group included five paid stand-alone tools—McAfee AntiSpyware 2006, PC Tools' Spyware Doctor 3.2, Sunbelt Software's CounterSpy 1.029, Trend Micro's Anti-Spyware 3.0, and Webroot Software's Spy Sweeper 4.0; ▶

ILLUSTRATION BY STUART BRADFORD

73% of consumers said personal data theft is a deterrent to online banking. [IPSOS INSIGHT, 2005]

three all-in-one security suites—Panda Platinum Internet Security 2005, Symantec Norton Internet Security 2005 Anti-Spyware Edition, and Zone Labs' ZoneAlarm Internet Security Suite 6.0; and three free products—Lavasoft's Ad-Aware SE Personal Edition 1.06, Microsoft's publicly available beta of Windows Anti-Spyware (Beta 1.0.615), and Safer Networking's Spybot Search & Destroy 1.4. Though the suites cost more than stand-alone spyware apps, they come with antivirus, firewall, antispam, and privacy components (we didn't test these features).

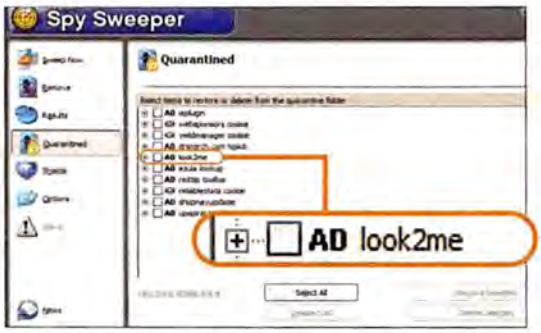
While adware can be a major annoyance, spyware can be very dangerous, so we focused on the latter type of threat. Spyware not only installs itself surreptitiously in a system but can also download other unwanted applications without your consent. We collected dozens of spyware programs, including the latest versions of threats used in our last anti-spyware roundup (see "Spyware Stoppers," find.pcworld.com/49420) as well as new malware. As a result, we can't precisely compare scores between the two reviews, though we can draw some conclusions.

In all, these spyware programs added 73 unwanted files to our test computer. With them, we challenged the anti-spyware tools' abilities to detect and clean up the components. Here is how the products fared.

SYMANTEC'S NORTON Internet Security suite recommended giving Internet access to a file created by the FXAgent Trojan.

THE RESULTS

Our favorites: Webroot's $30 Spy Sweeper 4.0 removed 90 percent of the spyware components—the highest score—which helped make it the Best Buy among the stand-alone applications. We recommend this product if you already have antivirus, antispam, and firewall software. Of the three all-in-one suites, we recommend Panda Software's $50 Platinum Internet Security 2005. Our pick as Best Buy among the suites, Panda scored the highest of the three in total spyware removal and second-highest among all products, removing 86 percent of the spyware components. Panda also removed spyware without forcing us to make case-by-case decisions.



WEBROOT'S SPY SWEEPER was the only program that removed an aggressive strain of the Look2Me spyware.

PANDA'S PLATINUM INTERNET SECURITY lets you decide how to display alert messages for viruses and cookies.

Among the free products, no clear winner emerged. If you don't want to pay for a spyware fighter, we recommend running more than one free program to increase your protection.

The biggest improvement came from McAfee AntiSpyware 2006 ($30), which nabbed 79 percent of total spyware components in our tests. Last year's McAfee AntiSpyware 2005 removed only 22 percent of spyware tested. Both spyware and anti-spyware have changed since the previous tests, but this improvement is still noteworthy.

Symantec's suite also removed 79 percent of total tested spyware components; however, it made some poor recommendations. For example, it advised us to give Internet access to the FXAgent Trojan horse, a keylogger activated from an embedded e-mail link claiming to lead to a Symantec removal tool. When installed, the resulting dlhost.exe file, which subsequently tries to access the Internet, was added to the Windows system directory. Symantec says that it has since made available a software update for the suite that would recognize this Trojan horse and eliminate it upon first contact.

The biggest disappointment was Sunbelt Software's CounterSpy ($20), our former Best Buy. CounterSpy removed only 66 percent of total spyware components, down from 85 percent in our last review. Microsoft's free Windows AntiSpyware beta also removed only 66 percent of total spyware components. The similarity is not surprising, since the two products share technology from Giant Company Software, an anti-spyware firm that Microsoft acquired in December 2004.

For this story, we tested the commercially available CounterSpy 1.029; but in August's *New Products* review "Spyware Stoppers Still Improving" (find.pcworld.com/49422), we took an initial look at a beta of CounterSpy 1.5. (We did not test noncommercially available betas in this review.) This delayed new version, which Sunbelt says employs a redesigned engine, achieved good results and should finally be ready in early October. The

shifts in winners and losers between our two reviews—spaced only seven months apart—indicate the importance of keeping up-to-date on threats and solutions.

Cleaning up the mess: One key measure of anti-spyware software is its ability to remove spyware processes running actively in memory; such processes represent a portion of the total spyware components mentioned above. Panda was the only program that removed 100 percent of the running processes. McAfee followed closely, erasing 96 percent. Spy Sweeper came in third, at 88 percent.

Some spyware components in our test group altered Internet Explorer's home page, search page, browser helper objects (BHOs) and toolbars, and Trusted ▶

TEST REPORT

Spy Sweeper Leads the Field in Spyware Cleanup

WEBROOT'S STAND-ALONE product wiped away 90 percent of adware and spyware, with Panda's suite close behind at 86 percent.

	PAID STAND-ALONE PROGRAM	Spyware components removed	Actively running processes removed	Changes to start and search pages reversed	BHOs and toolbars removed	Registry run keys and startup links removed	Windows services removed	Bottom line
1	Webroot Software Spy Sweeper 4.0 Best Buy $30 (★★★★½) find.pcworld.com/48344	90%	88%	100%	100%	88%	100%	Had the highest overall spyware removal among stand-alone apps; it eliminated tough Look2Me variant.
2	McAfee AntiSpyware 2006 $30 (★★★½☆) find.pcworld.com/49378	79%	96%	0%	100%	79%	0%	Cleanup was significantly improved over previous version, but program can't launch from the system tray.
3	PC Tools Spyware Doctor 3.2 $30 (★★★☆☆) find.pcworld.com/47715	62%	62%	80%	71%	58%	33%	This middling performer failed to excel in any area aside from BHO and toolbar removal.
4	Sunbelt Software CounterSpy 1.029 $20 (★★★☆☆) find.pcworld.com/46684	66%	65%	20%	93%	63%	67%	This former Best Buy exhibited weak cleanup; a version with a revamped engine is due out soon.
5	Trend Micro Anti-Spyware 3.0 $30 (★★★☆☆) find.pcworld.com/49376	58%	85%	0%	50%	50%	33%	Showed poor performance in removing toolbars and other browser-based changes installed by spyware.
	FREE STAND-ALONE PROGRAM							
1	Microsoft Windows AntiSpyware Beta 1.0.615 Free (★★★☆☆) find.pcworld.com/49380	66%	62%	60%	79%	75%	0%	Scored the highest of the free apps in cleanup; offers comprehensive behavior-based prevention.
2	Lavasoft Ad-Aware SE Personal Edition 1.06 Free (★★★☆☆) find.pcworld.com/44236	64%	65%	80%	64%	58%	67%	The free version of this program lacks real-time prevention but has a well-designed interface.
3	Safer Networking Spybot Search & Destroy 1.4 Free (★★★☆☆) find.pcworld.com/49400	55%	50%	20%	71%	63%	33%	Its behavior-based spyware prevention was strong, but it also had the lowest spyware-cleanup score.
	INTERNET SECURITY SUITE							
1	Panda Platinum Internet Security 2005 Best Buy $50 (★★★★½) find.pcworld.com/49398	86%	100%	0%	100%	88%	67%	Easy-to-use product was top-notch in removing spyware, but it didn't reverse browser page changes.
2	Symantec Norton Internet Security 2005 AntiSpyware Edition $80 (★★★½☆) find.pcworld.com/49377	79%	85%	100%	79%	75%	67%	This suite ranked third in overall spyware removal, but missed one infection of new spyware.
3	Zone Labs ZoneAlarm Internet Security Suite 6.0 $70 (★★★½☆) find.pcworld.com/49153	74%	85%	0%	86%	79%	33%	Zone Labs' permission-based alerts are far better for experienced users than for the less savvy.

CHART NOTES: Street prices are as of 8/19/05. Star ratings are based on spyware component removal, real-time spyware prevention, and ease of use. See find.pcworld.com/49530 for details.

50% of scanned consumer PCs had adware present. [WEBROOT STATE OF SPYWARE, 2Q2005]

WHILE ZONEALARM ALERTS are informative for those folks in the know, their presentation may confuse less-savvy users.

Sites Zone. We tracked the anti-spyware products' ability to detect and reverse these unwanted changes.

Spy Sweeper did the best job of detection and cleanup, removing 100 percent of the BHOs and toolbars embedded in our test PC's browser, as well as reversing all of the browser start- and search-page changes. Panda and McAfee removed 100 percent of the BHOs and toolbars, but they failed to reverse any changes to browser start and search pages. Trend Micro and the ZoneAlarm suite also did not reverse start- and search-page changes, but they did remove 50 percent and 86 percent, respectively, of the BHOs and toolbars. Symantec reversed all page changes but removed just 79 percent of the BHOs and toolbars.

Besides removing all BHOs and toolbars, Webroot's Spy Sweeper was the only anti-spyware application to detect and remove a particularly nasty variant of Look2Me. This tenacious program hooks into the Windows Logon and tracks the Web sites you visit while also downloading additional spyware and adware.

EYE ON BEHAVIOR

MANY ANTI-SPYWARE products try not only to clean up known spyware but also to prevent as-yet unidentified spyware from landing on your machine. To do this trick, they monitor areas of the system that malicious software targets, identify suspicious behavior, and stop it. To evaluate such behavior-based capabilities, we created an app to perform actions indicative of spyware and adware installations: adding Registry run keys, adding a file to the Windows startup folder, changing the browser start and search pages, and overwriting the Hosts file, the first place that Windows goes to look up Web addresses you want to access. Spyware can modify the Hosts file to redirect you to certain sites (like adware servers) or prevent access to others (like antivirus-company sites).

CounterSpy, McAfee, Spybot, Spy Sweeper, Spyware Doctor, Windows AntiSpyware, and the ZoneAlarm suite all offer some behavior-based protection. Spy Sweeper proved to be the most effective. For more details on how these features stacked up, see find.pcworld.com/49530.

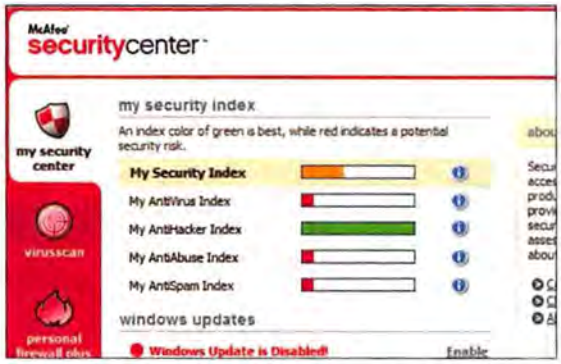
When it came to ease of use, Panda's suite was top-notch, removing detected adware and spyware without relying on user input. You can also change the default settings to allow case-by-case decision-making. The ZoneAlarm suite displays many alerts that demand your response, which can be challenging if your knowledge of security isn't thorough.

We were also less than impressed with the McAfee interface. The icon that appears in Windows' system tray doesn't launch the anti-spyware scanner; instead it launches the McAfee SecurityCenter, which advertises other McAfee products but doesn't include McAfee AntiSpyware.

THE BATTLE CONTINUES

AS WE SAID, spyware keeps changing, and so do the tools that fight it. Around the time you read this, five vendors—Sunbelt, Symantec, Webroot, and Microsoft—plan to update their software. As new releases appear, we'll pit them against the newest and nastiest threats. Check PCWorld.com's Spyware and Security Info Center (find.pcworld.com/47980) for ongoing coverage, including reviews, news, tips, and downloads. ■

Mary Landesman researches spyware and viruses. She is About.com's antivirus guide.



THE MCAFEE ICON in the system tray launches the SecurityCenter, which doesn't include the AntiSpyware 2006 program.

MICROSOFT'S FREE ANTISPYWARE tool exhibited middling spyware cleanup but good behavior-based prevention.

» MORE ON THE WEB

LEARN THE LATEST tactics employed by both spyware and anti-spyware developers in our online Q&A with Zone Labs founder Gregor Freund at find.pcworld.com/49644.

Acer recommends Windows® XP Professional.

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October/November2005

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- PC and Mac compatible

PD116P

Projector Accessories

Acer PD525 and PD116P projectors come with these accessories: remote control (batteries included) with laser pointer; carrying case; lens cap; CD-ROM user's guide; quick-start instructions; AC power cord; VGA (D-sub) to component/HDTV adapter; VGA (15-pin D-sub), composite video (RCA), S-video, USB and audio (mini-to-mini phone jack) cables.

For permanent placement of a projector in a conference room or classroom, you'll want an easy-to-install Ceiling Mount. Also, consider keeping a Replacement Lamp Module on hand for your Acer projector.

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- One-year limited warranty[3]

Acer Aspire 3002LCi

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Mobile AMD Sempron™ Processor 2800+
Microsoft® Windows® XP Home Edition
(LX.A5505.263)

AMD Mobile Sempron™

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[1] Enhanced Virus Protection (EVP) is enabled by Microsoft® Windows® XP Service Pack 2. By default, EVP will protect the user's Windows operating system only. Users must enable the protection of their applications and associated files to be protected from memory buffer overrun attacks. AMD and Microsoft strongly recommend that users use third-party anti-virus software as part of their security strategy.

[2] When referring to storage capacity, GB stands for one billion bytes and MB stands for one million bytes. Some utilities may indicate varying storage capacities. Total user-accessible capacity may vary depending on operating environments.

[3] For a free copy of the standard limited warranty end-users should see a reseller where Acer products are sold or write to Acer America Corporation, Warranty Department, P.O. Box 6137, Temple, TX 76503.

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THREAT ALERT

Spear Phishing

"AFTER THREE unsuccessful attempts to access your account, your Online Profile has been locked. This has been done to secure your accounts and to protect your private information. *You may unlock your profile by going to: ...*"

Sounds like a normal phishing e-mail, right? But what if the e-mail seemed to come from the head of IT at your small business, warning about your company account? Would you click the link?

Today's phishers hope so. In fact, the excerpt above didn't appear in the usual global barrage of e-mail sent out to catch recipients with eBay or PayPal accounts. Instead, it went exclusively to students and faculty of the University of Kentucky as part of a directed, or "spear-phishing," attack against the small, 33,000-member university credit union this May. Another widely reported incident involved an Israeli company that used spear-phishing techniques to install spyware on PCs at the office of one of its competitors.

According to Peter Cassidy, secretary general of the Anti-Phishing Working Group, spear phishers act much like marketers, crafting a message and then directing it to just the right people.

These targeted attacks make better use of social engineering to trick people who are tuning out the widespread spam of typical phishing attacks, Cassidy says, but who might not expect an e-mail aimed at a smaller company or organization.

Expect it: According to IBM's Global Security Index report, intercepted spear-phishing attempts exploded from a mere 56 instances in January to more than 600,000 cases in June. —*Erik Larkin* ■

PROTECT YOURSELF

- **Be skeptical:** No matter who the e-mail is from, if it concerns account information, don't trust it outright.
- **Make a phone call:** If you receive an e-mail you find suspicious in any way, call the named organization.
- **Don't click suspect e-mail links:** Instead, navigate to the company's home page on your own.
- **Try the NetCraft toolbar:** This antiphishing utility (toolbar.netcraft.com) can warn you of suspicious sites.

HOW IT WORKS

ILLUSTRATION: STUART BRADFORD; INFOGRAPHIC: HEADCASE DESIGN

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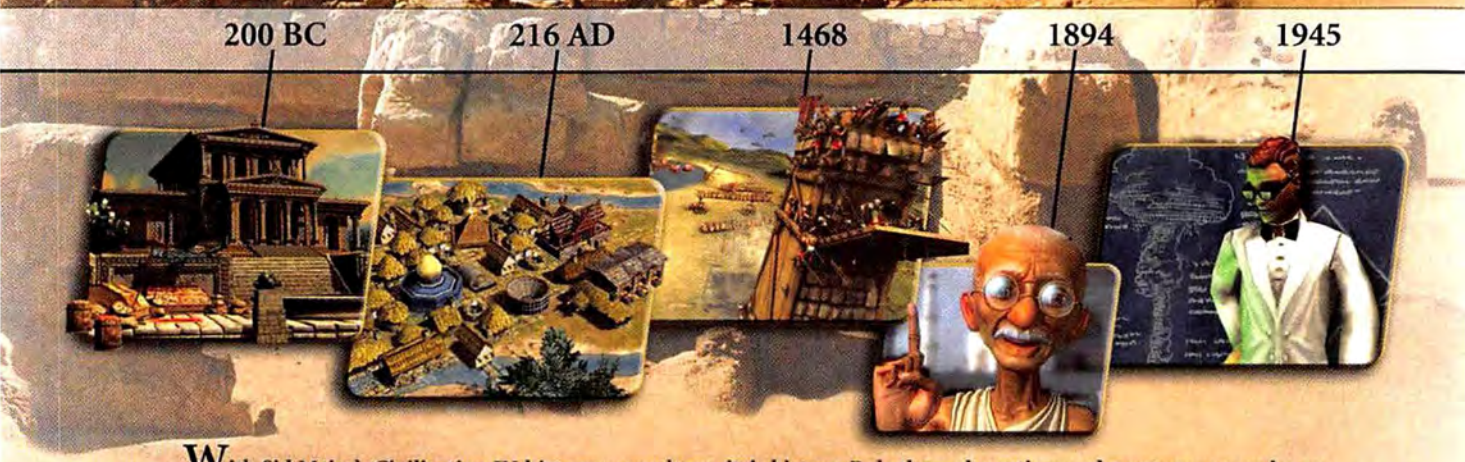

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INFORMATION BROKERS

Privacy in Peril

With identity thieves targeting big consumer databases, your data isn't just up for sale—it could be up for grabs.

BY ALAN STAFFORD

I KNOW YOUR NAME. I know where you live, and everywhere you've ever lived. I know when and where you were born. I know how many credit cards you have—and how good you are about paying them off. And I know all about your insurance claims, your work history, and whether you have a criminal record.

At least, I *could* uncover all of that, and a broad range of other sensitive personal information about you. All I'd have to do is pay between $10 and $50 to any of a vast number of online information brokers—companies such as Intelius and ZabaSearch, and larger firms like Acxiom and ChoicePoint—and ▶

ILLUSTRATIONS BY STUART BRADFORD

$300 is the cost of a do-it-yourself phishing kit. [2005 MCAFEE CRIMINOLOGY REPORT]

> **"WE DON'T HAVE FOUR OR FIVE INFORMATION BROKERS IN THE UNITED STATES; THERE ARE THOUSANDS OF THEM."**
>
> **–CONSUMER ADVOCATE LINDA FOLEY OF THE IDENTITY THEFT RESOURCE CENTER**

in 15 minutes I'd have as much information about you as I could possibly want.

With a name, an address, and a Social Security number, a person can take out loans, open credit card accounts, lease an apartment, and commit crimes, all in your name. When their actions get confused with yours, you may get stuck with the bills or, in extreme cases, be arrested. That your data is readily available via the Internet only increases your vulnerability.

Information brokers gather incredible amounts of personal data—not just credit details—from many different sources, including private companies and government agencies; then they sell it to businesses, to law enforcement, or to anyone who can demonstrate a need that the brokers consider legitimate. The laws limiting what information can be sold and who can receive it are weak and narrowly focused, so for the most part each broker is free to formulate its own standards.

And not all of them safeguard your data as well as they could, as shown by a number of highly publicized fraudulent purchases from, and hacks into, some of the largest sellers of personal info—firms like Acxiom, ChoicePoint, and LexisNexis. In early 2005, ChoicePoint revealed that it had sold information on 145,000 consumers nationwide. Reportedly, the buyers posed as legitimate business customers but were members of a Nigerian organized-crime group. ChoicePoint says that criminal attempts were made to use the identities of approximately 750 consumers. LexisNexis reported that it had uncovered 59 incidents over a two-year period in which unauthorized persons had gained access to personal data on 310,000 people in the United States.

Mickey Martinez, a Yale University law student who is a plaintiff in a ChoicePoint class-action suit, says that he received a letter the broker sent out to warn people who were exposed to identity theft as a result of its breach. "I was just outraged. No matter how zealously careful you are, carelessness [by] one of these outfits potentially can put you at risk."

He adds that he's been careful to shred personal documents, tell credit agencies not to send him preapproved credit offers, and refrain from conducting financial transactions over his wireless network, and yet he was still exposed. ChoicePoint offered to pay for a year's worth of credit monitoring, which he thinks is insufficient. "At the very least, they should offer a lengthier period of monitoring, and [issue] some sort of statement of responsibility: If something goes wrong, they will take upon themselves the financial burden and the hassle of fixing it," he says.

Information brokers aren't alone. At this writing the Privacy Rights Clearinghouse (www.privacyrights.org) lists some 80 breaches of data for over 50 million people since February. Among the most serious incidents: CardSystems, a credit card processor, unwittingly coughed up information on 40 million people to a hacker; and a CitiGroup subsidiary lost data on 3.9 million people when unencrypted backup tapes it had shipped via United Parcel Service went missing.

Nevertheless, information brokers have been catching the most flak recently. "The thing about a breach like ChoicePoint's is, it's so much more serious—because if organized crime buys the data, you can be pretty sure they're going to use it," says Gar-

PHOTOGRAPH: JAMES ARONOVSKY

net Steen, president of RelyData (www.relydata.com), a company that offers identity theft recovery services. "That's a little different from saying that a state university's database got hacked, when it could have been just some computer-science students flexing their muscles."

The real issue is not whether information brokers should have access to personal data—if you want to live, work, and purchase things in this country, such access is probably unavoidable—but whether they, and not you, should have ultimate control over who can see your information.

WHO'S MINDING THE STORE?

BUSINESSES OF ALMOST any type used to be able to buy information from ChoicePoint for ID validation, fraud detection, debt collection, legal investigation, and credentialing. But because of the fraudulent purchases, ChoicePoint says it has stopped selling personally identifiable information—your name, address, Social Security number, and the like—to many customers. Nevertheless, it continues to sell that data to the insurance industry, employers, landlords, certain large corporate customers, and law enforcement agencies. So it still maintains vast troves of sensitive personal information that ID thieves are extremely eager to obtain.

ChoicePoint's chief marketing officer, James Lee, says that since the company's unwitting sale of data to criminals, it has implemented new user-access, password, and account deactivation requirements; strengthened its credentialing procedures; and recredentialed broad segments of its customer base. In addition, it no longer permits Internet access from non-U.S. countries. Other information brokers report their own upgrades in security.

"There's a problem, however," asserts Linda Foley, co-executive director of the Identity Theft Resource Center, a consumer advocacy site (www.idtheftcenter.org). "We don't have four or five data brokers in the United States; there are thousands of them." And just because ChoicePoint says it's beefing up security and being more selective about customers doesn't mean that all of the companies that maintain and have access to personal information databases are improving their security and screening, too.

Security consultant Charles Cresson Wood thinks that the companies purchasing information from brokers need to be held just as responsible for data security. "What happens to the information once it's in the hands of a customer?" he asks. "Are they required to destroy the info, return it, and make a statement that they will use it only for certain purposes?"

A LexisNexis representative says that the broker reviews customers' business licenses and other credentials, and that it checks for forged or tampered application documents. ChoicePoint's contracts, according to Lee, include specific requirements for information use and authorize the company to check up on that use.

THAT'S NOT ME!

THIEVES AREN'T THE ONLY issue with companies that sell personal information. Just as with credit reporting bureaus, incorrect personal information in data files is a common problem. "It is reasonable to expect these files to contain some errors," LexisNexis notes in its privacy policy.

Information brokers allow you to see some—but not all—of the details they have on you. ChoicePoint shows you the public records it has, plus information covered by the Fair Credit Reporting Act (find.pcworld.com/49484), which governs the collection, use, and communication of credit and other data about consumers. ChoicePoint says you must try to revise incorrect public records at the source (wise advice, but you have to be able to identify where it came from, and hope that the corrections ripple down to the broker). LexisNexis reveals even more—possible relatives, neighbors' names, and voter registration information—but that report (which the company mails) costs $8 and takes up to 45 days to reach you.

Not having the time to wait on LexisNexis, I ordered a background report on myself from Intelius.com, which provides much of the same type of data to any- ▶

Identity Maintenance

THOUGH NOTHING CAN absolutely prevent identity theft, these tips can reduce your exposure—or help you recover should you become a victim.

- **Inventory your wallet's contents:** That way, you'll have a list of whom to call in case it gets stolen. Remove anything with a Social Security number.
- **Consider a credit-monitoring service:** If you get one, make sure it covers all three credit reporting agencies: Equifax, Experian, and TransUnion.
- **Order a free credit report every four months:** The Fair Credit Reporting Act guarantees you one free report per year per credit reporting agency. Order them *only* at AnnualCreditReport.com.
- **Minors are at risk:** Most don't have a credit report, and a credit agency won't freeze a minor's credit until one exists. If an ID thief requests credit in the kid's name, the agency will create a report (but you may never hear about it). If you suspect that your child's data has been used, you can e-mail TransUnion at childidtheft@transunion.com.
- **Are you a victim?** Renew the 90-day fraud alerts placed on your credit reports. Smart thieves have been known to wait until after the 90-day alert expires to start causing trouble.

41% of Net users say they're buying less online due to security threats. [CONFERENCE BOARD RESEARCH CENTER, 2005]

one for $50. I found that a person living in California with the same first and last name as mine has a small-claims court judgment against him. Worse, my report listed several convicted felons who shared my first and last name, including one person in North Carolina with the same middle initial as mine—and no full middle name. The information isn't incorrect; but proving that those people and I aren't one and the same might be difficult, so I have to hope that whoever orders the background report will read between the lines.

Interestingly, Intelius also offers an ID Watch service (find.pcworld.com/49498) to consumers. This service monitors an individual's credit, utility charges, new phone connections, change of address requests, and more for $95 per year.

LEGISLATIVE ACTION

CHOICEPOINT SAYS THAT most identity theft occurs as a result of offline tactics—someone stealing your mail or copying a credit card number from a receipt. However, the reports of security breaches in the online world have caused some people to rethink how identity thieves operate. "Most people don't know how they were struck," says RelyData's Steen. "But a lot of the stuff that you're never going to find out how it happened *was* electronic, *was* breaches, *was* the Internet."

As a result, lawmakers have hastened the call for more legislation dealing with these issues. A reference point for some of these bills is the landmark California law that requires companies to notify California residents in cases of unencrypted data theft or loss. This law is the reason so many companies have revealed breaches.

The bills wending their way through Congress and many state legislatures incorporate three ideas: restricting access to personal data, especially Social Security numbers; breach notification; and restricting access to credit reports.

Ten years ago the European Union enacted a far-reaching privacy directive. The directive declares that data can be collected only for a specific purpose and cannot be kept longer than necessary to fulfill that purpose. It also requires that data be accurate and up-to-date, and it restricts transfers of personal information to third parties without the permission of the data subject. Additionally, it regulates transfers of data to companies in any country that has insufficient privacy protection—including the United States.

LexisNexis' privacy policy states it is reasonable to expect some errors in your data.

The proposed Specter-Leahy Personal Data Privacy and Security Act of 2005 (find.pcworld.com/49622), sponsored by Senators Arlen Specter (R-Pennsylvania) and Patrick Leahy (D-Vermont), incorporates a few of the concepts of the European directive. This bill would restrict companies' use of Social Security numbers. It would require that law enforcement, consumers, and credit reporting agencies be notified of security breaches. And it would require information brokers to create a mechanism for individuals to access and correct data.

Several states have passed laws to let consumers freeze their credit. "I'm a big fan of [the law] in California, where nobody can see your credit report unless you have previously authorized it by providing a very long password," says Wood. However, most of the laws allow credit bureaus to charge fees for implementing a freeze (in California, the fee is $10 for each bureau) and for temporarily lifting the freeze ($10 or $12 per request per bureau).

The Consumer Identity Protection and Security Act (find.pcworld.com/49496), introduced by Senator Mark Pryor (D-Arkansas), would address some of those limitations by establishing the right of consumers to freeze their credit reports at no cost and to authorize the release of credit files to specific parties or for a specific time by contacting a credit agency.

Meanwhile, Senator Dianne Feinstein (D-California) has introduced the Notification of Risk to Personal Data Act (find.pcworld.com/49728), which would require companies to alert consumers nationwide to any unauthorized acquisition of their information.

Privacy advocates have problems with nearly all of the bills under consideration. According to ITRC's Foley, "Congress wants to add a phrase such as 'if there is a 50 percent chance you will become a victim of ID theft.' What the businesses are going to say is, 'Well, we can't confirm that there's going to be a risk of harm until someone becomes a victim.'"

Balancing the rights of individuals with those of people who have a legitimate need to know is a tricky issue. As Foley acknowledges, "Don't you want to know if the nanny you hire has a criminal record?" But consumers should be able to exercise far more control than they have now over who accesses their personal information and what they can do with it. ■

Alan Stafford is PC World*'s senior writer.*

» MORE ON THE WEB

FOR FURTHER info on the identity theft problem, see the Federal Trade Commission ID Theft site (www.consumer.gov/idtheft). Get a summary of credit freeze laws from Consumers Union at find.pcworld.com/49624. And check out the chronology of data breaches at find.pcworld.com/49625.

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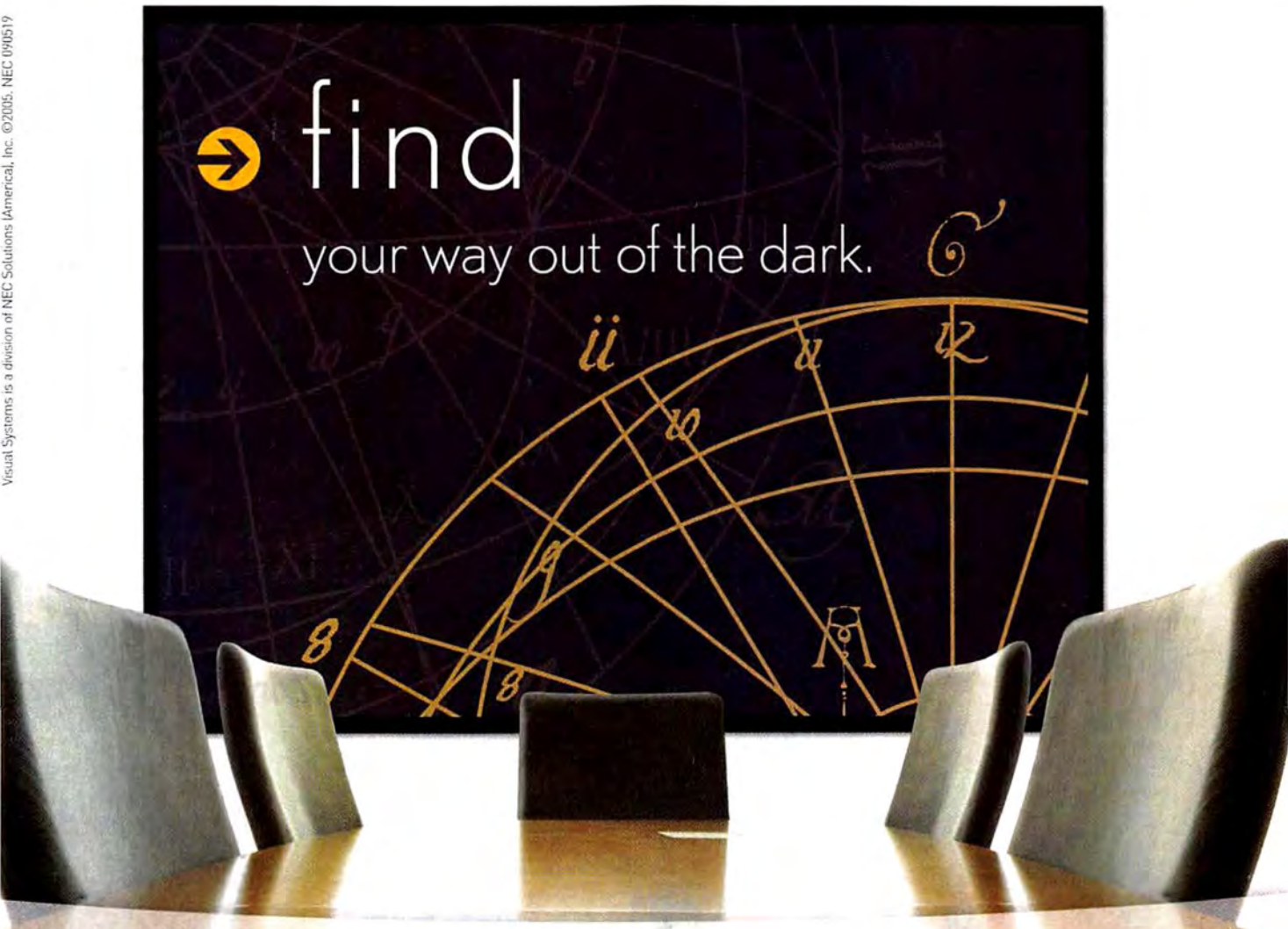

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Go to find.pcworld.com/49577

THREAT ALERT

Antivirus Killers

MALWARE AND VIRUSES have always targeted various holes in your PC's defenses. But increasingly, virus writers are targeting security software itself. Some viruses try to block your antivirus software's efforts to connect to its parent company for critical updates, while others attempt to shut down security software entirely. And though Windows remains the biggest single source of security holes, researchers are now finding significantly more flaws in the utilities we turn to for protection than in the operating system the software is meant to guard.

According to a Yankee Group report, which examined government statistics, the number of reported vulnerabilities in security software overtook those reported for Windows at the end of 2004. From the beginning of 2004 through May 2005, there were 77 flaws affecting antivirus apps and other security products, increasing at a far faster rate than for Windows.

All the newly reported vulnerabilities provide a challenge to antivirus companies, says Shane Coursen, senior technology consultant for Kaspersky Labs. If virus writers were to succeed in invading computers through an open door in security software, it would erode the confidence in antivirus programs that has built up slowly in the public's mind, he says.

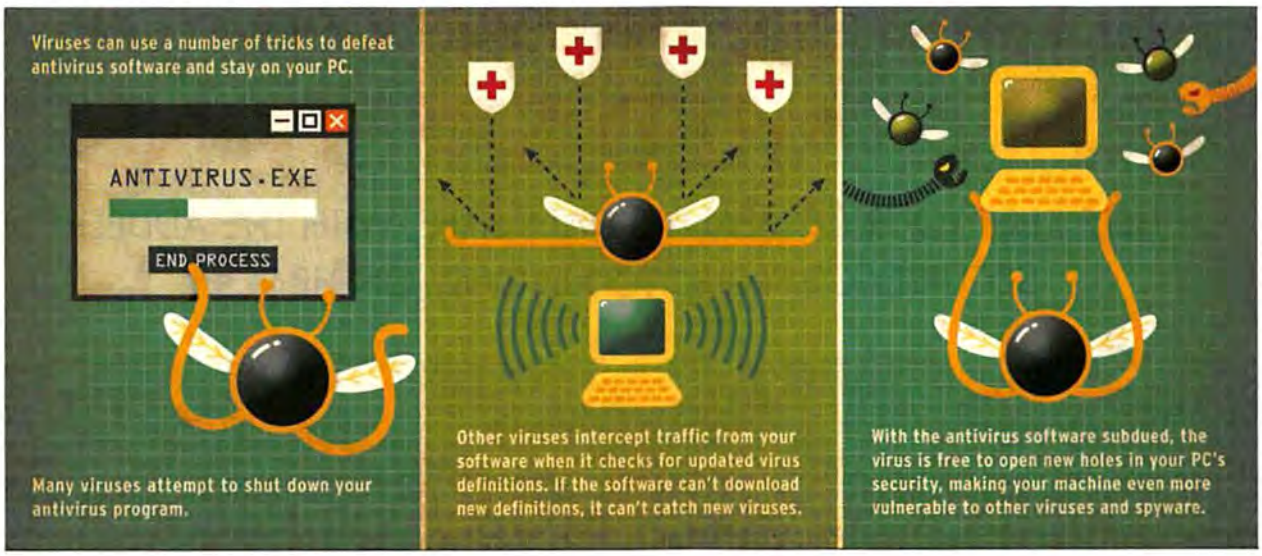
So far only one malicious program has successfully exploited a hole in security software on a large scale: 2004's Witty worm, which targeted software from Internet Security Systems. But the ever-growing rate of discovered vulnerabilities in security tools, combined with the decreasing rate in Windows, makes security software an even more likely target.

While antivirus programs aren't perfect, they're still a critical part of keeping your computer safe. Make sure you have a good one. And keep in mind that its protection is not absolute. —*Erik Larkin* ■

PROTECT YOURSELF

- **Get top-notch antivirus software:** See find.pcworld.com/49708 for our latest review.
- **Check for updates:** Right-click the program's icon in the system tray and check the virus definition date. If it's more than a week old, something could be blocking automatic updates.
- **Use an online scanner:** If your software isn't updating and you have other signs of an infection—like adware programs that seem to come back instantly after you remove them—turn to one of the free online virus scanners at Kaspersky.com or Bitdefender.com.

HOW IT WORKS



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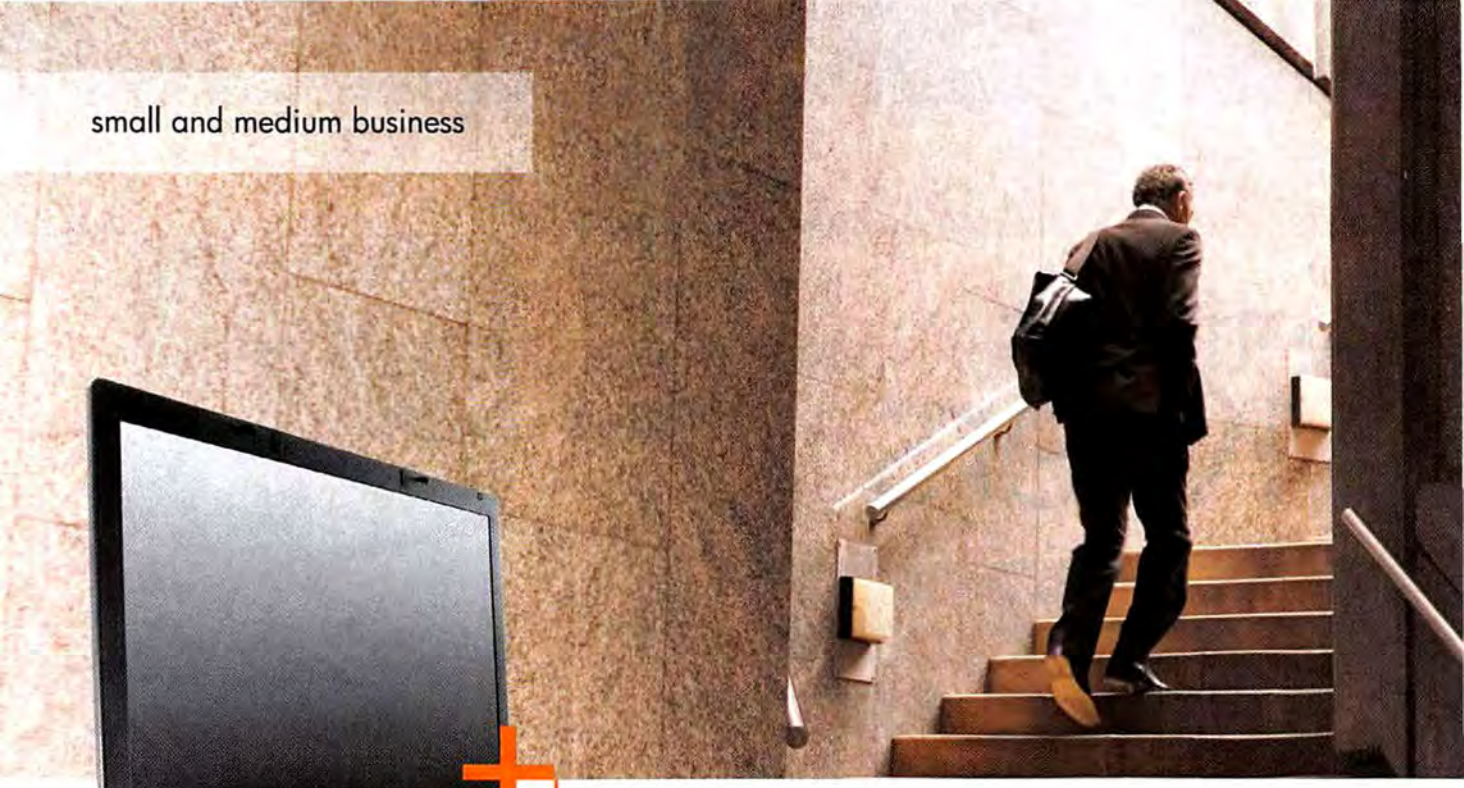

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INTERNET CRIME

Is the Net Doomed?

One observer's take on why the Internet is the biggest crime scene in history—plus expert advice on cleaning it up.

BY BRUCE STERLING

THE INTERNET'S RUNNING amok. We're in a dark period for law and order.

At first hackers were inventive experimenters. Even the baddies who broke into systems were geeky teen scofflaws, high-SAT-types from tech towns like Berkeley and Cambridge. These guys are still around, and still making trouble. But every kind of unlawful Web-based activity visible ten years ago has increased in scale and intensity.

Where once there were a few relatively uncomplicated viruses, now there are torrents of fast-evolving, multifaceted viruses. Where once there was just small-time credit-card ▶

ILLUSTRATIONS BY STUART BRADFORD

30% of businesses saw unauthorized access to their data. [CSI/FBI 2005 SECURITY REPORT]

All the classic scams and rackets that city sharpies push on rubes can be digitized.

fraud, now there is international credit-card racketeering. Computer-network password theft has turned into sophisticated ID fraud that robs patrons of banks and online auction sites. Spam, once an occasional rude violation of "netiquette," now arrives by the ton (12.9 billion pieces a day worldwide last May, according to the e-mail security firm IronPort), some of it fantastically bizarre and/or obscene.

Then there are the newer electronic crimes, proliferating so fast that even experts have trouble keeping up with the jargon. Phishing. Spear phishing. Pharming. DDOS. DDOS protection rackets. Spyware. Scumware. Web site defacement. Botnets. Keylogging.

The Internet is now in a golden age of criminal invention. It's a "dot-con" boom, in which electronic crime runs rampant in a frantic search for business models. Even encryption, supposedly a defensive measure, has become a tool for extortion—witness the weird new crime of breaking into a computer, encrypting its contents, and then demanding a payoff to supply a password to the victim's own data. The crime's so new, it doesn't even have a name yet. We can pray that it doesn't become so commonplace that it needs one.

With an estimated 1 billion people on the Net (according to the *Computer Industry Almanac*), much of the high-tech global village has become a big, cold-hearted, slum-ridden megalopolis. All the classic scams and rackets that city sharpies push on rubes can be digitized. The scammers have an endless supply of victims: There's always somebody new on the Net, somebody gullible, or too young, or incapable of understanding the language.

Imagine yourself as a first-time PC buyer, says computer crime expert Carlton Fitzpatrick, a cyber-counterterrorism instructor at the Federal Law Enforcement Training Center in Glynco, Georgia.

The PC's cheap, the software's reasonable, everything is plug and play, Fitzpatrick continues. Then the salesperson recommends that you arm it with antivirus software, system utilities, and a firewall. What kind of machine needs all of that stuff, you wonder.

And once you venture online, Fitzpatrick says, you find yourself directly connected to hosts of evil strangers. Even if you are willing to hold your nose and make that big jump, you are ill-equipped to defend yourself. "The victims of malware are not techie people, but those who don't read the security bulletins—and those are the people who are being plucked like ripe fruit," Fitzpatrick says.

TROUBLE EVERYWHERE

SECURITY PROBLEMS exist at all levels. Richard Clarke, counterterrorism adviser to the National Security Council during the September 11 attacks (and author of a book criticizing the Bush administration's record on terrorism), says that e-commerce is vulnerable because it generally rests on hastily deployed, jury-rigged systems that need a comprehensive rethink—one that builds security in, instead of trying to slap it on as an afterthought. Clarke, who now works for a Beltway consultancy called Good Harbor, cites the example of Microsoft Windows: Who would have imagined, ten years ago, that it would have so many hundreds of exploitable bugs, flaws, and holes?

Newer industries are just as hasty as their predecessors—and are just as likely to re-create the errors of the early Internet: the sloppiness, the hurried development, and the naive hubris of the techie pioneer who can't imagine that criminals, someday, might become as clever as he is. (For example, after users of Google's Web Accelerator complained that its caching technology allowed strangers to access password-protected sites, the company stopped offering the software, saying it could not support any more users.)

And finally, there's the ultimate threat: the possibility of a cyberterrorist attack that could bring down the Internet itself.

OUTSOURCING CRIME

THE INTERNET IS global, law is local; that's a fundamental problem facing those who would combat the tidal wave of crime and sleaze. We're in a world where nation-states pit themselves against criminals who have no return address.

International organizations that ostensibly should be civilizing the Net—ICANN, WSIS, IETF, W3C—are so weak and obscure that most people don't even know what their acronyms stand for. (For the record, they are the Internet Corporation for Assigned Names and Numbers, the United Nations–affiliated World Summit on the Information Society, the Internet Engineering Task Force, and the World Wide Web Consortium.)

These outfits are in no position to do much about crime on the Net. They have no guns, badges, or jails. In theory, these groups and other organizations might be able to eliminate a lot of weaknesses in the Net's aging architecture: The National Science Foundation, for example, recently proposed a project to develop a next-generation Internet that would

» MORE ON THE WEB

TO LEARN MORE about computer crime, check out the Computer Crime Research Center (www.crime-research.org) and the Internet Fraud Complaint Center (www.ifccfbi.gov).

supercede the long-discussed IPv6 (Internet Protocol version 6)—which in turn is supposed to improve on today's IPv4. But the Net may now be too old, too big, and too anarchic for any single body to fix.

The lack of any immediate prospect for a global solution to the Internet's inherently global problem leaves officials at the national level to pick up the dropped baton. Nations have the means, the motive, and the opportunity to create and enforce law and order. They *do* have guns, money, and prisons. And when it comes to basic influence over the Net, the United States is the single superpower.

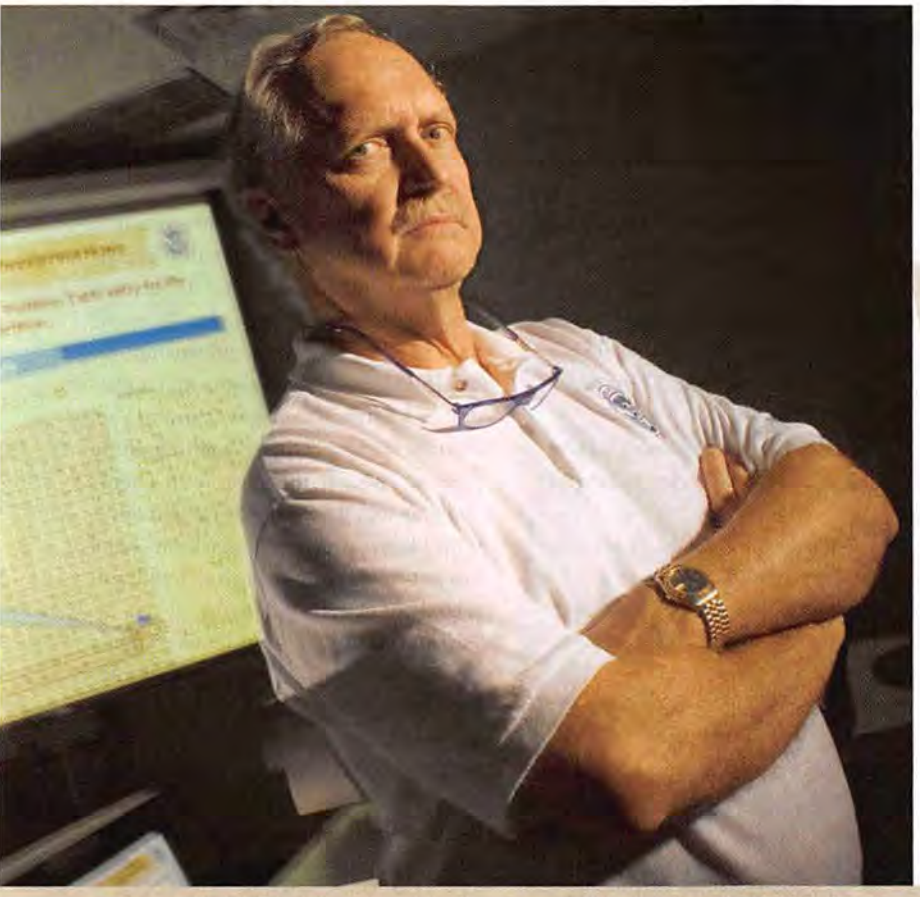
Anyone who doubts that has only to look at the federal government's recent annexation of ICANN's DNS root servers—the names-and-addresses core of the Internet, the central scheme that makes the Internet global. In August, just days before the launch of an ICANN-approved top-level domain (.xxx) intended to create a virtual red-light district for segregating pornographers, the U.S. Department of Commerce got ICANN to put the contract to run .xxx on hold. (Other countries weren't happy about the new domain either, but only the United States had the power to halt its implementation.)

As the most powerful force on the Net, the U.S. government actually has a high-level, official plan to make the Internet safer and more civilized: Clarke's "National Strategy to Secure Cyberspace," which, in addition to recommending basic security housekeeping and training, calls for the creation of a multiagency, rapid-response "cyber warning and information network" to handle emergencies. But the plan, while never formally discarded, hasn't been implemented, either.

Clarke says federal law enforcement is crippled by turf wars: Responsibility for cybersecurity is split between the Office of Management and Budget, which, says Clarke, has ability but no direct authority, and the young Department of Homeland Security, which has authority but lacks ability. Why hasn't this turf war been resolved? Clarke says a regulation-averse administration hesitates to empower a new cyberbody that might impose new regulations on private enterprise.

That's why the Office of Management and Budget looks like a mighty contender in federal security policy, even though the cops are in Homeland Security: The OMB can require that all federal agencies—as well as anyone who wants to do business with them—use secure software.

PHOTOGRAPH: ANN STATES



BEYOND THE FEDS

WHAT ABOUT THE STATES? After all, California's law requiring credit companies to report any breaches of security, as well as the risks the break-ins pose to individuals, helped bring to light the massive CardSystems scandal in which 40 million debit and credit card accounts were exposed to intruders. Arizona assistant attorney general Gail Thackeray, who has spent much of her law-enforcement career pursuing electronic marauders, says the feds are great for education, clout, and funding. But Thackeray says Congress will water down any legislation with teeth: The CAN-SPAM (Controlling the Assault of Non-Solicited Pornography and Marketing) Act, in her judgment, "doesn't do squat" to fight spam.

Thackeray says that she'd like to see

"THE VICTIMS OF MALWARE ARE NOT TECHIE PEOPLE, BUT THOSE WHO DON'T READ THE SECURITY BULLETINS."

–CARLTON FITZPATRICK, COMPUTER CRIME EXPERT AND CYBER-COUNTERTERRORISM TEACHER

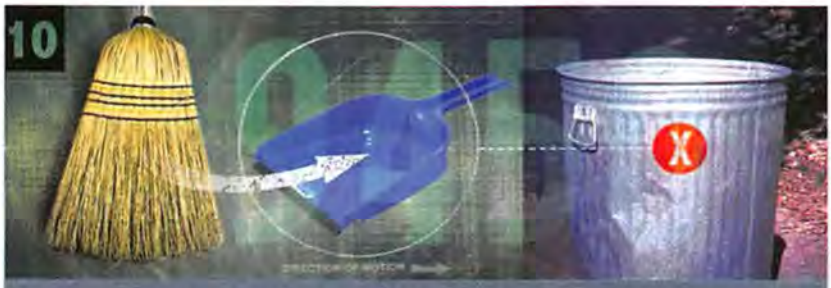
$400 billion was the overall cost of cybercrime in 2004. [2005 MCAFEE CRIMINOLOGY REPORT]

more cooperation (and face-to-face meetings) between everyone affected by or involved in combating cybercrime—bankers, phone companies, private security, vendors, feds, states, locals, and gurus. The goal: to rebuild ties of trust and polite understanding that are being eaten away in our connected society.

A county attorney who attempts to call a major Internet service provider, Thackeray explains, quite frequently finds no one to talk to. Support has been moved offshore, or the call ends in voice-mail jails where robots fend off the unwary. And e-mail messages go unanswered.

In fact, Thackeray says, large corporations are more interested in using their legislative clout to isolate and protect themselves than in sharing their intelligence on cybercrime with law enforcement agencies, which could result in negative publicity. She notes that the annual Computer Crime and Security Survey, conducted jointly by the Computer Security Institute (an industry organization) and the FBI, consistently shows that corporations report only a fraction of computer crimes to authorities.

Today, isolation—the off-site backup, placing one's digital valuables into areas that are simply not on the Internet at all—is probably the only genuinely effective security measure. And that's not good.



The Big Net Cleanup: Experts Weigh In

✦ There are lots of things that could be done to make the Internet more secure, but most of them would destroy much of its intellectual, commercial, and entertainment value. One key point here is that the starting point of achievable security should be a fair deal. Durable security should enhance rather than diminish the power of individual network users.

–Whitfield Diffie, chief security officer, Sun Microsystems, and public-key cryptography pioneer

✦ Developers need to stop expecting users to police themselves, and take responsibility for the users' safety.

–Blake Ross, cocreator of the Mozilla Firefox browser

✦ The security community needs to provide information and incentive to change behavior. This means education for users, developers, and organizations doing business on the Internet; attribution and penalties for criminal activities; and accountability for unsafe software, unprotected systems, and insecure handling of sensitive information.

–Art Manion, Internet security analyst, US-CERT (United States Computer Emergency Readiness Team)

✦ Since a world where everyone is good and understanding is still in a future far, far away, I would vote for giving legislative and judiciary personnel a proper education, or at least introduction into the online world.

–Patrick M. Kolla, creator of Spybot Search & Destroy

✦ Eliminate the practice of distributing software that the users aren't free–and able–to change (non-free, non-freedom-respecting software).

–Richard M. Stallman, founder of the Free Software movement

✦ The single most important thing is to educate end users. But then you have to ask, who should educate them? I think it is the vendors' job, and it is in vendors' interest for the Net to be–and to be thought of as–useful, fun, and secure. The challenge is how to make the education interesting and intelligible, rather than boring and scary. Vendors also need to provide effective tools for users to protect themselves, since security is as much about knowing whom to trust as it is about technology.

–Esther Dyson, writer-editor of CNet Networks' Release 1.0, a newsletter about emerging digital technology

THE NET WE DESERVE

THE INTERNET doesn't have to bring peace or prosperity to anybody. It remains what it has been from the beginning: a fun-house reflection of the entire planet.

We're going to get the Net we deserve. How would we deserve better? We would have to relearn the art of citizenship. We would have to convene all the major players in business and government, get them to stop their finger-pointing, buck-passing, border-jumping, and check-dodging, lock them into the same room—most likely, the same *physical* room—and not set them free until they had hammered out new solutions.

If we could do it, we'd be like rapidly developing countries—places that once seemed hopeless (think China and India) but suddenly find themselves with a newly energized populace that realizes anything is possible. Then we'd look again in the fun-house mirror of the Net and see developments so powerful that we wouldn't even have words for them.

Hey, it could happen. ■

Journalist and science fiction writer Bruce Sterling is the author of The Hacker Crackdown *and numerous novels and short stories.*

How to make sure your PC isn't a welcome mat for hackers.

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Okay, this is going to be hard. Really hard. Because hackers are downright devious and ruthless, and for you to go toe-to-toe with them with nothing but your wits just isn't very smart. (Pardon the bluntness, but it's the truth.) Anyway, your first order of business will be to

learn the hackers' lingo. And it's not exactly English. It's programming languages. Stuff like C++, HTML, VBScript, and various forms of assembly language (don't ask). Then you're going to have to learn about your browser. And we don't mean how to point and click. No, we mean the inner, inner workings, the really geeky stuff that hackers like to take advantage of so they can install viruses, steal your identity, and destroy all those photos you took last summer. By the way, are you still reading? Wow,

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THREAT ALERT

Instant Messaging Attacks

BY NOW YOU KNOW to be leery of e-mail attachments, even when they seem to come from a friend or colleague. These days, however, you also have to be careful of IM attachments and links—because the virus writers are already there, too.

"We've done a much better job of locking down e-mail," says Francis Costello, chief technical officer at San Diego–based Akonix, which helps clients secure instant messaging and peer-to-peer software. "People are turning to instant messaging as the new attack vector."

In the first quarter of this year, Costello says, Akonix saw more than double the 17 IM threats it found in all of 2004. And in the second quarter, there were four times as many threats as in the first quarter.

IM worms hijack IM clients by first reading a user's buddy list of contacts. Then the worm sends a message along the lines of "hehe :) i found this funny movie" to the people on that list, with a link that downloads the worm. Or the message might be "hey, check out this picture" and have the worm attached.

Some hybrid worms split the attack by going after instant messaging and peer-to-peer networks at the same time. One version of the Bropia worm sends out instant messages and drops itself into the shared directory of popular P-to-P apps.

Another worm, Win32.VB, can also spread itself via IM and P-to-P, but adds a new twist. It forces its host to open up to the Internet and help spread the worm; when the worm sends out an instant message with a link, the link goes to the computer hosting the worm.

Although some IM attacks are becoming more innovative, most worms of this type are "kind of crude to date," Costello says, "but crude is working very effectively. Unfortunately, the one thing I've learned in this business is that [virus writers] will innovate." —*Erik Larkin* ■

PROTECT YOURSELF

- **Enable real-time virus protection:** Antivirus programs include protections against any IM worm attachments that sneak by you.
- **Be wary of any message:** Take special care if it comes by itself with a link or an attachment, even if it looks to be from someone on your buddy list. Before clicking, ask your friend if they sent it. No response, no click.
- **Filter IM traffic:** Companies should consider updating their networks to separate their internal IM traffic from Internet-based IM traffic, or preventing all Internet-bound messaging.

HOW IT WORKS

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PC PROTECTION

10-Step Security

If you have about an hour, you can batten down your machine's hatches against Net threats new and old. Here's how.

BY DENNIS O'REILLY

EACH NEW WAVE of computer viruses, spies, and spam may have you ready to dust off your typewriter, but PC security can be effective without being a chore. To keep your computing safe from current and future threats, we've distilled our security advice down to the basics. These ten quick and easy tips will help protect your hardware, software, and data.

1 Patch automatically: Ensure Windows is set to update itself. In XP, click *Start•Control Panel•Security Settings* (if you're in Category view)•*Automatic Updates*. In 2000, choose *Start•Settings•Control Panel•Automatic Updates*. In both versions, verify that 'Automatic (recommended)' is selected. You can also have Windows notify you before it downloads an update, or you can install the update manually. (The steps and options are only slightly different in Windows 98 and Me.)

2 Don't wait for Windows: If your PC has been off for more than a few days, don't wait for Windows' automatic update to kick in. Make the Windows Update site (www.windowsupdate.com) your first Internet stop. Also, there may be a lag between when a patch is available and when Windows Update pushes it to you. Microsoft releases Windows patches on the second Tuesday of each month, so to be safe check for updates manually every couple of weeks. And don't forget to set your antivirus and anti-spyware tools to update automatically (or check weekly for updates yourself).

3 Use XP's security monitor: Windows XP Service Pack 2's most welcome addition is the Windows Security Center, which alerts you when your PC's firewall and antivirus protection are disabled or out of date. Still, XP's own firewall protects you only from inbound pests; it doesn't alert you to suspicious outbound traffic (see find.pcworld.com/49402 for more). We recommend that you disable the XP firewall and instead use Zone Labs' ZoneAlarm (find.pcworld.com/49403) or another third-party firewall program that protects both ways.

4 Make your file extensions visible: Some viruses masquerade as harmless file types by adding a bogus extension near the end of their name, as in "funnycartoon.jpg.exe," in hopes your system is set to hide such extensions (the default in Windows XP and 2000)—you see '.jpg' but not '.exe'. To make these troublemakers easier to spot, open Windows Explorer or any folder window and click *Tools•Folder Options•View*. Ensure that the option 'Hide file extensions ▶

Security Tool Kit

A WELL-STOCKED PC security toolbox goes beyond the basics of firewall and antivirus software to include protection from phishers and snoops as well. Bolster your system's defenses with these security utilities.

- **Firewall:** ZoneAlarm, free (for individuals and not-for-profit charities), Zone Labs (find.pcworld.com/49634)
- **Antivirus:** AVG Anti-Virus System, free (for noncommercial use), Grisoft (find.pcworld.com/49636)
- **Anti-spyware:** Spy Sweeper 4, $30, Webroot Software (find.pcworld.com/48344; see review on page 85)
- **Antiphishing:** Anti-Fraud Toolbar, free (currently in beta), Cloudmark (find.pcworld.com/49414)
- **Encryption:** PGP Desktop 9, $199 or $70 annual subscription, PGP (find.pcworld.com/48747)

ILLUSTRATION: STUART BRADFORD

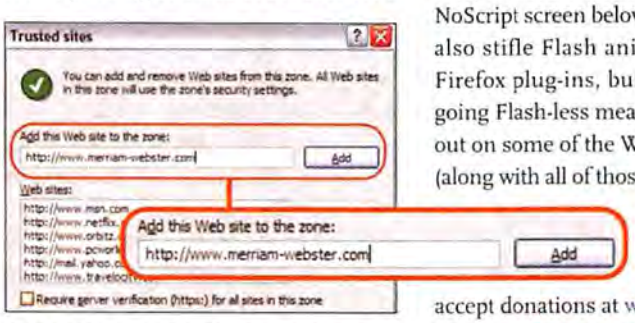
for known file types' is unchecked.

✦**Bonus Tip 1:** To get the most complete picture of your Windows setup, check *Show hidden files and folders* and uncheck *Hide protected operating system files (Recommended)*.

✦**Bonus Tip 2:** Go to find.pcworld.com/49404 to play Microsoft's video guide to Windows XP security settings.

5 Keep Internet Explorer safe: Many people find IE 6's Medium security level too obliging to ActiveX controls and other small programs, or scripts, that the browser runs on your PC. ActiveX and JavaScript enable such useful Web features as order forms and security scans, but they also may run malicious code and give attackers access to your system. To make IE safer, click *Tools•Internet Options•Security•Custom Level*, select *High* from the drop-down menu at the bottom of the Security Settings dialog box, and click *Reset•Yes•OK*.

Unfortunately, setting IE to the High security setting can lead to the browser's unleashing a fusillade of warnings and permission pop-ups every time you visit a site. The solution is to add the sites that you access often to IE's Trusted Sites list: Choose *Tools•Internet Options•Security*, click the *Trusted Sites* icon, and then click the *Sites* button. Enter the Web address, click *Add*, and repeat as necessary (see the Trusted Sites screen below). Be sure to uncheck *Require server verification (https:) for all sites in this zone*. When you're finished, click *OK* twice.



ADD SITE URLs to IE's Trusted Sites list to avoid unnecessary security warnings.

BLOCK JAVASCRIPTS site-by-site in the Firefox browser via the NoScript plug-in.

6 Make Firefox more secure: The only way to block JavaScripts on a site-by-site basis in the Mozilla Foundation's free Firefox browser is to download and install the NoScript add-in that was created by Giorgio Maone (find.pcworld.com/49405). NoScript places a warning bar at the bottom of all the Web pages you visit that use JavaScript. Click the bar to see options for allowing scripts on the site (permanently or temporarily), blocking scripts, and other operations (see the NoScript screen below). The program can also stifle Flash animations and other Firefox plug-ins, but keep in mind that going Flash-less means you'll be missing out on some of the Web's richest content (along with all of those great dancing ads). Although NoScript is freeware, the author does accept donations at www.noscript.net.

7 Handle e-mail links with care: If a virus infects your PC, chances are good it arrived piggybacked on e-mail. To reduce your risk of an e-mail–borne infection, don't click links in suspicious messages (the text in the message may mask the actual Web address). Instead, enter the URL in your browser's address bar manually, or go to the site's home page and then navigate to the page in question.

8 Scan attachments for viruses: Run each of the e-mail attachments you receive through your antivirus software before you open them. Rather than double-clicking the attachment to open it instantly, save the file to a drive on your PC, open Windows Explorer, right-click the file, and choose the option to scan it for viruses. (Better yet, set your antivirus software to scan incoming and outgoing e-mail automatically.)

Wireless Safety

✦**Encrypt your Wi-Fi network:** When you install a wireless network, it's tempting to keep the vendor's default network name and leave the network unencrypted. But doing so is an open invitation to your neighbors and anyone else within range to help themselves to your Internet connection. Open your network's configuration program to rename your network and apply Wi-Fi Protected Access (WPA) encryption. And check the maker's Web site regularly for driver and security updates.

9 Close the preview pane: Some maleficent messages need only be opened in your e-mail program's preview window to do their dirty work. That's why we recommend that you close the preview pane in all of your inboxes. In Microsoft Outlook 2003, click *View* and make sure 'AutoPreview' is unselected. In Outlook Express 6, click *View•Layout* and verify that 'Show Preview Pane' is unchecked. In Mozilla Thunderbird, click *View•Layout* and confirm that 'Message pane' is unchecked (or press **<F8>** to toggle the preview pane on and off).

10 Read your mail in plain text: Since many e-mail pests rely on HTML code to achieve their nefarious goals, you can stop them in their tracks by viewing your messages as plain text. In Outlook 2003, click *Tools•Options•Preferences•E-mail Options* and check *Read all standard mail in plain text*. In Outlook Express 6, choose *Tools•Options•Read* and click *Read all messages in plain text*. In Mozilla Thunderbird, select *View•Message Body As•Plain Text*. ■

Senior Associate Editor Dennis O'Reilly edits the Here's How *section.*

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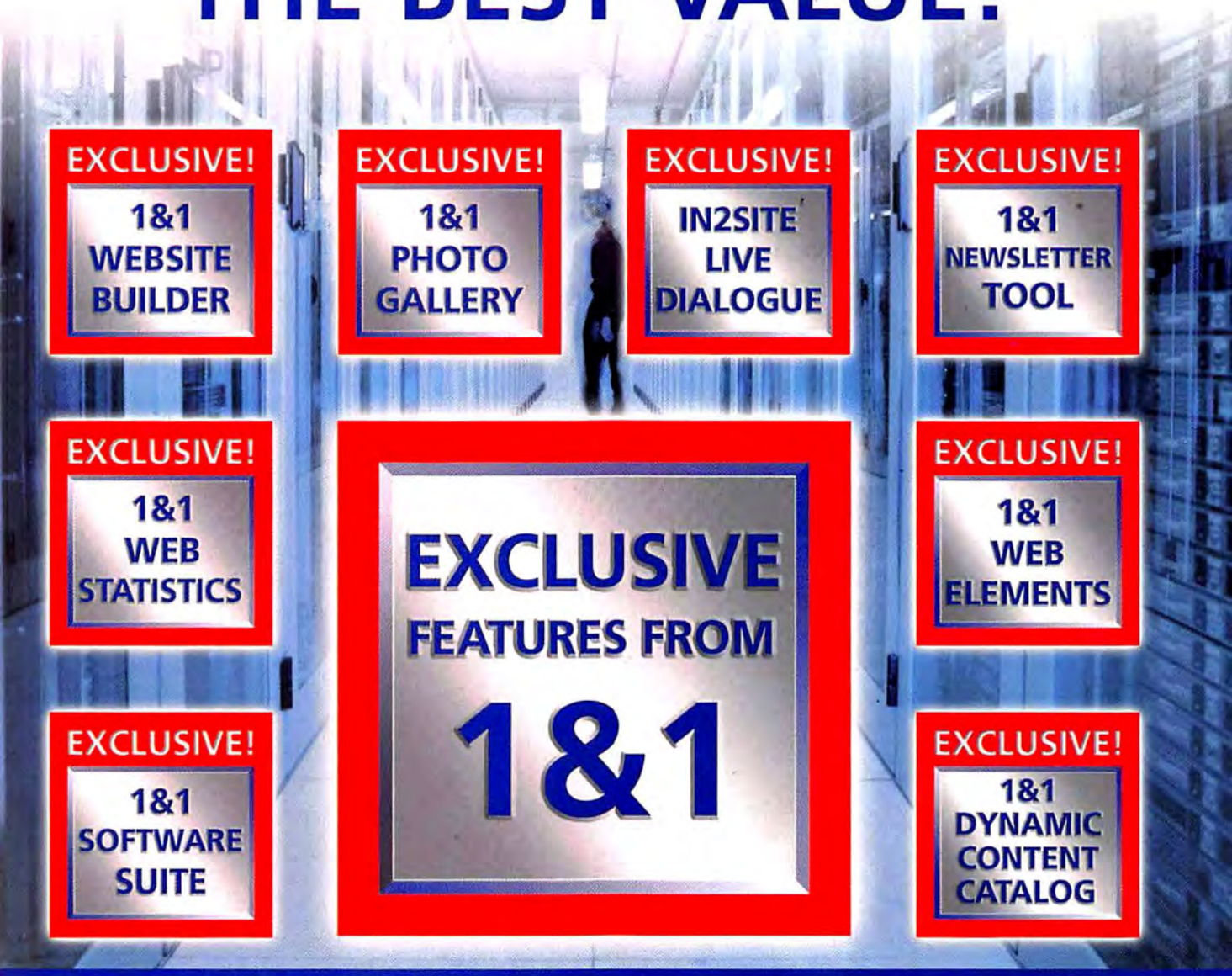

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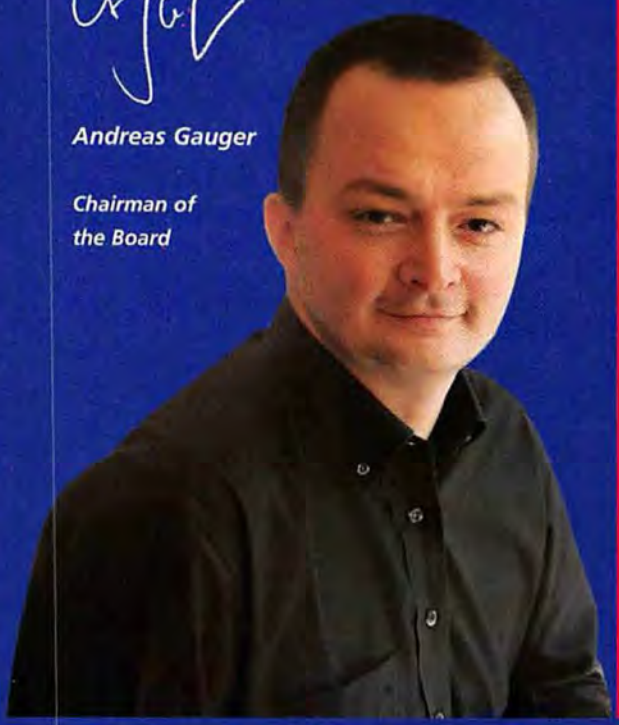

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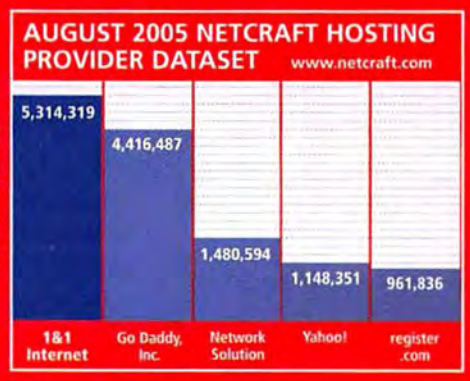

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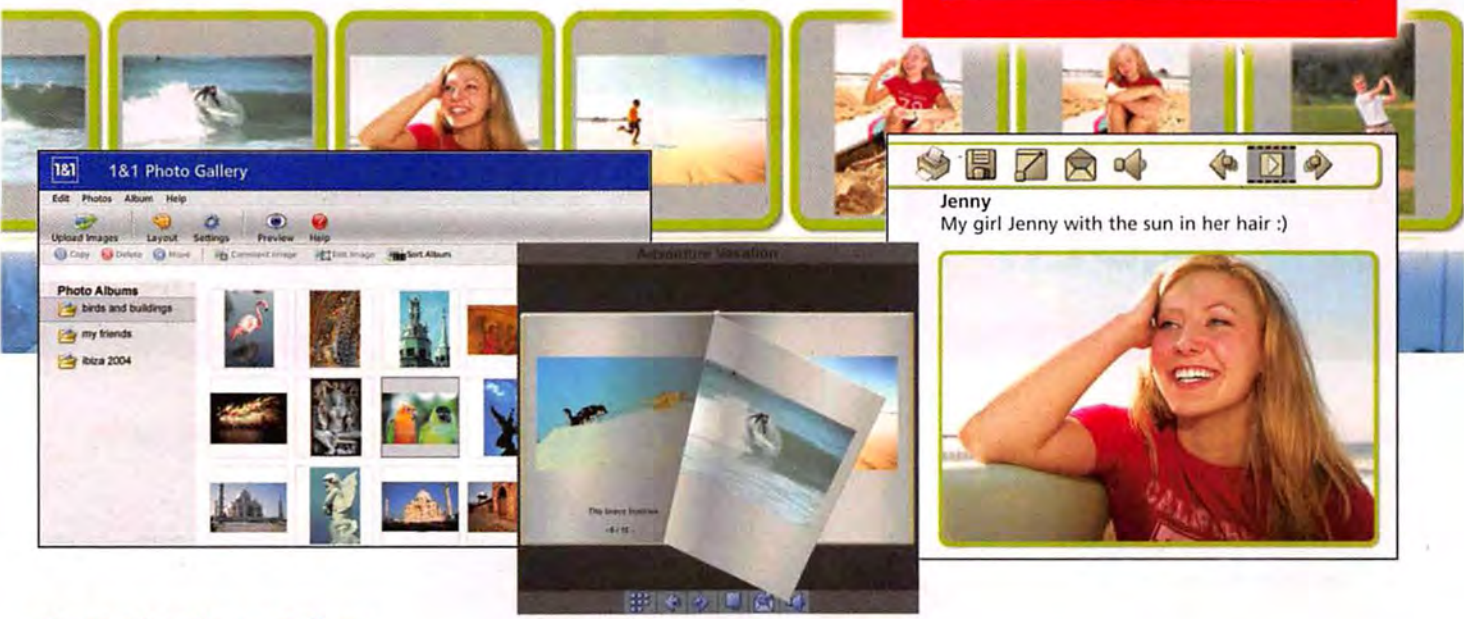

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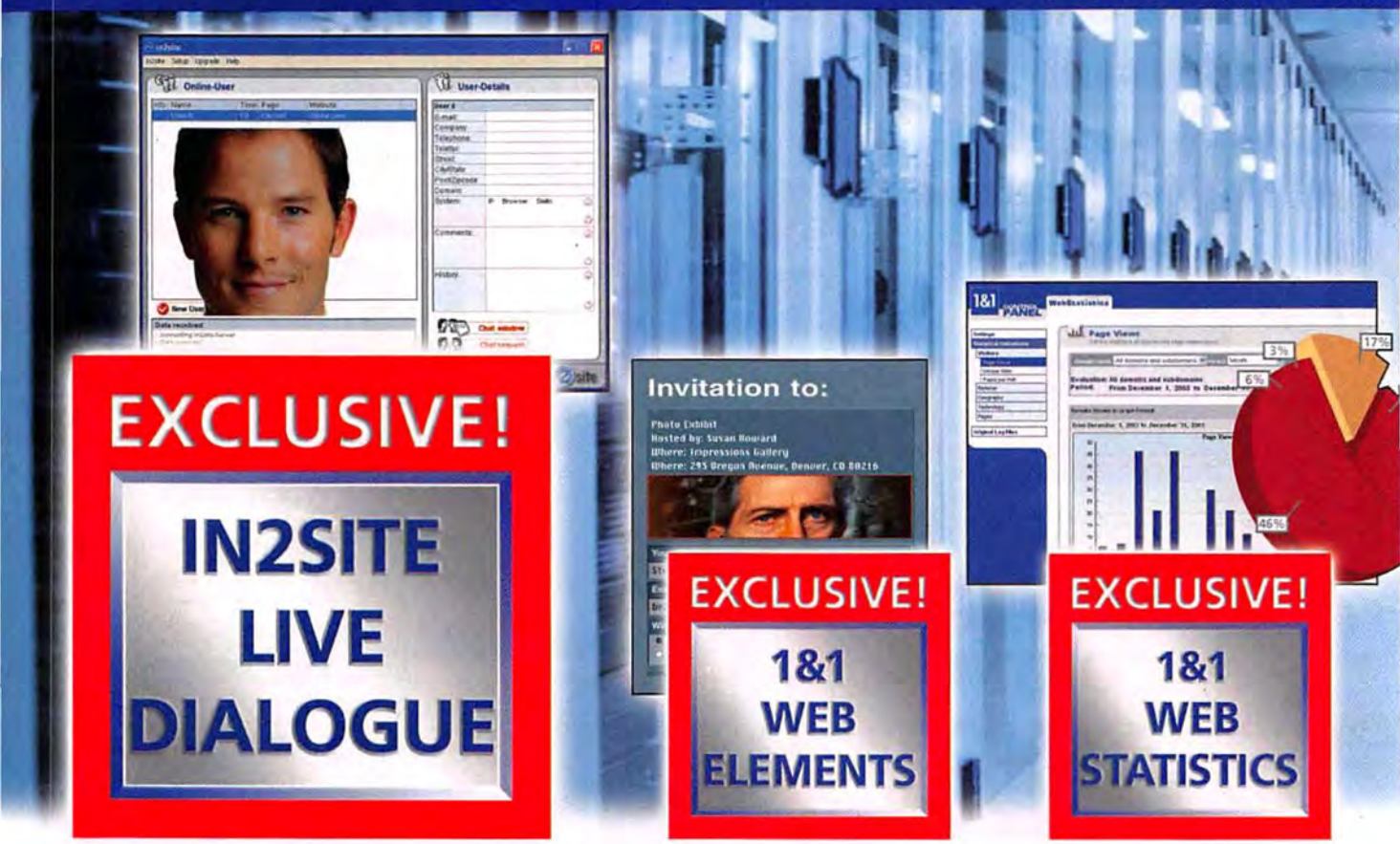

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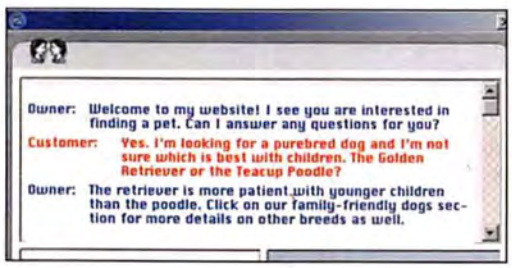

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Easy-to-use menus let you track visits, hits, referring websites, error pages, and much more for a detailed analysis of how your website is performing. Display the information in the format you choose – pie charts, bar graphs, or simple numeric output – and use the data to maximize the success of your website.

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BSITE!

1&1 Newsletter Tool: Maintain relationships with your visitors!

Build and maintain a relationship with your visitors via e-mail newsletters and the 1&1 Newsletter Tool. Create and send professional-looking e-mails – easily and with no programming hassles! Build your own mailing lists, manage recipients' addresses, track results, and more.

FOR MORE DETAILS VISIT 1AND1.COM

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1&1 HOSTING

Affordable, all-inclusive, feature-packed hosting from 1&1.

1&1's Microsoft and Linux shared hosting packages offer the best value for your money. Whether you're a novice Internet user or operate a heavily trafficked site, 1&1 has a hosting package that will help you make the most of your web experience.

Home Package
Ideal for creating your family website and publishing your photos or hobbies to the Internet.

Business Package
The easy way for small and medium-sized businesses to build a sophisticated, professional web presence.

Developer Package
Packed with the latest Internet technologies to build powerful, secure and reliable web applications.

EXCLUSIVE!
1&1 SOFTWARE SUITE
$600 VALUE*

*\$6.99 shipping & processing fee applies

"I have very little knowledge about website design and 1&1 made it easy for me to create and post my own website. I have been very pleased with 1&1."

Angela Evans
www.weddedblissplanning.com

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EXCLUSIVE FEATURES FROM 1&1

90-DAY MONEY BACK GUARANTEE
100% Satisfaction or your Money Back

HOME PACKAGE

$4.99 PER MONTH
No setup fee

INCLUDES 1 DOMAIN

PACKAGE FEATURES		
Web space	1,000 MB	1,000 MB
Monthly transfer volume	25 GB	25 GB
FTP accounts	1	1
1&1 Control Panel	✓	✓
Logfiles	✓	✓
MARKETING TOOLS		
Chat channels	1	1
1&1 WebStatistics	✓	✓
SITE-BUILDING TOOLS		
1&1 WebsiteBuilder	✓	✓
1&1 Photo Gallery	✓	✓
1&1 Dynamic Content Catalog	✓	✓
PDF2Web Converter	✓	✓
DynamicSiteCreator	✓	✓
Graphic archive	✓	✓
Software suite worth $600	✓	✓
FrontPage extensions	✓	✓
CGI library	✓	✓
Active Server Pages	–	✓
DOMAIN NAMES		
Included Domains	1	1
Subdomains	10	10
Run multiple independent sites	✓	✓
Full DNS management	✓	✓
E-MAIL		
E-mail accounts, 1 GB space each	200	200
Aliases, auto-responders, forwarding	✓	✓
1&1 WebMail	✓	✓
Spam filtering for all accounts	✓	✓
Virus protection for all accounts	✓	✓
SECURITY FEATURES		
Protected by up-to-date firewall	✓	✓
Daily backups	✓	✓
Password protected directories	✓	✓
Dedicated SSL Certificate	optional	optional
SUPPORT		
24/7 phone support	✓	✓
24/7 e-mail support	✓	✓

BUSINESS PACKAGE

$9.99 PER MONTH
No setup fee

INCLUDES 3 DOMAINS

PACKAGE FEATURES		
Web space	2,000 MB	2,000 MB
Monthly transfer volume	50 GB	50 GB
FTP accounts	5	5
1&1 Control Panel	✓	✓
Logfiles	✓	✓
MARKETING TOOLS		
Chat channels	5	5
1&1 WebStatistics	✓	✓
In2site Live Dialogue	✓	✓
1&1 Newsletter Tool	✓	✓
1&1 WebElements	✓	✓
SITE-BUILDING TOOLS		
1&1 WebsiteBuilder	✓	✓
1&1 Photo Gallery	✓	✓
1&1 Dynamic Content Catalog	✓	✓
PDF2Web Converter	✓	✓
DynamicSiteCreator	✓	✓
Graphic archive	✓	✓
Software suite worth $600	✓	✓
FrontPage extensions	✓	✓
CGI library	✓	✓
Active Server Pages	–	✓
Perl, PHP3, PHP4, and PHP5	✓	–
1&1 WebDatabase	✓	✓
Database	1 MySQL	MS Access
Cron Jobs	✓	–
SSI (Server side includes)	✓	✓
DOMAIN NAMES		
Included Domains	3	3
Subdomains	50	50
Run multiple independent sites	✓	✓
Full DNS management	✓	✓
E-MAIL		
E-mail accounts, 1 GB space each	500	500
Aliases, auto-responders, forwarding	✓	✓
1&1 WebMail	✓	✓
Spam filtering for all accounts	✓	✓
Virus protection for all accounts	✓	✓
SECURITY FEATURES		
Protected by up-to-date firewall	✓	✓
Daily backups	✓	✓
Password protected directories	✓	✓
SSH Secure Shell Access	✓	–
Dedicated SSL Certificate	optional	optional
SUPPORT		
24/7 phone support	✓	✓
24/7 e-mail support	✓	✓

DEVELOPER PACKAGE

$19.99 PER MONTH
No setup fee

INCLUDES 5 DOMAINS

PACKAGE FEATURES		
Web space	4,000 MB	4,000 MB
Monthly transfer volume	100 GB	100 GB
FTP accounts	25	25
1&1 Control Panel	✓	✓
Logfiles	✓	✓
MARKETING TOOLS		
Chat channels	10	10
1&1 WebStatistics	✓	✓
In2site Live Dialogue	✓	✓
1&1 Newsletter Tool	✓	✓
1&1 WebElements	✓	✓
SITE-BUILDING TOOLS		
1&1 WebsiteBuilder	✓	✓
1&1 Photo Gallery	✓	✓
1&1 Dynamic Content Catalog	✓	✓
PDF2Web Converter	✓	✓
DynamicSiteCreator	✓	✓
Graphic archive	✓	✓
Software suite worth $600	✓	✓
FrontPage extensions	✓	✓
CGI library	✓	✓
Active Server Pages	–	✓
ASP.NET, .NET Framework	–	✓
Perl, PHP3, PHP4, and PHP5	✓	–
1&1 WebDatabase	✓	✓
Database	3 MySQL	MS Access, MS SQL
Cron Jobs	✓	–
SSI (Server side includes)	✓	✓
Perl Script Output Monitor	✓	–
Perl Syntax Checker	✓	–
DOMAIN NAMES		
Included Domains	5	5
Subdomains	200	200
Run multiple independent sites	✓	✓
Full DNS management	✓	✓
E-MAIL		
E-mail accounts, 1 GB space each	1,000	1,000
Aliases, auto-responders, forwarding	✓	✓
1&1 WebMail	✓	✓
Spam filtering for all accounts	✓	✓
Virus protection for all accounts	✓	✓
SECURITY FEATURES		
Protected by up-to-date firewall	✓	✓
Daily backups	✓	✓
Password protected directories	✓	✓
SSH Secure Shell Access	✓	–
Dedicated SSL Certificate	✓	✓
SUPPORT		
24/7 phone support	✓	✓
24/7 e-mail support	✓	✓

– Linux packages – Microsoft packages

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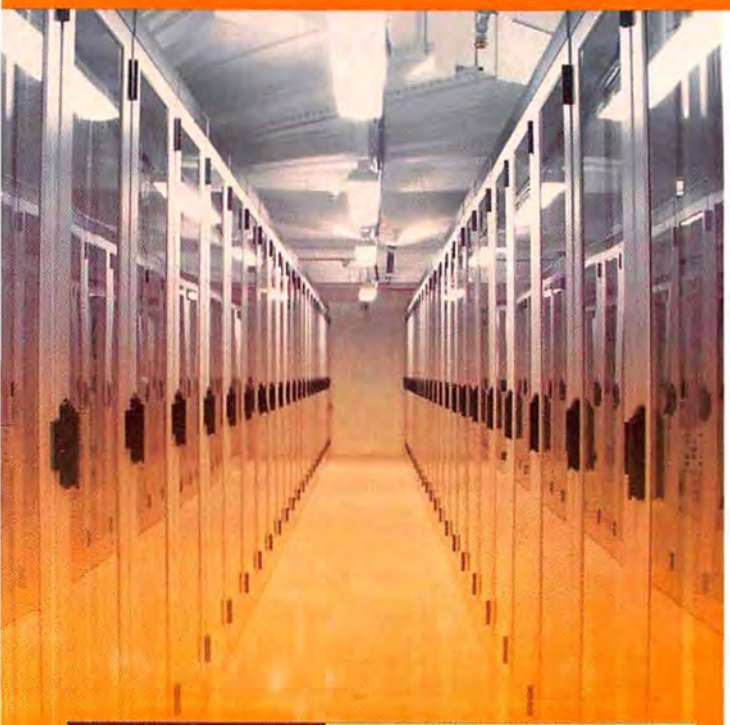
1&1 SERVERS



Value-Priced Servers - Superior Performance

Take your web presence to the next level! 1&1 Root Servers and 1&1 Windows Server 2003 put you in the driver's seat with total control. Or sign up for a 1&1 Managed Server and let 1&1 handle all the server maintenance and administration

The Best Features, No Extra Cost

1&1 Dedicated Servers provide an amazing value for money by offering the best features at all-inclusive prices. Re-image your Root Server by installing a pre-configured, Linux-based operating system – Debian, SuSE, or Fedora. For your Root or Windows Server, you can gain access to the network through the Serial Console, and get vital restore and repair capabilities thanks to the Server Rescue Image. Plus, you can back up and protect all of your data since backup space matches your server's hard drive size.

Advanced Security for your Data

Help prevent attacks by filtering traffic before it even reaches your server with the fully configurable 1&1 Firewall, based on Cisco hardware. And, one GeoTrust Dedicated SSL Certificate is included with all 1&1 Dedicated Servers.

"Our experience with 1&1 has been outstanding. Even though we have a complex site, it runs well, was easy to set up and we have had no downtime since we deployed the site. It just works! The value you get for your money with 1&1 can't be beat."

Mike Roberts
www.learnopenoffice.org

1.877.GO1AND1

AUGUST 2005
TOP 10
WEB HOST AWARDS
DEDICATED SERVER
HostReview

EXCLUSIVE!

1&1 SOFTWARE SUITE

$600 VALUE*

*$6.99 shipping & processing fee applies

	1&1 ROOT SERVERS	1&1 MANAGED SERVERS	1&1 WINDOWS SERVER 2003
	For Maximum Flexibility and Control ■ Plesk 7.5 Reloaded pre-installed ■ Operating System: Fedora Core 2 Linux ■ Recovery Tool: Smart reboot and restore capabilities ■ 24/7 phone support PLESK 7.5 RELOADED	**For Performance and Convenience** ■ Enjoy the features and ease of shared hosting with the power of a dedicated server ■ Management, administration and maintenance by 1&1 ■ Easy administration through the 1&1 Control Panel ■ 24/7 phone support 1&1 software collection	**For Security and Reliability** ■ Windows Server 2003 Standard Edition with Server III (Web Edition with Server I & II) ■ MSDE pre-installed ■ .NET Framework already integrated ■ 24/7 phone support Windows Server 2003
SERVER I ■ Intel Celeron 2.0 GHz ■ 512 MB DDR-RAM ■ 40 GB IDE hard drive ■ 1,000 GB monthly transfer volume	$69 PER MONTH	$79 PER MONTH	$89 PER MONTH
SERVER II ■ Intel Pentium 4, 2.4 GHz ■ 1,024 MB DDR-RAM ■ 80 GB IDE hard drive ■ 1,200 GB monthly transfer volume	$89 PER MONTH	$99 PER MONTH	$109 PER MONTH
SERVER III ■ Intel Pentium 4, 3.06 GHz Processor with Hyper-Threading ■ 2,048 MB DDR-RAM ■ 120 GB IDE hard drive ■ 1,500 GB monthly transfer volume	$119 PER MONTH	$129 PER MONTH	$149 PER MONTH

$99 one-time setup fee

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1&1 eSHOPS

Easy, yet sophisticated e-commerce solutions.

1&1 eShops are as powerful as any major online retailer, but with no software or hardware to install. Plus, 1&1 handles all the maintenance and updates so you can focus 100% on your online business.

Power & Simplicity

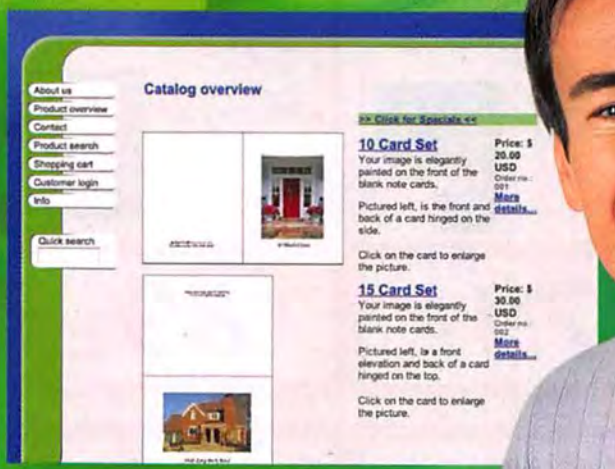
Choose from 30+ shop templates to create an appealing design. Customize fonts, colors and positioning to have the exact look you want. With online wizards to help you set up every section of your eShop, you don't need to have any HTML knowledge. All eShop packages are all-inclusive so you won't need to add any extra web space, e-mail or worry about bandwidth bills. It's all included in the one monthly price.

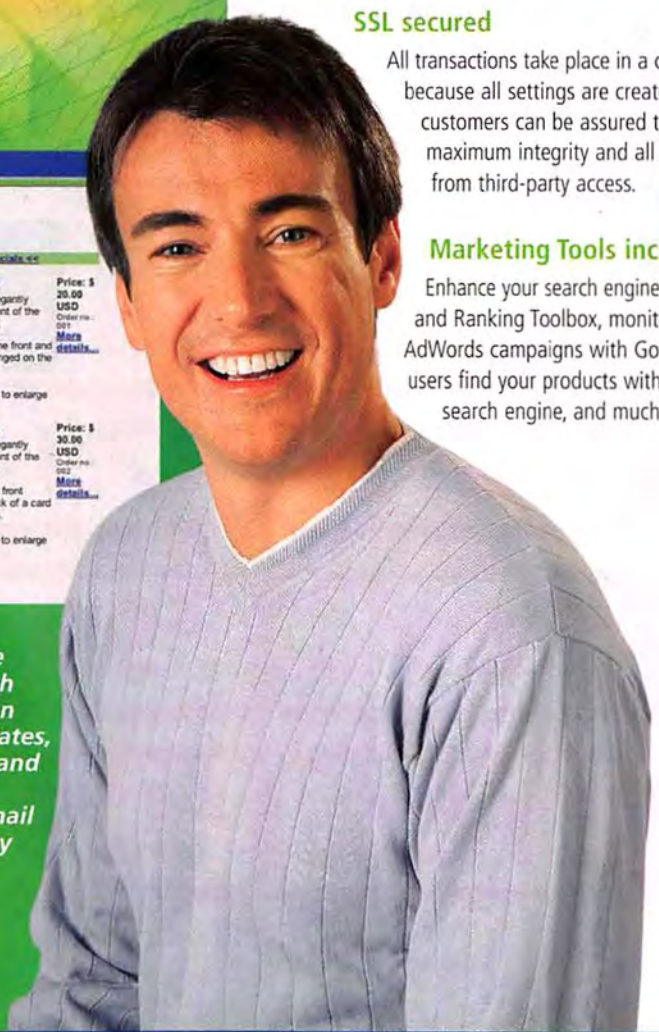
SSL secured

All transactions take place in a completely secure environment because all settings are created in SSL secured pages. Your customers can be assured their data is handled with maximum integrity and all eShops are fully protected from third-party access.

Marketing Tools included!

Enhance your search engine placements with HelloEngines! and Ranking Toolbox, monitor the effectiveness of your AdWords campaigns with Google Conversion Tracking, help users find your products with Froogle, Google's shopping search engine, and much more!





"I'm very excited about the exposure our business has experienced through our new 1&1 website and registration with Froogle. Using the built-in templates, our eShop site was up and running, and ready to accept orders within hours. Setting up the order process and e-mail addresses was very intuitive and easy to navigate."

Chris Kennedy
www.cardsophisticate.com

1.877.GO1AND1

MONEY BACK GUARANTEE

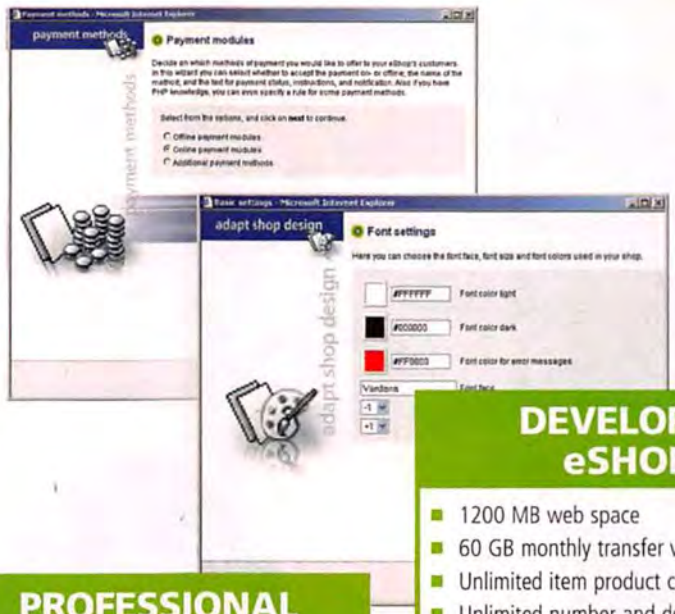
90-DAY MONEY BACK GUARANTEE

100% Satisfaction or your Money Back

EXCLUSIVE!

1&1 SOFTWARE SUITE

$600 VALUE*



BUSINESS eSHOP

- 50 MB web space
- 10 GB monthly transfer volume
- 50 item product catalog
- Choice of 2 shipping methods
- 24/7 phone support

No setup fee **$9.99** PER MONTH

PROFESSIONAL eSHOP

- 300 MB web space
- 30 GB monthly transfer volume
- 200 item product catalog
- Unlimited item variants
- Choice of 5 shipping methods
- Multiple currencies supported
- Import/export customer data
- No merchant account necessary with PayPal
- Accept secure online payments with PayPal and WorldPay
- Tax clearing server included (calculates taxes by state, county and city)
- Customer account management tools
- Easy account management for your customers
- 24/7 phone support

No setup fee **$29.99** PER MONTH

DEVELOPER eSHOP

- 1200 MB web space
- 60 GB monthly transfer volume
- Unlimited item product catalog
- Unlimited number and depth of sub-categories
- Unlimited shipping methods
- Multiple currencies supported
- Import/export customer data
- No merchant account necessary with PayPal
- Accept secure online payments with PayPal and WorldPay
- Tax clearing server included (calculates taxes by state, county and city)
- FTP access included
- Customer account management tools
- Easy account management for your customers
- Fully customizable templates
- GeoTrust Dedicated SSL Certificate included
- In2site Live Dialogue
- 24/7 phone support

No setup fee **$49.99** PER MONTH

*$6.99 shipping & processing fee applies

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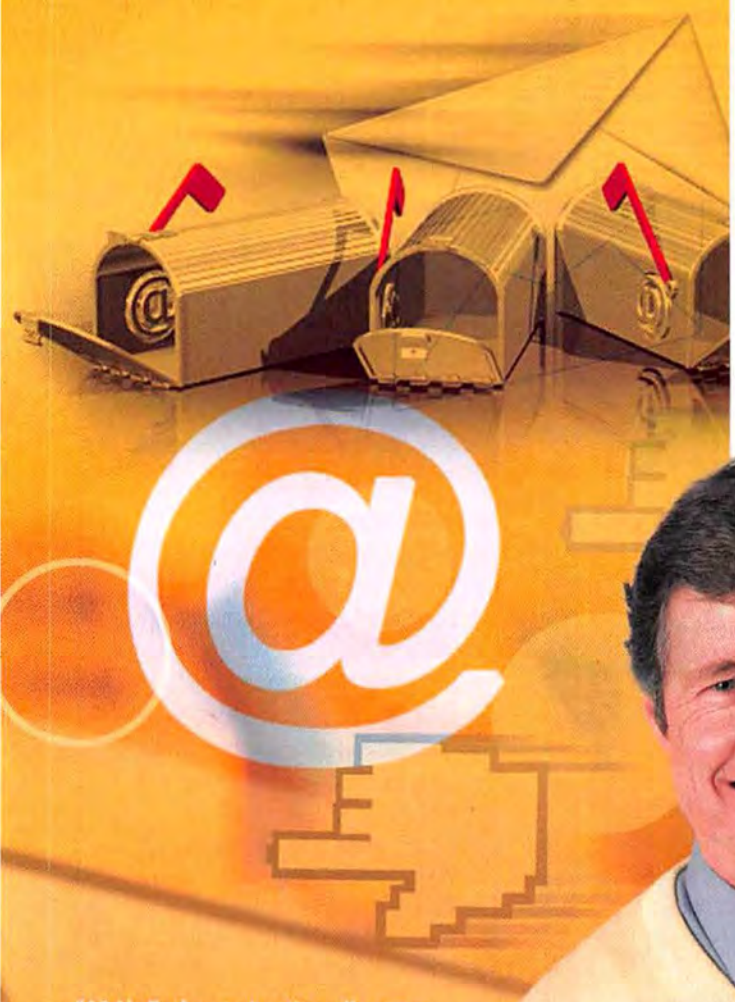
1&1 MAIL



Powerful e-mail for your home or business.

Whether you need e-mail for personal use or business use, 1&1 has your perfect solution. 1&1 Instant Mail allows you to send and receive personalized mail using your own domain name. 1&1 Microsoft Exchange Hosting gives you or your entire business reliable, affordable, up-to-date access to your critical information – anytime, anywhere.

Anytime web access

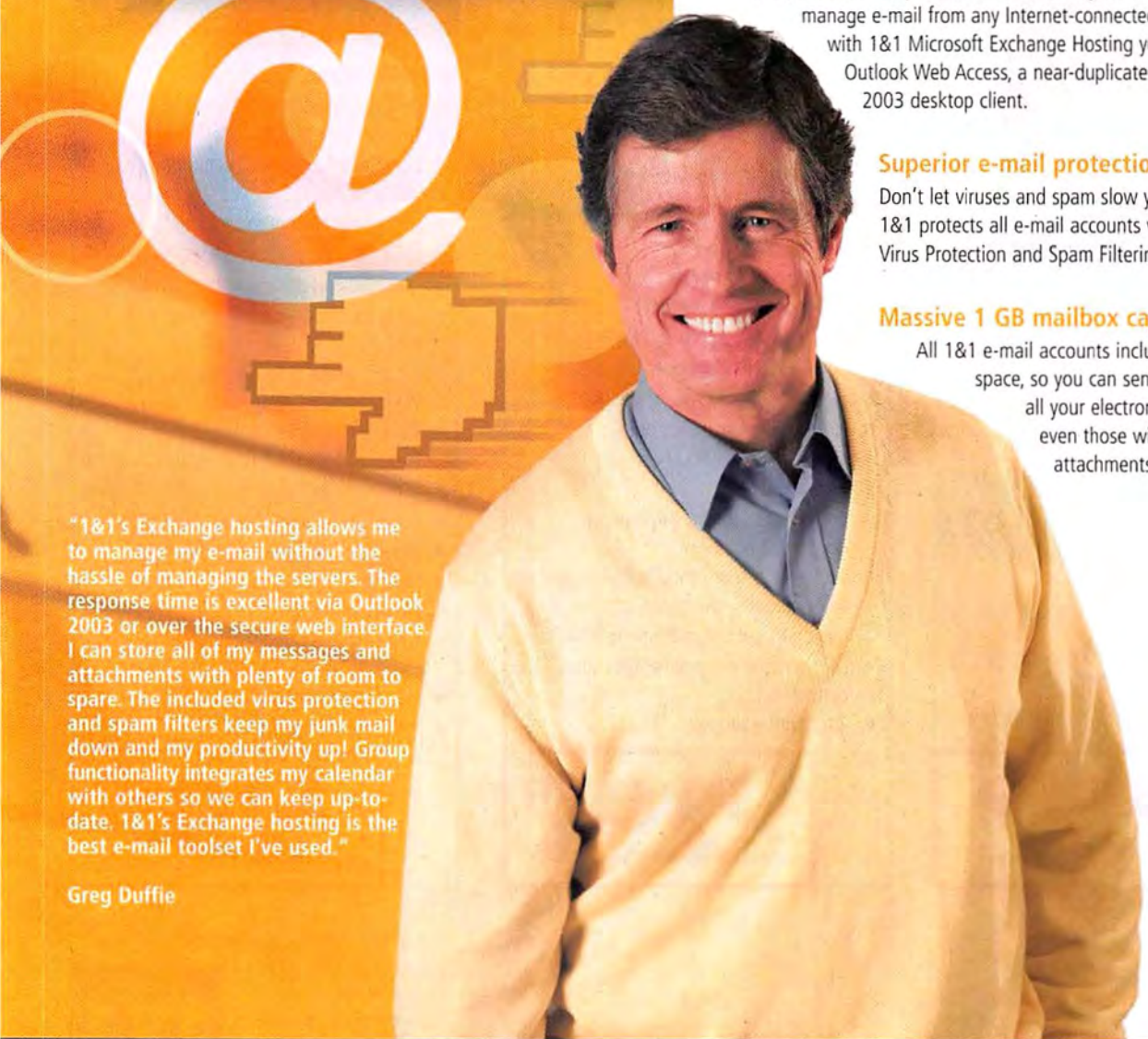
Never miss an important e-mail! 1&1 WebMail, included with 1&1 Instant Mail, delivers a simple and convenient way to send, receive, and manage e-mail from any Internet-connected computer. And, with 1&1 Microsoft Exchange Hosting you'll benefit from Outlook Web Access, a near-duplicate of the Outlook 2003 desktop client.

Superior e-mail protection

Don't let viruses and spam slow you down! 1&1 protects all e-mail accounts with customizable Virus Protection and Spam Filtering.

Massive 1 GB mailbox capacity

All 1&1 e-mail accounts include 1 GB mailbox space, so you can send, receive and store all your electronic correspondence – even those with large attachments!



"1&1's Exchange hosting allows me to manage my e-mail without the hassle of managing the servers. The response time is excellent via Outlook 2003 or over the secure web interface. I can store all of my messages and attachments with plenty of room to spare. The included virus protection and spam filters keep my junk mail down and my productivity up! Group functionality integrates my calendar with others so we can keep up-to-date. 1&1's Exchange hosting is the best e-mail toolset I've used."

Greg Duffie

1.877.GO1AND1

1GB MAILBOX SPACE

MONEY BACK GUARANTEE

90-DAY MONEY BACK GUARANTEE

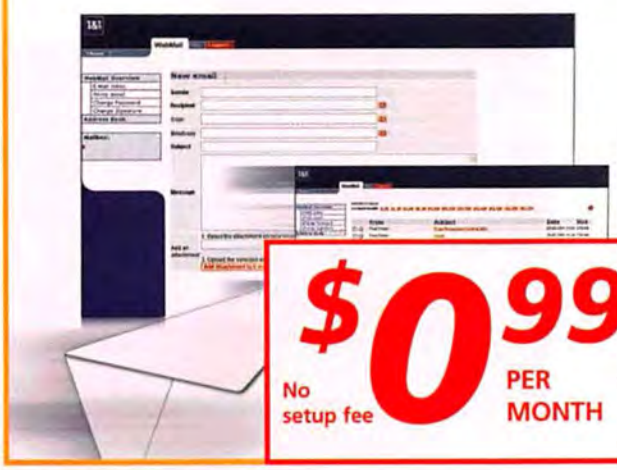
100% SATISFACTION OR YOUR MONEY BACK

1&1 INSTANT MAIL

Mail in an Instant!

What does your ambiguous e-mail address say about you? Are you ready to take your personal e-mail to a more professional level? Then 1&1 has your solution. Simply sign up for 1&1 Instant Mail and then add on your domain. In just minutes you'll have the power to send and receive e-mail from your own domain name.

- 5 e-mail accounts with 1 GB space each – IMAP & POP supported
- Spam filter included for all 5 accounts
- Virus protection for all 5 accounts
- 10 e-mail aliases
- Includes 1&1 WebMail – access mail anytime from anywhere
- Send and receive e-mail from your domain
- Easy setup via the 1&1 Control Panel
- 24/7 phone support



No setup fee **$0.99** PER MONTH

1&1 EXCHANGE HOSTING

Exchange made easy!

Your Microsoft Exchange Hosting Plan from 1&1 lets you enjoy the communication and collaboration features and benefits of Microsoft Exchange without the hassles of maintaining your own Microsoft Exchange server. Read, send and receive e-mail and access your public folders, contacts and calendars at anytime, from anywhere via Microsoft Outlook® or any web browser.

- Includes 1 Exchange account
- 1 GB e-mail storage space
- Group functionality tools
- Outlook® Web Access
- Synchronize your data with ActiveSync
- Virus Scanner installed on the Exchange Server
- Spam filter included in Outlook 2003
- 24/7 phone support

OUTLOOK® 2003 INCLUDED* With all Exchange accounts

*$6.99 shipping & handling applies.

No setup fee **$6.99** PER MONTH

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$5.99

per year

1&1 Domains – Low prices, no hidden costs

The ORIGINAL home of low-cost domains!

While other hosts may change their pricing in response to the industry, 1&1 will always offer feature-packed domains at consistently low prices.

No hidden costs, no gimmicks!

1&1's no-nonsense pricing comes without conditions. Register unlimited domains at the same low cost – and with nothing additional to buy!

1&1 – LEADER IN DOMAIN PRICES

	1&1	Go Daddy	Yahoo!
.com|.net|.org|.info	**$5.99**	$8.95|$9.95 (.info)	$9.95
ICANN Fee	Included	$0.25	Included
E-mail Account	**FREE** 1 GB Mailbox Size	**FREE** 25 MB Mailbox Size	**NO** Mailbox Included
Total Annual Cost	**$5.99**	**$9.20**	**$9.95**

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Domain transfers – no additional costs!

Transfer your existing domain to 1&1 and manage your domains and website all in one place! It's quick and easy, and you'll pay no additional transfer fees. Or when you sign up for any 1&1 shared hosting plan, you'll get up to 5 .com .net or .org domains absolutely free. Use your free domains however you'd like.

Free with every Domain Account:

- ✔ **Private Domain Registration**
  1&1 lets you keep your contact information confidential when you register your domain, so your personal data remains hidden from spammers.
- ✔ **Starter Web Page**
  Choose your template and create a mini website in minutes for your online business card, coming soon page, or parking page.
- ✔ **Search Engine Tools**
  Use Hello! Engines and Ranking Toolbox software to get your site listed on search engines like Yahoo! and Google.
- ✔ **E-mail account with 1 GB space**
  Your included e-mail account lets you send and receive professional-looking e-mail using your domain name as the address.
- ✔ **DNS Management**
- ✔ **200 e-mail aliases**
- ✔ **Domain forwarding**
- ✔ **Domain locking**
- ✔ **Domain masking**
- ✔ **24/7 Support**

UP TO 5 FREE DOMAINS INCLUDED WITH SHARED HOSTING PACKAGES!

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unleash the power of
internet communications

Publish OR Perish!

CD/DVD publishing technology from Rimage packs value wallop for users.

The Rimage Protégé II, part of the Producer II Family, is a fully automated, networked, two-drive recording and direct-to-disc printing solution.

THERE WAS A TIME when John Deere, 3M, and Cisco Systems would service their dealers and distributors by sending installation and training manuals or bulky catalogs with parts and other information. Printing and distribution were expensive. Changes meant mailing out additional pages or reprinting an entire catalog. Worst still, the catalogs were hardly user-friendly.

Today, these companies leverage the robust and reliable technology of Rimage Corp. to automatically record and print professional, dynamic CDs and DVDs. The result has been significant savings over the old paper catalogs and, more importantly, their biggest customers find these catalogs compelling and in step with today's digital work styles.

The truth is that by harnessing the best in CD/DVD production and printing technology, savvy businesses of all sizes can meet head-on some of their most daunting challenges, such as lowering costs, gaining business flexibility, and boosting customer relations.

These benefits accrue as companies come to understand that the process of CD/DVD production and printing is not about duplication, but about publishing. For example, Rimage pioneered the technologies that today enable applications such as:

- **On-demand publishing** (recording and direct-to-disc printing) of digital content by the world's leading software companies
- **Storage and delivery** of digital patient scans for hospitals of all sizes
- **Distribution** of corporate videos and multimedia presentations
- **Publishing, printing, and delivery** of music, software, and videos from retail kiosks

"As rich media continues its explosive growth, companies find they can leverage the dynamic nature of CD/DVD technology in ways that serve customers like never before, while lowering costs at the same time," says Joseph Stark, vice president of marketing at Rimage.

Special Solutions for Special Technology

The world's leader in providing recordable CD and DVD publishing solutions, Rimage is now in its 27th year of delivering innovative digital media technology. Having long recognized that businesses of all sizes can benefit from CD/DVD publishing and printing solutions, Rimage offers three different product families spanning the needs of small, midsize, and large operations.

For example, the recently unveiled Rimage 360i, part of the Desktop Family, breaks new ground in affordable CD/DVD desktop publishing and printing, allowing users to easily design, burn, and print graphics and text directly to disc. Featuring superior direct-to-disc inkjet printing, the 360i produces CDs and DVDs in vibrant, exciting colors at remarkably low cost. For a wide range of users, including videographers, photographers, music artists, computer graphics companies, colleges and other schools, and marketing firms, the Rimage Desktop Family delivers powerful returns, and powerful results for the users' customers.

At the other end of the Rimage product spectrum is its Producer II Family, designed for highly reliable, mission-critical CD/DVD publishing and printing—even under "battlefield" conditions of 24/7 operations. Products in the Producer II Family are built to integrate readily into important business applications for check imaging, Web fulfillment, medical imaging, and document imaging applications.

Rimage Producer II Family customers get to choose between two industry-leading print technologies. The Everest II thermal retransfer printer offers full color, ultrarealistic results with an extremely durable coating. And the Prism Plus thermal printer provides on-demand monochrome print services at very high speed while featuring an indelible printing process requiring zero drying time, making this printer perfect for printing text to pre-silk-screened CDs and DVDs.

Whether the company is the size and complexity of John Deere or a flower shop seeking to market its arrangements to local businesses, the CD/DVD publishing and printing solutions from Rimage offer that sought-after extra measure of competitive advantage and differentiation.

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Rimage Corp.
www.rimage.com
Go to find.pcworld.com/49232

A MARKER TO LABEL YOUR DISCS?

THAT'S LIKE WEARING A CONCERT T-SHIRT TO A CLIENT PRESENTATION.

MAKE YOUR BUSINESS LOOK BETTER. Introducing the Rimage 360i™, from the world leader in disc publishing. This affordable digital desktop disc recorder and printer lets you design, burn, and print directly to CDs and DVDs. It's easy to install, and it gives you the lowest cost of ownership over the lifetime of the product.* To give your discs a sharp, professional image **call 1-888-482-3327 for a Rimage dealer near you, or visit rimage.com/360i.**

RIMAGE 360i

CREATE. BURN. PRINT.

*See www.rimage.com for testing details. © 2005 Rimage Corporation. All rights reserved.

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Your Source for Media Center Solutions

PowerSpec MCE 520
Featuring the Intel® Pentium® D Processor 320
$849.99

PowerSpec MCE 720
Featuring the Intel® Pentium® D Processor 820
$999.99

$999

each, for 32" HD-ready LCD TV or PowerSpec MCE 410 Media Center

OR

buy both the 32" HD-ready LCD TV & MCE 410 Media Center for the low price of **$1898**.

WinBook®

The MCE 410 uses the Intel® Pentium® 4 Processor 530 with HT Technology.

Enjoy a roomful of features without a room full of equipment thanks to the power of WinBook products preinstalled with Microsoft® Windows® XP Media Center Edition 2005.

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141 BEST AUDIO PLAYERS: LARGE-CAPACITY GEMS

148 GADGET FREAK: ROBOTS COME HOME

DIGITAL WORLD

Technology that powers your life

EDITED BY KALPANA ETTENSON

BIG IS BEAUTIFUL

THESE AFFORDABLE, LARGE-CAPACITY AUDIO PLAYERS OFFER SLICK COLOR SCREENS, COOL NEW FEATURES—AND THE MOST MUSIC STORAGE FOR YOUR MONEY. BY TOM MAINELLI

SMALL AUDIO PLAYERS like Apple's iPod Nano and Creative's Zen Micro have won a loyal following. They're tiny, they're cute, and dang it, people just seem to like them. Nevertheless, though large-capacity players like Apple's zillion-selling iPod may not be quite as fashionable at the moment, in many cases they remain the best option for discerning buyers.

Outfitted with everything from photo-friendly color screens to FM receivers to voice recorders, the latest large-capacity players are undeniably cool. Plus, their big hard drives let you carry a big music collection around with you when you're away from your stereo and CDs.

Best of all, prices—even Apple's—have come down significantly. A 20GB iPod with a monochrome screen once cost $399; now the color-screen version is $285. Sure, Apple's 4GB $249 iPod Nano player sounds even easier on the wallet; but do the math and you'll find that the big dogs, at roughly $15 per gigabyte, are a much better buy.

All of the units that we ▶

PHOTOGRAPH: CHIP SIMONS

looked at for this story have a color screen and can display photos. The run time you get between battery charges is better than that of previous-generation players, but unfortunately you still can't easily replace the battery in these units yourself. Each player offers good audio quality and adequate (though not particularly great) earphones. All of the models are shipping products that offer roughly 20GB of storage and connect to your computer via a USB cable.

APPLE iPod

Apple iPod

THE WORLD'S MOST popular MP3 player just seems to get better with age. This latest iteration of the iPod is the first 20GB version to include Apple's impressively sharp color screen. The new screen lets you view your own photos, as well as album covers during audio playback (Apple's iTunes software quietly transfers the covers without missing a beat).

The seamless interaction between iTunes and the player is what allows the iPod to work so smoothly. With the latest versions of the free software, Apple has introduced the ability to subscribe to and download podcasts. These audio programs are widely available on the Web, but iTunes makes finding them and putting them on the iPod an easy task.

The iPod's click wheel remains one of the most addictively usable interfaces on the market. When you combine the wheel with a slick menu structure that no other company seems capable of duplicating, you get a setup that makes the job of scrolling through 5000 songs seem downright fun.

Alas, Apple's flagship audio player still isn't perfect. The iTunes music store is the only place online where you can buy music for it, which translates into zero portable subscription service compatibility. And while it has gradually reduced the iPod's price, Apple has also made once-standard accoutrements like a dock and a case optional (the unit we examined ships with just a USB cable, an AC adapter, and earphones).

COWON iAudio X5

Finally, Apple's iconic player lacks extra features that are commonplace on other players, such as voice recording and an FM receiver.

But even with these caveats, the iPod remains the single best audio player around. find.pcworld.com/49468

Cowon iAudio X5

WITH A FEATURE set that should make hardcore gadget freaks giddy, Cowon's ▶

FEATURES COMPARISON

HARD-DRIVE-BASED AUDIO PLAYERS RAISE THE BAR

TODAY'S LARGE-CAPACITY PLAYERS are cheaper and yet offer more features like color displays, voice recorders, and FM receivers.

	AUDIO PLAYER	Features and specifications		Performance	Bottom line
1	Best Buy Apple iPod $285 (★★★★½) find.pcworld.com/49468	• 20GB capacity • iTunes software • 5.9 ounces	• AAC, AIFF, Apple Lossless, Audible, MP3, WAV • Photo viewing	• **Ease of use:** Outstanding • **Features:** Very Good	Still the best of breed, Apple's latest 20GB unit includes a sharp screen and easy access to podcasts via iTunes.
2	Cowon iAudio X5 $299 (★★★★☆) find.pcworld.com/49469	• 20GB capacity • JetShell, JetAudio software • 5.1 ounces	• ASF, MP3, MPEG4, OGG, WAV, WMA • Video playback, voice recorder, FM tuner	• **Ease of use:** Very Good • **Features:** Outstanding	A gadget-lover's dream, this unit offers support for a wide range of formats but is hampered by an imperfect interface.
3	iRiver H10 $260 (★★★½☆) find.pcworld.com/49470	• 20GB capacity • Windows Media Player software • 5.8 ounces	• ASF, MP3, WMA • Voice recorder, FM tuner/recorder	• **Ease of use:** Very Good • **Features:** Very Good	Feature-packed device offers full compatibility with Rhapsody to Go, but feels bulky compared to competitors.
4	Samsung YH-925 $260 (★★★½☆) find.pcworld.com/49471	• 20GB capacity • Napster, Multimedia Studio software • 4.8 ounces	• MP3, WMA • Voice recorder, FM tuner	• **Ease of use:** Good • **Features:** Very Good	Sturdy, pocketable device works well enough, but there's little here to make it stand out from the crowd.
5	Toshiba Gigabeat $270 (★★★☆☆) find.pcworld.com/49472	• 20GB capacity • Gigabeat Room, Napster • 5.8 ounces	• MP3, WAV, WMA • Photo viewing	• **Ease of use:** Fair • **Features:** Good	A large, brilliant screen can't rescue this player from an awkward interface and irritating software.

PHOTOGRAPHS: MARC SIMON

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sleek-looking iAudio X5 looks remarkably impressive on paper—and it's pretty solid in hand, too. But despite fresh features like video playback, FM radio, voice memo recording, and support for geek-cred audio codecs like Ogg Vorbis, this unit feels just a tad like a work in progress.

For example, although I liked the tactile feedback of the unit's mini-joystick input while I browsed music files, the player's distinctly old-school file structure (complete with a ROOT folder) will annoy anyone who's accustomed to making musical selections by album, artist, or song.

Cowon includes several multimedia apps with the X5. JetAudio lets you rip your own CDs, convert existing audio files to new formats, and render video in a file format viewable on the player; JetShell is a Windows Explorer–like app that transfers files to the X5. Both work fine, but the sight of either one's confusing, densely packed interface is likely to send iTunes fans into convulsions.

At this writing, the X5 does not support any online music service—downloads or subscription services—a deficiency that could be serious enough to kill the player's appeal for some potential buyers. However, Cowon says that a firmware update, due by the time you read this, should remedy that problem.

With its elegant-looking case design, wealth of useful features, and wide range of supported formats, the iAudio is sure to tempt. After a little fine-tuning by the vendor, this player could very quickly become a favorite. find.pcworld.com/49469

iRiver H10

EARLIER THIS YEAR iRiver launched its 5GB H10 audio player—and we liked what we saw, awarding the svelte little player a 4-star rating. Now the company has launched a 20GB version of the same player; but even though we found plenty to like about the new roomier H10, this version is simply too bulky to have the same allure.

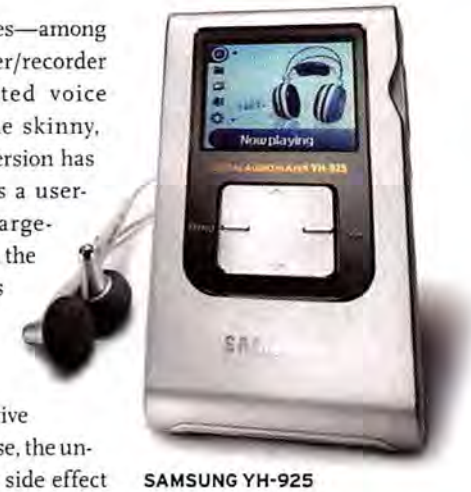
> Do the math and you'll find that the big dogs, at roughly $15 per gigabyte, are a much better buy.

The H10 isn't dramatically larger than the other players here; but when compared side by side with Apple's iPod or Toshiba's Gigabeat, it feels notably bigger. The H10 has loads of features—among them an FM tuner/recorder and an integrated voice recorder—but the skinny, pocketable 5GB version has all that, too (plus a user-removable, rechargeable battery, which the 20GB version does not have). And although iRiver throws in a usable, highly protective rubber case, the unfortunate side effect is that it contributes even more bulk.

IRIVER H10

The H10's icon-based interface, combined with its touch-strip and multibutton input, is fairly easy to use and represents a huge improvement over the company's earlier products. The color screen looks good, but the unit doesn't display album art. iRiver doesn't provide its own syncing software, but does include Microsoft's Windows Media Player 10. I'm not a huge fan of that application, but if you like it you'll be right at home.

One advantage that the H10 has over the other players here is official support for Real's $15-per-month Rhapsody to Go, which lets you download songs from the Web's best subscription-based audio service and take them with you. After suffering through a spotty launch, the portable service now seems to be up and running properly, and for my dollars it is reason enough to seriously consider buying the H10. find.pcworld.com/49470



SAMSUNG YH-925

Samsung YH-925

DIGITAL PHOTOGRAPHY buffs will appreciate the YH-925's USB host functionality, which lets you connect a compatible digital camera to the player and empty your memory card into it without the aid of a computer. Unfortunately, though, that feature is pretty much the only thing about Samsung's player that really stands out.

The Samsung looks sharp, its tasteful aluminum-and-plastic construction highlighting the player's attractive color screen. It fits easily in a shirt pocket, too, with almost exactly the same dimensions as Apple's iPod. Using the front-mounted multidirectional button on the YH-925 to navigate through your music is easy enough, but it's not nearly as enjoyable to work with as the touch-based navigation on the iPod or on iRiver's H10. And some parts of the player's interface—notably the mobile playlist function—are cumbersome.

On the software side, Samsung's player ships with Napster, but you can also use WMP 10 to load it with music. A recent firmware update ▶

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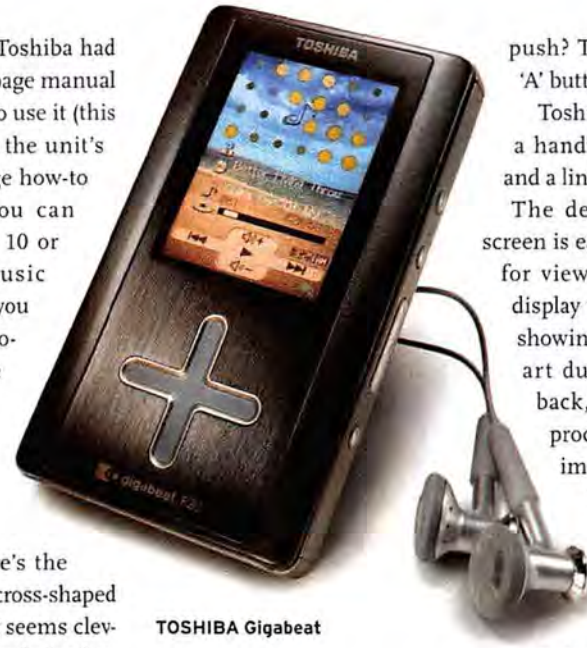
allows the YH-925 to work with the Napster to Go portable subscription service. An internal microphone and a line-in jack round out the package, permitting you to record sound or voice memos at any of several bit rates. find.pcworld.com/49471

Toshiba Gigabeat

AT FIRST BLUSH, Toshiba's Gigabeat looks like it just might have the specs to take on Apple's iPod. With a stunning, larger-than-average display, a seemingly innovative touch-sensitive interface, and a custom software package, what's not to like?

Let's start with the software. I applaud Toshiba for creating the Gigabeat Room software instead of forcing people to use WMP 10 or the included Napster player. I just wish the app weren't so counterintuitive that Toshiba had to throw in a 52-page manual explaining how to use it (this is in addition to the unit's own 70-plus-page how-to tome). True, you can switch to WMP 10 or Napster for music transfers, but if you want to move photos to the device you will have to use Gigabeat Room's awkward photo-transfer tool.

And then there's the player itself. The cross-shaped Touch Plus input seems clever, but I constantly had to refer to the on-screen diagram to figure out whether I should click to the right or at the center to select items. The buttons along the right side of the unit are equally frustrating to use. For some reason, you click the Power button to pull up the main menu, but you click the Menu button to bring up a submenu.



TOSHIBA Gigabeat

And should you want to back out of a menu, what button do you actually need to push? The oddly labeled 'A' button, of course.

Toshiba does throw in a handy docking cradle and a line-out jack.

The device's beautiful screen is easily the best here for viewing photos. The display would be ideal for showing off album cover art during audio playback, but the onerous process of adding the images to the player is scarcely worth the effort. And a user should never have to say that about an audio player. find.pcworld.com/49472 ■

Tom Mainelli is a senior editor for PC World. *Senior Editor Eric Dahl of* PC World *and freelance writer Richard Baguley contributed to this review.*

PORTABLE VIDEO

BIG-SCREEN PLAYER OFFERS VIDEO ON THE GO

IF YOU WOULD RATHER be watching *CSI* than listening to music during your daily commute, check out the new Archos AV 700 Mobile DVR. Though the $600 device eschews the pocket-friendly dimensions of competing models such as Creative's new Zen Vision (see find.pcworld.com/49466 for a review of this player), its list of features—which includes a 40GB hard drive and a 7-inch display—make it an outstanding traveling companion.

ARCHOS
AV 700 Mobile DVR

Besides supporting video downloads, subscriptions, and rentals, the AV 700 addresses the problem of getting content for portable devices by supplying its own digital video recorder capabilities. Connect the unit to your set-top cable or satellite box, using the included dock, and you can schedule your own recordings (there's even a remote control).

Other features include an audio player, a photo browser, a gaming console, and an audio recording application.

I enjoyed using the AV 700, though it still has some rough edges. The interface is a bit unrefined, and the input options are not entirely intuitive. The screen is large, but it isn't exceptionally sharp.

That said, if you're seriously intrigued by the prospect of taking video with you when you're on the go—and you're willing to embrace a slightly demanding learning curve—you'll definitely get a kick out of this handful of a handheld.

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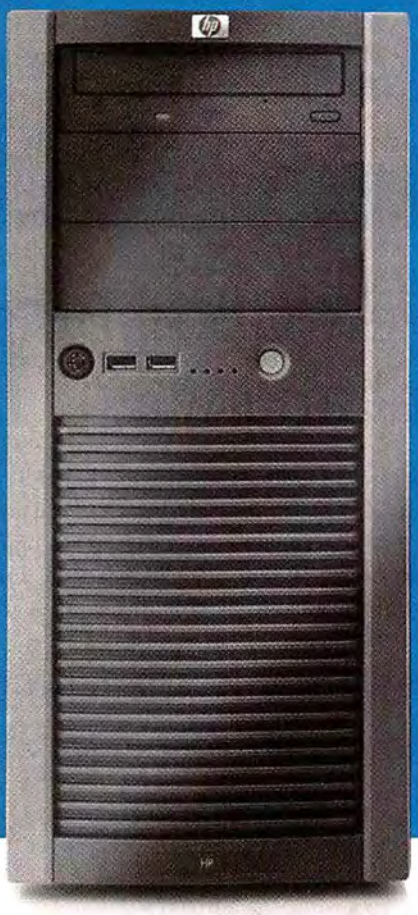

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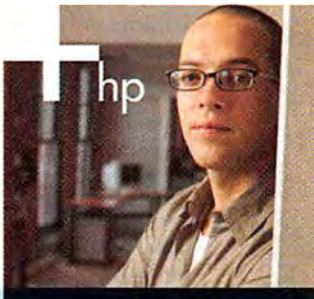

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GADGET FREAK

DAN TYNAN

Looking for a Few Good Bots: Robots for Work and Play

I'M NOT A demanding person. All I ask from life is a happy home, steady work, and a personal robot slave to cater to my every whim.

We're not quite there yet, but the age of household bots has arrived. There are robotic vacuum cleaners, lawn mowers, and floor scrubbers, plus a boatload of robotic toys. I decided to see what the modern robotic lifestyle was like.

PET PROJECT

FIRST I UNLEASHED Wowwee Robotics' Robopet. It looks like the Taco Bell Chihuahua dressed up as an Imperial Storm Trooper, and has a herky-jerky walk unlike that of any living thing. Yet the Robopet—Bo for short—is an impressive piece of technology. Infrared sensors let Bo maneuver around objects, avoid falling down stairs, and respond to movements. It can bark, whine, howl, pant, sit, stand, jump, roll over, play dead, pass gas, and lift a leg as if to mark its territory. Bo can cycle through everything on command or spontaneously; and you can order it to do specific tricks using the remote.

After about 5 minutes of nonstop activity, my wife and I were ready to send Bo to the pound. But not my six-year-old. She loved Bo. To her, Bo was just like a Jack Russell terrier, but with an off switch.

Robopet is far less sophisticated than Sony's $2000 Aibo pet, which uses artificial intelligence to recognize patterns and can understand 100 words and phrases. Then again, Robopet costs only $99; simplicity has its advantages.

> This mindless machine began to take on personality. He was...cute.

THE ROOMBA RUMBA

TOYS ARE FUN, but the real value of robots is in work, not play. So I also tried iRobot's $329 Roomba Scheduler. (Scooba, Roomba's floor mopping sib, should be ready by the time you read this.)

Just 4 inches high and 13 inches wide, the disc-shaped Roomba scuttles across the carpet like a midget carrying a hatbox, slipping under couches, bouncing off walls, following a seemingly random pattern that eventually covers every square inch of floor. When finished, Roomba scoots back to its docking station and recharges.

A handheld remote lets you schedule cleaning sessions (hence the bot's name), while two "virtual walls"—small transmitters that emit a beam of infrared light—let you limit where Roomba will roam. This lets you tell Roomba to clean the living room on Wednesday, the dining room on Thursday, and so on.

Creating a schedule was easy: I just picked a day and time, and 'beamed' the info to Roomba and the two walls. Overall, Roomba did a fine job on my carpets, though power cords tend to get sucked up along with the dirt. To get Roomba to clean a different room, simply pick him up and move him.

Yes, I said "him." After just a day, this mindless machine began to take on personality. He was...cute. According to Greg White, iRobot's VP of marketing, my response isn't uncommon. He says more than 60 percent of iRobot's 1.2 million customers name their vacuum cleaners. (My mother-in-law owns a Roomba named "Ruby.")

Unfortunately, White says my personal robot slave is still a long way off. That's because building taller bots that can handle a higher center of gravity is a huge technical challenge. Humanoid robots like Honda's 4-foot-tall Asimo, which cost tens of millions of dollars to develop, may never reach mass production.

But I have hope. Japan has plans to build a moon base populated entirely by robots, by 2025. So even if I never get my personal bot, my six-year-old—who'll be 26 then—may one day have a robot slave to call her own. ■

Contributing Editor Dan Tynan owns too many pets and not enough bots.

ILLUSTRATION: BARRY BLITT

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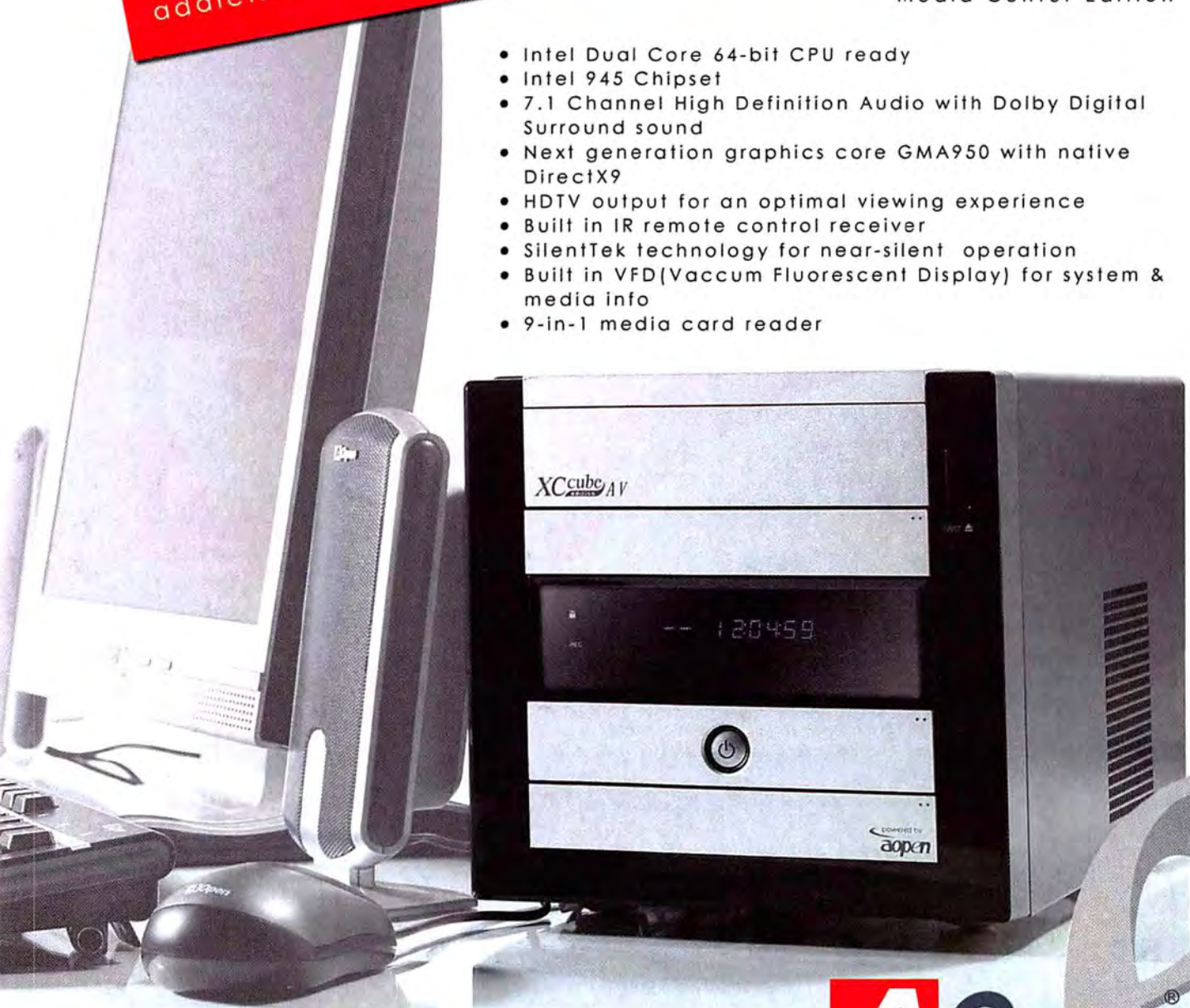

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Lost and Found Again

RestoreIT from FarStone rescues one small business from the brink of data disaster.

Steve Gooderham's portfolio—and his livelihood—were on his hard drive.

A professional videographer and owner of GD Productions, Tustin, Calif., Gooderham had just installed a bigger hard drive on his computer. When the **new drive crashed**, Gooderham reinstalled his old drive in an attempt to recover project files and customer accounts. Shockingly, his monitor still displayed the very same error messages. **Years of work had disappeared.**

This sudden **data loss** could have been fatal to his business. But Gooderham recalls, "I had **FarStone's RestoreIT** on my old drive, so I just clicked to restore to the most recent backup point. Sure enough, **the drive came right back up.**"

Gooderham then used DriveClone, another FarStone product, to transfer an exact copy of his restored old drive to the new drive, and he was **back in business.**

Gooderham's story ends on a positive note only because he had the **right software in place** to recover from a full-blown data disaster. Many other users aren't so fortunate, as they **lose critical data** to spyware, worms and viruses, hacker attacks, operating system failures, defective software, and human error—and have **no way to get it back.**

ASLEEP AT THE DIGITAL WHEEL

Users can be lulled into a **false sense of security**, believing that antivirus software, firewalls, and other such defenses will fully protect their data. Still, **spyware infects up to 80 percent of all PCs.** In one survey, *two-thirds* of respondents reported a virus infection in the previous year, despite the fact that most of them had antivirus software on their systems.

Gartner Inc. asserts that half of all small businesses that experience a major data disaster lasting a day or more **will not survive.**

A DATA DISASTER INSURANCE POLICY

RestoreIT saves ongoing, **complete system backups** to a protected partition, acting like a digital insurance policy. When a data disaster occurs, RestoreIT enables you to restore an entire system with a **few clicks of a mouse**—even when Windows won't boot up. Best of all, you can choose a backup point that predates an attack, effectively removing malware and cleaning up your registry.

For all its robustness, RestoreIT is remarkably **simple to install and use.** Wizards make it a breeze to customize the backup process—by file type, by file location, or according to a schedule. You can recover an **entire system** or **specific files** by searching or browsing in a **user-friendly interface**, and **fully preview** files to restore at each incremental backup point.

Reactive software like antivirus protection will keep out intruders, but only to a point. New viruses and spyware can still get past your lines of defense and **wreak havoc** on your system. RestoreIT will get rid of them once they've arrived. More important, it will bring your data back—and quite possibly **save your business.**

Recovery Software for ISPs

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The Storage Central SC101 offers enterprise-class SAN technology.

Notes Dave Reinsel, IDC's program director of storage research, "Solutions such as NETGEAR's Storage Central provide home and small office users a new level of cost-effective, advanced storage solutions."

For more information on this exciting breakthrough in storage technology for small businesses and home users, visit www.netgear.com/go/sc.

*Select any capacity IDE disks, sold separately.

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Back Up and Running–Quickly

R-Tools gives business continuity a big boost.

NO AMOUNT of precaution can guarantee 100% against heavy data loss caused by a virus or other malicious attack, hardware failure, or an operating system crash.

That's where R-Tools Technology Inc. (www.r-tt.com), a leader in backup and recovery solutions, steps up with its **R-Drive Image 3.0**, a powerful and business-critical utility that easily creates disk image files for backup or duplication. These disk image files are exact and precise copies of a hard drive partition or logical disk. Furthermore, R-Drive Image creates and compresses these files without interrupting the Windows operating system—and therefore without interrupting your business.

Then, R-Drive Image restores these images back to the original disks or, if users prefer, on any other partitions or on a hard disk's free space, all on the fly and without interruption. All these attributes of R-Drive Image translate into the capability to rapidly restore your system following a serious crash.

And that's not all. Users can exploit R-Drive Image files for mass system deployments when setting up several computers with identical configurations. New features in Version 3.0 include an automated scheduler for disk creation in unattended mode; network support; automated action reports; and expanded device support.

R-Tools also offers an innovative line of data recovery and file reconstruction utilities, including a new version of the powerful **R-Studio** to recover lost data, even from formatted, damaged or deleted disks; **R-Word** to recover damaged Microsoft Word documents; **R-Excel** to rebuild corrupted MS Excel files; and **R-Mail** to rescue accidentally deleted e-mail messages and damaged .dbx files.

The online privacy utility, **R-Wipe & Clean**, keeps disks free and clear of unwanted data. And with an eye toward security, the **R-Guard** host-based intrusion detection system shields users' files from unwanted and potentially disastrous intruders, in addition to allowing users to set advanced access rights for applications and system processes. In addition, **R-Firewall** is a free program that protects LAN clients against external and internal threats.

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Storage Central SC101

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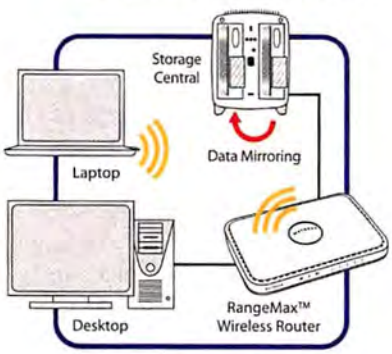

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SPOTLIGHT: DVD DRIVES

CENTER STAGE: Six new DVD burners, from (left to right) LG, Samsung, Pioneer, Lite-On, Sony, and Plextor. The LG and the Pioneer earn Best Buys.

Full-Steam-Ahead DVD

Prices are down and speeds are increasing. We review seven of the latest burners.

ULTRAHIGH-CAPACITY DISCS, such as those promised by the Blu-ray Disc and HD-DVD formats, are enticing; but like any fresh technology, they're going to be expensive when they first reach store shelves. That doesn't mean, however, that you have to wait to pack extra gigabytes onto your discs affordably.

Today's conventional DVD burners can deftly handle writing two layers of data onto a disc, and they can do so significantly faster (by nearly a third, if you pick the right drive) than they could just six months ago. In recent months, drive manufacturers have increased the write speeds of dual-layer DVD-R and double-layer DVD+R burners from their original speeds of 2.4X to 6X and 8X, respectively; and each type should eventually hit the same 16X maximum write-speed ceiling as write-once single-layer DVD drives.

Just as important, prices for the two-layer media used in the dual- and double-layer drives are finally showing signs of dropping. For example, you can now purchase a five-pack of 2.4X DVD+R DL discs that sold for $25 six months ago for about a third of that price. And 8X DL media is coming this fall (see "Firmware Update Required?" on page 158 for more).

Rewritable speeds have also jumped up a notch, from 4X to 8X for DVD+RW, and from 4X to 6X for DVD-RW. Discs formulated to receive data at those speed ratings, however, remain rare (they're so scarce, in fact, that we conducted our DVD+RW tests with early production-level 8X discs from Verbatim). We expect to see appropriate-speed media trickling onto the market in limited quantities by the time you read this, though.

We evaluated five of the latest internal

PHOTOGRAPHS: MARC SIMON

165 DESKTOP PCs
Four systems—from Amax, Sony, Velocity Micro, and Xi Computer—move onto the chart.

167 NOTEBOOK PCs
Of the four new notebooks on the chart, the third-ranked Gateway M250E all-purpose model had the most impressive battery life.

169 INKJET PRINTERS
Two new models earn Best Buys this month: Canon's chart-topping Pixma iP4200, and HP's fourth-ranked, value-conscious Deskjet 5440.

171 SCANNERS
This Top 5 chart features an all-new lineup of flatbed scanners, including our top-ranked Epson Perfection 4490 Photo, with technology for removing dust and scratches.

173 MORE REVIEWS
Internal hard drives, point-and-shoot digital cameras, and PDAs appear in this month's recap of previous *Top 100* charts.

169

IDE DVD burners—Lite-On's $75 SHW-1635S, Pioneer's $90 DVR-R100, Plextor's $105 PX-740A and $155 PX-716AL (a slot-loading model), and Sony's $100 DRU-810A—and two external drives, LG's $180 Super-Multi GSA-2166D and Samsung's $200 WriteMaster SE-W164C. All seven drives made our chart, which includes three previously tested models, Asus's DRW-1680P, Samsung's TS-H552U, and Plextor's PX-716UF. Our Best Buys, though, went to two of the newcomers, the Pioneer and the LG.

Most of the new drives had identical specs, including 16X single-layer DVD-R and DVD+R and 8X DVD+RW. All of the drives support double-layer writing at faster speeds to 2.4X media, the first generation of DVD+R DL media to ship last year. But five of the seven products claim to deliver double-layer DVD+R at 8X; the Samsung advertises 5X writes; and the Plextor PX-716AL bills itself as a 6X writer. Across the seven drives, all but two feature 4X dual-layer DVD-R support (the same speed as the currently available media). The Pioneer DVR-R100's spec promises 8X performance, and the Plextor PX-716AL pledges 6X.

PERFORMANCE GAINS

COMPARED WITH THE drives in our August DVD burner chart (find.pcworld.com/48184), performance results this time around improved dramatically. Plextor's PX-740A and Sony's DRU-810A each posted record-setting times during write-once tests, using both single- and double-layer media. Using 2.4X double-layer Verbatim media to burn at a faster speed (in this case, 8X) than the media is rated for, these drives bested the times of their predecessors (the Plextor PX-716A and the Sony DRU-800A) by more than 10 minutes, completing our test burn in about 40 percent less time. In our experience, however, the Sony device required a rest between double-layer burns; otherwise, as Sony confirmed, the drive's thermal protection circuit would automatically step down the write speed to prevent the drive from overheating.

Some other drives rated at 8X for double-layer DVD+R didn't achieve such lofty results. For example, Lite-On's SHW-1635S performed more like a 4X drive in our tests. According to Lite-On, in spite of its specs the drive is designed to suppress the burn speed, so as not to write faster to slower-rated media; the company says this approach minimizes the potential for burning an error-riddled disc. (For more on faster double-layer writing, see "Firmware Update Required?" on page 158).

Though we've tested drives in the past that counted 8X DVD+RW among their specs, this month we saw the first true 8X packet-writing performance, delivered by Plextor's PX-716AL. This drive burned our 2.64GB batch of test files and folders to 8X DVD+RW Verbatim media in a blistering 6 minutes, 30 seconds. The speed boost could help you complete your backups in a little over half the time required by the previous generation of 4X-rated drives and media.

The PX-716AL's stellar test results are even more impressive when you compare them with the times we recorded for the other six 8X DVD+RW–rated drives in our tests: None of those burners ▶

LABELING

Ditch the Pen for a Cool Disc Labeler

TIRED OF HANDING OUT YOUR high-quality work on discs with hand-scrawled labels? Give your disc a more professional look by using a labeling device.

Buying a drive with LightScribe laser-etching technology is one option; or, if you already have a burner, Epson's $100 Stylus R200 and Primera Technology's $150 Signature Z1 printer both will print labels on discs.

For producing batches of discs, consider an all-in-one disc duplicator and labeler. The Rimage 360i, which sells for $1750, includes a 25-disc duplicator and an inkjet printer. The Primera Bravo II Disc Publisher, which lists for $2700, also contains an inkjet printer, and offers a 50-disc capacity and a clear window cover so you can observe the process. Both use Plextor's PX-716A drive inside. See find.pcworld.com/49478 for more details. —*M.J.P.*

RIMAGE'S stylish, upright 360i prints labels using its black and color inkjet cartridges.

reached their advertised 8X speeds, peaking instead at speeds closer to 4X or 6X.

A potential cause of this sluggishness is the drive's firmware (software installed in flash memory on the drive), which contains instructions detailing how the drive should write to specific media. Typically you can update the firmware easily with a download from the drive manufacturer's Web site. We suspect that every drive maker whose drive spec calls for 8X +RW will make the necessary firmware adjustments once media starts to ship in volume, and will issue a free update to increase performance, so you won't be left behind if you buy a drive today.

FEATURES, NOT JUST SPEED

SEVERAL OF THIS month's drives have unusual features, or mixes of features, that make them stand out from the crowd. For example, the LG is the sole drive we tested for this chart that writes to noncartridge DVD-RAM media. If you have one of the many living-room DVD recorders equipped with DVD-RAM (from Panasonic, JVC, and Samsung, among others), you'll find this capability great for playing back or recording from DVD-RAM discs. (If you use cartridge media, you can always remove a DVD-RAM disc from its cartridge before using it in the LG drive.) DVD-RAM discs are handy because they are seamlessly interchangeable between PC drives and set-top DVD-RAM recorders (DVD±RW media may be less so). ▶

TOP 100

TEST Center

Drives Get Faster, Pack More Features

ALL SEVEN NEW drives we tested made our chart. Pioneer's DVR-R100 and LG's external Super-Multi GSA-2166D earn Best Buys.

	INTERNAL DVD DRIVE	Features and specifications [1]	Performance	Bottom line
1	Pioneer DVR-R100 Best Buy $90 (★★★★☆ NEW) find.pcworld.com/49454	• 8X DVD+R DL, 8X DVD-R DL[2] • 16X DVD-R, 16X DVD+R, 6X DVD-RW, 8X DVD+RW, 40X CD-R • Ulead DVD MovieFactory 4 SE and VideoStudio 9 SE, and NovaStor NovaBackup 7.2 software	• Double-layer +R: 18:36 • Single-layer +R: 6:31 • DVD+RW: 11:58	Drive's value is enhanced by its robust software bundle. Will need a firmware update to write at 8X DVD+R DL.
2	Sony DRU-810A $100 (★★★★☆ NEW) find.pcworld.com/49456	• 8X DVD+R DL, 4X DVD-R DL • 16X DVD-R, 16X DVD+R, 6X DVD-RW, 8X DVD+RW, 48X CD-R • Nero Express 6.6 (with NeroVision Express 3.1, BackItUp, and Recode 2) software	• Double-layer +R: 15:42 • Single-layer +R: 5:51 • DVD+RW: 12:06	Speediest writer, by a hair, at single-layer +R; but it needed a rest to cool down between DL writes.
3	Plextor PX-740A $105 (★★★★☆ NEW) find.pcworld.com/49462	• 8X DVD+R DL, 4X DVD-R DL • 16X DVD-R, 16X DVD+R, 6X DVD-RW, 8X DVD+RW, 48X CD-R • Nero Express 6.6 (with NeroVision Express 3.1 and Nero PhotoShow Express) software	• Double-layer +R: 15:22 • Single-layer +R: 5:53 • DVD+RW: 12:13	Just edged out the Sony for top honors on our DVD+R DL tests; otherwise, performance was practically identical.
4	Plextor PX-716AL $155 (★★★★☆ NEW) find.pcworld.com/49460	• 6X DVD+R DL, 6X DVD-R DL • 16X DVD-R, 16X DVD+R, 4X DVD-RW, 8X DVD+RW, 48X CD-R • Roxio Easy Media Creator Basic 7.1 and PhotoSuite 7 SE software	• Double-layer +R: 18:52 • Single-layer +R: 6:10 • DVD+RW: 6:30	Unique slot-loading mechanism, flexible disc-writing options, and speedy packet writing are pluses, but you'll pay for the design.
5	Lite-On SHW-1635S $75 (★★★½☆ NEW) find.pcworld.com/49452	• 8X DVD+R DL, 4X DVD-R DL • 16X DVD-R, 16X DVD+R, 6X DVD-RW, 8X DVD+RW, 48X CD-R • Nero Express 6.6 (with NeroVision Express 2.1) software	• Double-layer +R: 27:05 • Single-layer +R: 6:17 • DVD+RW: 9:03	Manuals are mediocre, and the drive didn't burn to our 2.4X-rated +R DL media as fast as other models.
6	Asus DRW-1608P $60 (★★★½☆ Aug 05) find.pcworld.com/48178	• 6X DVD+R DL, 6X DVD-R DL • 16X DVD-R, 16X DVD+R, 6X DVD-RW, 8X DVD+RW, 40X CD-R • Nero Express 6.3 (with NeroVision Express 2.1 SE) and Ulead DVD MovieFactory software	• Double-layer +R: 19:28 • Single-layer +R: 6:08 • DVD+RW: 12:04	Great overall performer with top specs at a terrific price. However, its older Nero bundle lacks some components.
7	Samsung TS-H552U $50 (★★★½☆ Aug 05) find.pcworld.com/48162	• 5X DVD+R DL • 16X DVD-R, 16X DVD+R, 4X DVD-RW, 4X DVD+RW, 40X CD-R • Nero Express 6.3 (with NeroVision Express 2.1) software	• Double-layer +R: 23:54 • Single-layer +R: 6:09 • DVD+RW: 12:54	Bargain-priced drive proved a fast +R writer, but it lagged on double-layer burns and lacks the flexibility to write to DVD-R DL.
	EXTERNAL DVD DRIVE			
1	LG Electronics Super-Multi GSA-2166D Best Buy $180 (★★★★½ NEW) find.pcworld.com/49448	• 8X DVD+R DL, 4X DVD-R DL • 16X DVD-R, 16X DVD+R, 6X DVD-RW, 8X DVD+RW, 48X CD-R • Nero Express 6.6 (with NeroVision Express 3.1) and PowerProducer 2 Gold software	• Double-layer +R: 21:24 • Single-layer +R: 6:00 • DVD+RW: 8:29	In a class by itself, this high performer is packed with features including DVD-RAM and LightScribe labeling.
2	Plextor PX-716UF $220 (★★★★½ Aug 05) find.pcworld.com/48180	• 6X DVD+R DL, 6X DVD-R DL[1] • 16X DVD-R, 16X DVD+R, 4X DVD-RW, 8X DVD+RW, 48X CD-R • Roxio Easy Media Creator Basic 7.1 and Toast Lite 6.1 software	• Double-layer +R: 18:56 • Single-layer +R: 6:12 • DVD+RW: 11:44	Drive is distinguished by its stylish curves, Mac and PC software, and strong performance. Comes in candy-bright colors.
3	Samsung WriteMaster SE-W164C $200 (★★★½☆ NEW) find.pcworld.com/49458	• 5X DVD+R DL, 4X DVD-R DL • 16X DVD-R, 16X DVD+R, 6X DVD-RW, 8X DVD+RW, 48X CD-R • Nero Express 6.6 (with NeroVision Express 3.1, BackItUp, Showtime, and Recode 2) software	• Double-layer +R: 22:37 • Single-layer +R: 6:03 • DVD+RW: 9:01	Samsung touts this great writer as being made without lead, but it lacks the LightScribe labeling of the less pricey LG.

FOOTNOTES: [1] DVD+R DL refers to double-layer +R; DVD-R DL refers to dual-layer -R. [2] Firmware update required to achieve some write speeds. **HOW WE TEST:** We test drives using media supplied by the vendor or by Verbatim. Write speeds are (in listed order) the time (in minutes:seconds) required to write 7.9GB to double-layer DVD+R and 4.35GB to single-layer DVD+R using the drive's bundled mastering software, and then the combined time to format a blank rewritable DVD and copy 3.4GB of data to that disc. **CHART NOTES:** Prices given are street prices as of 8/24/05. Products in this chart are ordered by star rating. Price is taken into consideration for Best Buy honors only. See find.pcworld.com/47491 for more details on software bundles, and find.pcworld.com/10860 for details on *PC World*'s Star Ratings. Visit find.pcworld.com/49464 for an expanded features and performance chart, plus our full methodology.

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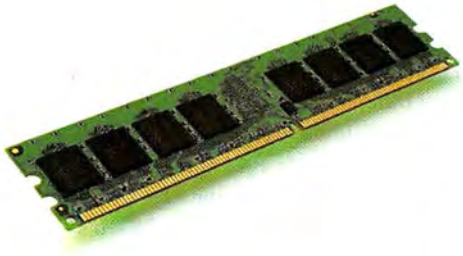

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The unique feature of the Lite-On SHW-1635S is its short profile. Its smaller design makes this inexpensive, high-performance model suitable for use in compact computers from vendors such as AOpen and Shuttle.

Plextor's chic PX-716AL is the sole slot-loading burner on the chart—and the first such burner we've tested. Its design resembles what you'd find in an automobile CD player or on a Mac Mini, and it looks cool, making this drive ideal for use in a customized home entertainment center PC. You'll pay a premium for the gee-whiz factor, though: At $155, this internal drive is nearly as pricey as the external models we reviewed. Though the PX-716AL costs more than its PX-740A stablemate, the product's high price is only partly due to its slot-loading mechanism. This drive also offers a host of other features related to Plextor's firmware and PlexTools software, including PowerRec, which lets you define the laser's strength settings; Secure Recording, for password-protecting your data; and Silent Mode, which enables quieter DVD playback.

Although Hewlett-Packard's LightScribe technology is gaining ground, the LG is the only drive we tested this month that supports it. (Three others we considered for this ranking—previous chart-makers from HP and LaCie—incorporate LightScribe as well, but all were hampered by painfully slow double-layer write performance.) LightScribe employs the drive's laser to etch a label onto a specially coated disc; when you finish burning your data, you can flip the disc over and proceed to burn your label. Plextor, Lite-On, and Sony all have plans to add LightScribe to their next-generation drives, due later this year.

Software proved to be another differentiator among the drives on our list. Nero's disc-burning suite continues to rule among the DVD burners on the chart. Five of the seven newcomers this month use a version of Nero's OEM software, and two of the holdovers, from Asus and Samsung, use Nero as well. The Nero versions vary from vendor to vendor; visit find.pcworld.com/49475 for more information on software bundles.

Pioneer continues to offer the most jam-packed software bundle of the bunch: The DVR-R100 comes with Ulead's DVD MovieFactory 4 SE suite, VideoStudio 9 SE, CD & DVD Picture Show 3 SE, and Photo Explorer 8.5 SE; in addition, the Pioneer device bundles the complete version of NovaStor's comprehensive backup software, NovaBackup 7.2, which sells for $50 as a stand-alone package.

SLOT MACHINE: Plextor's PX-716AL swaps out the standard tray for a slot.

Among the current crop of DVD burners, some of our picks rank high in spite of their firmware glitches. Two of our favorites are Sony's DRU-810A and Plextor's PX-740A—though Sony's package has the edge with a slightly beefier version of Nero's software. Our Best Buy nods, however, go to Pioneer's internal DVR-R100, which combines a stellar software bundle with reasonable performance, and LG's external Super-Multi GSA-2166D, a high-performance drive that does most everything, including LightScribe labeling and writing to all DVD formats. ■

—Jon L. Jacobi and Melissa J. Perenson

UPGRADES

Firmware Update Required?

TEST Center OPTICAL DRIVES can continue to evolve even after you have taken them home from the store. Drive makers regularly issue firmware updates to support new media manufacturers as well as to improve performance—by boosting write speeds a notch, for example.

Our experience in writing to double-layer DVD+R media offers a perfect example. Four internal drives we tested—the Lite-On SHW-1635S, the Pioneer DVR-R100, the Plextor PX-740A, and the Sony DRU-810A—list 8X DVD+R DL as a spec, but only the Plextor and the Sony achieved 8X-caliber write speeds with the available 2.4X DVD+R DL media. The Pioneer was about 3 minutes off the Plextor and Sony's pace, and—according to the manufacturer—the Lite-On drive's firmware purposely suppressed its speed. (LG's external GSA-2166D also claims 8X support, but the company told us it would need a firmware upgrade to do so; we did not test it.)

Before we went to press, the PC World Test Center received a limited number of early production 8X DVD+R DL discs from Verbatim; these discs lacked a stamper ID code, which some drives may require to write at maximum speeds. Nonetheless, we took the media for a spin (without updating the firmware on our shipping drives).

Though all of the burners we tested (except Lite-On's) burned to 2.4X media at significantly faster than 2.4X speeds, the results with the faster-rated media were reversed. The only drive that distinguished itself with the new 8X media was the Lite-On SHW-1635S. With the 8X media, just as with the 2.4X media, we had to let the Sony cool down between passes before it would write a second 8X disc at full speed. (Plextor's PX-740A had a similar, but less severe, problem with overheating.) The Pioneer DVR-R100 is not configured out of the box to record to 8X DVD+R DL discs, says Pioneer. Instead, the drive reduced its write speed to the lowest common denominator (in this case, 2.4X). As a result, it wrote our 7.9GB test disc in 45 minutes.

Although the practice is not new, we wish drive makers would tell buyers that a firmware upgrade is required to achieve the high-speed action clearly advertised on box specs. (Pioneer told us that it will issue an upgrade, but only when 8X DVD+R DL media is in mass production later this year.) For more on firmware updates, see find.pcworld.com/49439. *—J.L.J.*

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IN THE CHARTS

EDITED BY THE REVIEWS STAFF

Big Drives Distinguish This Month's New Desktops

OUR TOP 15 DESKTOP PCs chart welcomes two new systems this month, as well as two machines that appeared in October's "Next-Generation PCs" (find.pcworld.com/49436). CPUs aside, the foursome share the attribute of large hard drives: Each boasts at least 400GB of capacity in a striped RAID configuration.

Xi's MTower 64 AGE-SLI with an Athlon 64 X2 4800+ CPU is our new WorldBench 5 leader, with a score of 130. The MTower 64 also offered impressive performance on our standard and advanced games tests, turning in top scores in several categories.

Velocity Micro's Vision 64, a second Athlon 64 X2 system, produced very high game scores as well. Easy access to the computer's innards will appeal to gamers and graphics enthusiasts who like to get their hands in their hardware.

The Amax Power 660+ with Intel's 3.6-GHz Pentium 4 660 CPU turns in relatively strong performance at a price that looks like a bargain compared with the cost of the two previous machines.

Our latest value system, Sony's VAIO VGC-RA842G, is a fine multimedia PC best suited to the enthusiast who wants a complete audio, video, and graphics package.

Two computers narrowly missed the chart this month: HP's dx5150 Business Desktop and Pavilion a1130n Desktop PC. The dx5150 is a well-designed office system that takes up minimal space and permits easy upgrades to extend its useful life (find.pcworld.com/49506). The Pavilion a1130n is a terrific entry-level multimedia PC for the budget-conscious student (find.pcworld.com/49394).

TOSHIBA'S THIN AND light Portégé R200-S234 has a surprisingly fine keyboard.

NOTEBOOKS

NOTEBOOKS powerful enough to take the place of a desktop PC don't have to be costly, or as heavy as an anchor. Case in point: the new number four desktop replacement, the 7.2-pound Compaq Presario M2000Z. Our model included a $25, 12-cell extended-life rear-mounted battery, which lasted almost 5 hours on one charge in our tests; the battery also gives the notebook a slant that makes typing more comfortable. A port on the left side of the notebook lets you attach the $299 HP xb2000 docking station, which adds powerful speakers and a second hard drive that bumps storage up another 160GB.

Three other notebook PCs made it onto this month's list, including two new all-purpose models, the Gateway M250E and the Dell Latitude D510. Equipped with its own extra-cost ($60), extended-life 12-cell battery, the number three Gateway M250E offers the longest battery life on the chart: almost 6.5 hours.

The Latitude D510, at number four, is a sedate-looking business machine highlighted by a multipurpose bay. All the interchangeable bay devices have built-in spring-loaded side releases so you don't have to fumble around when you want to swap a device.

Our one new ultraportable, the Toshiba Portégé R200-S234, more than measures up in the lightweight division at 2.8 pounds (without power adapter or optical drive).

PHOTOGRAPH: RICK RIZNER

INSIDE INFO

Value Scanners

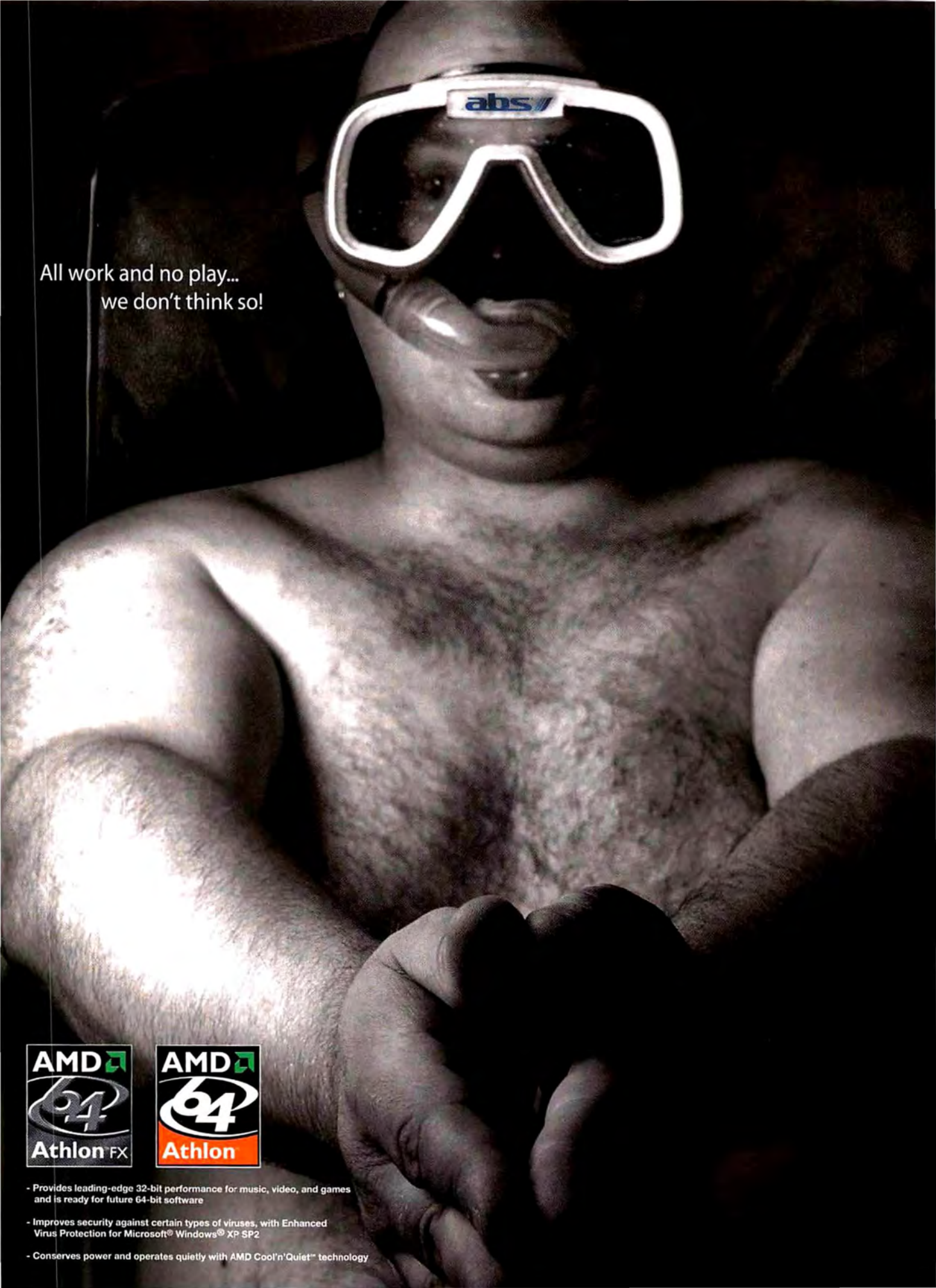
THE HP SCANJET 4890 Photo Scanner outpaced the field, including the high-end Epson Perfection 4490 Photo, the Microtek ScanMaker S400, and the Umax Astra 6700. Epson's Perfection 3490 Photo and two Canon CanoScan LiDE models are bargains.

More on the Web

PC WORLD uses its industry-standard benchmarking application, WorldBench 5, to evaluate desktop PCs, notebook PCs, and tablet PCs. We run a number of real-world applications performing real-world computing tasks. To read more information on WorldBench 5, visit find.pcworld.com/44262. Browse to find.pcworld.com/10860 for more details on *PC World*'s Star Ratings.

The Top 100 Team

FREELANCE writers Paul Jasper and Richard Jantz, *PC World* contributing editors Kirk Steers and Carla Thornton, and *PC World* editors Laura Blackwell, Eric Butterfield, Tracey Capen, Kalpana Ettenson, Tom Mainelli, Melissa J. Perenson, Narasu Rebbapragada, Dan Sommer, and Alan Stafford contributed to the *Top 100* section this month. Ulrike Diehlmann, Elliott Kirschling, Jeff Kuta, Tony K. Leung, Thomas Luong, and William Wang of the PC World Test Center tested the products reviewed in this issue, with logistical support provided by Greg Adler.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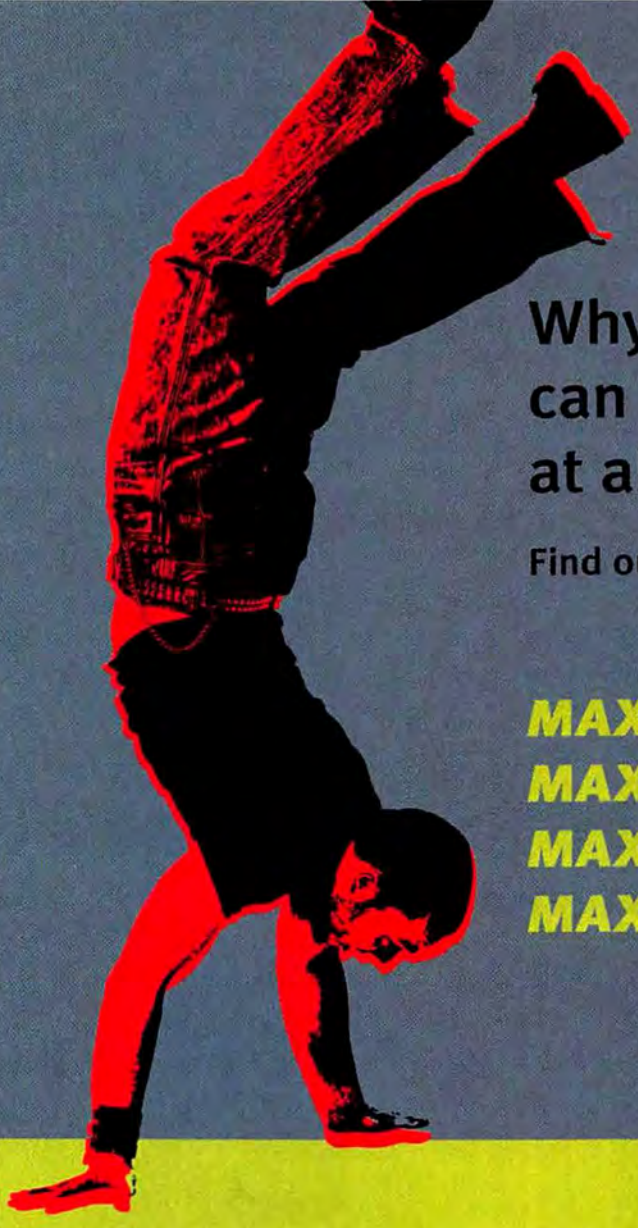

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TOP 15 DESKTOP PCs

★ Products in this chart are ordered by star rating. Visit find.pcworld.com/49438 for reviews of all products tested this month and ranked in this chart.

	POWER SYSTEM	Features and specifications [1]		Performance	Bottom line
1	Xi Computer MTower 64 AGE-SLI $3897 (★★★★½ Oct 05) find.pcworld.com/48972	• 2.4-GHz Athlon 64 X2 4800+ • 600GB drive space (RAID) • DVD±RW DL drive	• 19-inch ViewSonic LCD monitor • 256MB EVGA E-GeForce 6800 Ultra graphics • Logitech X-530 speakers	• WorldBench 5 score: 130 • Graphics: Outstanding • Design: Good	This MTower is a great choice for anyone who makes performance (in WorldBench 5 or in graphics) the priority.
2	Alienware Aurora 7500 $4041 (★★★★½ Sept 05) find.pcworld.com/48575	• 2.4-GHz Athlon 64 X2 4800+ • 320GB drive space (RAID) • DVD±RW DL drive	• 20-inch BenQ LCD monitor • 256MB ATI Radeon X850 XT graphics • Logitech Z-5300e speakers	• WorldBench 5 score: 118 • Graphics: Outstanding • Design: Very Good	Pricey but speedy gaming system has a dual-core Athlon CPU, a large LCD, and SLI support.
3	Polywell Poly 939N-FX55 Best Buy $2795 (★★★★½ Apr 05) find.pcworld.com/46714	• 2.6-GHz Athlon 64 FX-55 • 148GB drive space (RAID) • DVD±RW, CD-RW drives	• 19-inch ViewSonic CRT monitor • 256MB nVidia GeForce 6800 Ultra graphics • Creative Inspire T7700 speakers	• WorldBench 5 score: 113 • Graphics: Outstanding • Design: Good	Elegant-looking black-and-silver unit delivered top-notch performance; a CRT monitor keeps the price down.
4	Velocity Micro Vision 64 $3954 (★★★★☆ NEW) find.pcworld.com/49392	• 2.4-GHz Athlon 64 X2 4800+ • 500GB drive space (RAID) • DVD±RW DL, DVD-ROM/CD-RW drives	• 19-inch NEC LCD monitor • 256MB EVGA E-GeForce 6800 GT graphics • Creative Inspire P5800 speakers	• WorldBench 5 score: 115 • Graphics: Good • Design: Outstanding	Fast, SLI-ready dual-core system with easy access suits advanced gamers or graphics enthusiasts.
5	ABS Ultimate M6 $3499 (★★★★☆ May 05) find.pcworld.com/46942	• 2.6-GHz Athlon 64 FX-55 • 320GB drive space (RAID) • DVD±RW, DVD-ROM drives	• 19-inch Samsung CRT monitor • 256MB ATI Radeon X850 XT graphics • Logitech Z-5500 speakers	• WorldBench 5 score: 122 • Graphics: Outstanding • Design: Very Good	Massive yet stylish gaming PC on wheels earned our second-best WorldBench 5 score. Comes in a matte-silver case.
6	Micro Express MicroFlex 3464 $2299 (★★★½☆ Aug 05) find.pcworld.com/48136	• 3.4-GHz Pentium 4 650 • 400GB drive space • DVD±RW drive	• 19-inch ViewSonic LCD monitor • 256MB ATI Radeon X850 graphics • Logitech Z-560 speakers	• WorldBench 5 score: 111 • Graphics: Very Good • Design: Good	Plenty of pep for video editing and gaming, but overclocking to 3.67 GHz may cause problems down the line.
7	Amax Power 660+ $3119 (★★★½☆ NEW) find.pcworld.com/49390	• 3.6-GHz Pentium 4 660 • 400GB drive space (RAID) • DVD+RW DL, DVD-ROM drives	• 19-inch AG LCD monitor • 256MB Asus EN6800Ultra/2DT graphics • Sicuro RW-670XL speakers	• WorldBench 5 score: 100 • Graphics: Very Good • Design: Good	The Power 660+ posted good performance numbers and expands easily—without making you pay a top price.
	VALUE SYSTEM				
1	ABS Ultimate V2 42 $1599 (★★★★☆ Sept 05) find.pcworld.com/48572	• 2.4-GHz Athlon 64 3400+ • 200GB drive space • DVD±RW DL, DVD-ROM drives	• 17-inch Sony LCD monitor • 128MB EVGA E-GeForce 6600 GT graphics • Logitech X-530 speakers	• WorldBench 5 score: 98 • Graphics: Very Good • Design: Very Good	Brisk performance, dual DVD drives, and solid sound highlight this silver-and-black midsize tower.
2	Micro Express MicroFlex 35B $1299 (★★★★☆ Sept 05) find.pcworld.com/48580	• 2.2-GHz Athlon 64 3500+ • 250GB drive space • DVD±RW/RAM DL drive	• 17-inch LG LCD monitor • 128MB Sapphire Radeon 9800 Pro graphics • Creative Inspire P5800 speakers	• WorldBench 5 score: 101 • Graphics: Very Good • Design: Very Good	Strong value and performance; midsize tower includes a dual-layer burner and top-mounted USB and audio ports.
3	HP Pavilion a1050y Desktop PC $1659 (★★★★☆ Aug 05) find.pcworld.com/48134	• 3.6-GHz Pentium 4 560 • 160GB drive space • DVD±RW DL, CD-ROM drives	• 19-inch HP LCD monitor • 256MB nVidia GeForce 6600 graphics • Speakers built into monitor	• WorldBench 5 score: 89 • Graphics: Very Good • Design: Good	Clean-looking system for home media and general computing tasks; includes LightScribe for labeling discs.
4	Velocity Micro Vector PCX $1297 (★★★★☆ Aug 05) find.pcworld.com/48142	• 3.2-GHz Pentium 4 540 • 120GB drive space • DVD±RW DL drive	• 17-inch CTX CRT monitor • 128MB EVGA E-GeForce 6600 GT graphics • Creative Inspire P5800 speakers	• WorldBench 5 score: 89 • Graphics: Good • Design: Very Good	This affordable system supplies plenty of power for the money; its CRT monitor keeps the price low.
5	Lenovo ThinkCentre A50 $1037 (★★★★☆ June 05) find.pcworld.com/47599	• 3-GHz Pentium 4 530 • 40GB drive space • DVD-ROM/CD-RW combo drive	• 17-inch IBM LCD monitor • Integrated Intel 865G graphics • Speakers built into monitor	• WorldBench 5 score: 78 • Graphics: Fair • Design: Fair	Tool-less design and advanced security features distinguish this slim, good-looking, all-business machine.
6	Sony VAIO VGC-RA842G $1900 (★★★½☆ Oct 05) find.pcworld.com/48970	• 3-GHz Pentium D 830 • 500GB drive space (RAID) • DVD±RW DL, DVD-ROM drives	• 19-inch Sony LCD monitor • 256MB nVidia GeForce 6600 graphics • Logitech X-530 speakers	• WorldBench 5 score: 89 • Graphics: Outstanding • Design: Good	Media Center machine combines a reasonable price with strong multimedia components and software.
7	CyberPower Gamer Ultra 7500 SE Best Buy $1075 (★★★½☆ Sept 05) find.pcworld.com/48576	• 2-GHz Athlon 64 3200+ • 160GB drive space • DVD±RW DL, DVD-ROM drives	• 17-inch ViewSonic LCD monitor • 256MB EVGA E-GeForce 6600 graphics • Logitech X-530 speakers	• WorldBench 5 score: 90 • Graphics: Outstanding • Design: Very Good	Jazzy neon-lit unit has an adjustable fan controller, a dual-layer optical writer, and a stellar LCD.
8	Gateway Profile 5.5C $1885 (★★★½☆ June 05) find.pcworld.com/47602	• 3.2-GHz Pentium 4 541 • 160GB drive space • DVD±RW drive	• 17-inch Gateway LCD monitor • Integrated Intel 915G graphics • Speakers built into monitor	• WorldBench 5 score: 84 • Graphics: Very Good • Design: Very Good	The only all-in-one system on our chart, the Profile is nicely designed and great for tight spaces.

FOOTNOTE: [1]Features listings are not exhaustive; hard-drive capacity may represent multiple drives; DL = Double-layer (optical drives). **CHART NOTES:** Street prices are as of 8/15/05. See find.pcworld.com/10860 for details on *PC World*'s Star Ratings. Price is taken into consideration for Best Buy honors only. All tests designed and conducted by the PC World Test Center.
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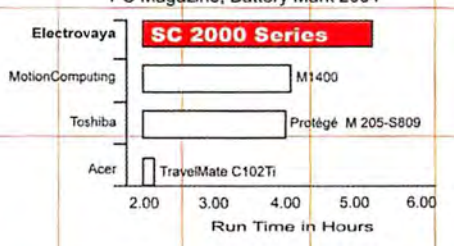

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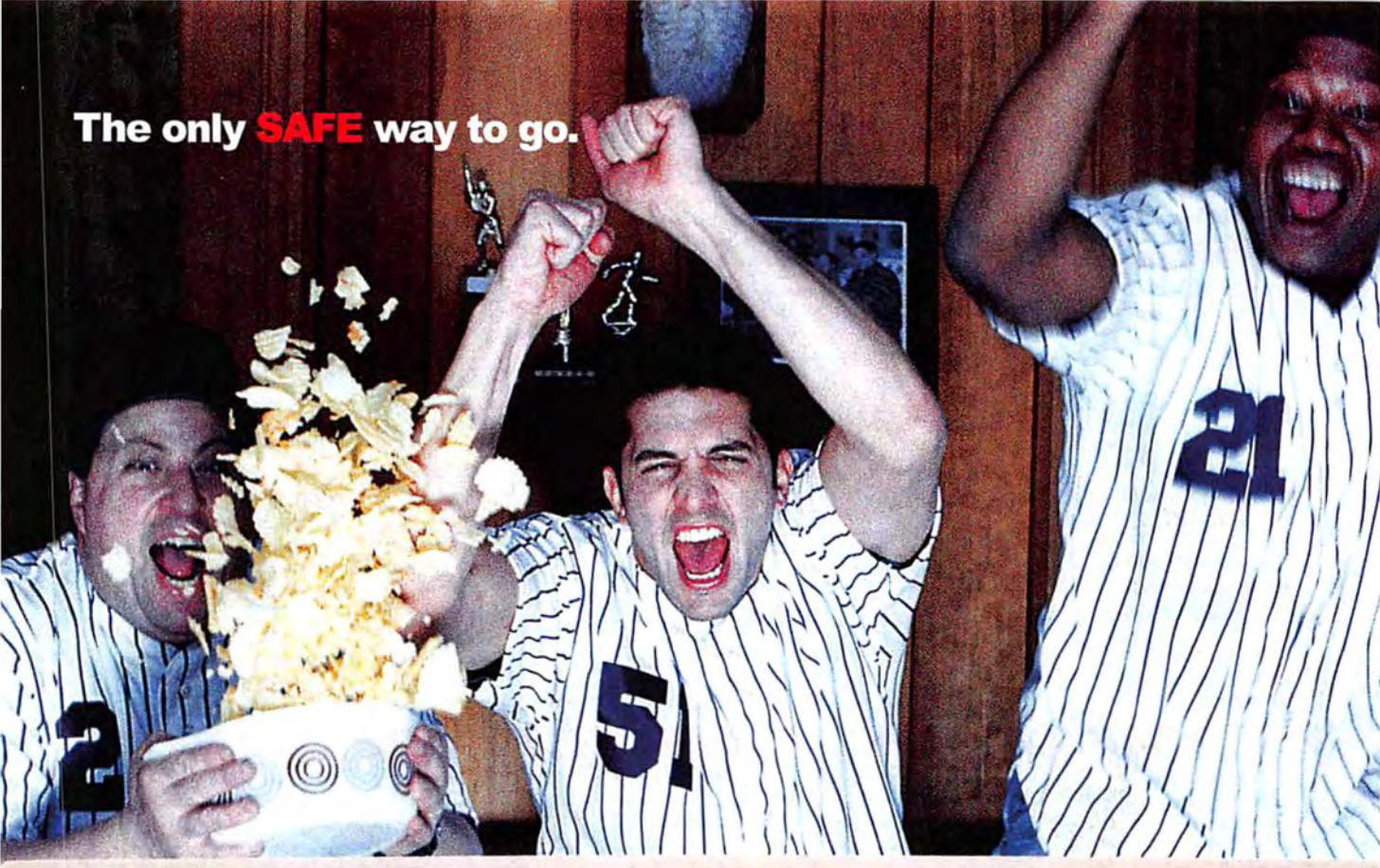
TOP 100 TEST Center

TOP 15 NOTEBOOK PCs

★ Products in this chart are ordered by star rating. Visit find.pcworld.com/49495 for reviews of all products tested this month and ranked in this chart.

	DESKTOP REPLACEMENT	Features and specifications [1]		Performance	Bottom line
1	Acer TravelMate 8100 $1999 (★★★★☆ Aug 05) find.pcworld.com/48221	• 2-GHz Pentium M 760 • 15.4-inch wide screen • 7.6 pounds	• Double-layer DVD±RW/-RAM drive • Touchpad pointing device • 802.11g, Bluetooth, smart card slot	• WorldBench 5 score: 94 • Overall design: Very Good • Tested battery life: 4:04	Chic and pricey wide-screen model has a DVI port and a five-in-one media card reader.
2	Lenovo ThinkPad T43 Best Buy $1999 (★★★★☆ July 05) find.pcworld.com/47826	• 1.86-GHz Pentium M 750 • 14.1-inch screen • 6.4 pounds	• DVD±RW/-RAM drive • Touchpad and eraserhead pointing devices • 802.11g, Bluetooth, gigabit ethernet	• WorldBench 5 score: 84 • Overall design: Very Good • Tested battery life: 5:02	This slim unit includes a convenient biometric fingerprint reader as well as an ExpressCard slot.
3	Dell Inspiron 6000 $2271 (★★★★☆ May 05) find.pcworld.com/47230	• 2-GHz Pentium M 760 • 15.4-inch wide screen • 8.4 pounds	• DVD±RW drive • Touchpad pointing device • 802.11a/g, SD Card slot, WordPerfect Office 12	• WorldBench 5 score: 89 • Overall design: Good • Tested battery life: 5:07	Big laptop combines strong performance, a superhigh resolution (1920 by 1200), and great speakers.
4	Compaq Presario M2000Z $1314 (★★★★☆ NEW) find.pcworld.com/49497	• 1.8-GHz AMD Turion 64 ML-34 • 15.0-inch screen • 8.1 pounds	• Double-layer DVD±RW drive • Touchpad pointing device • 802.11g, Microsoft Works 8	• WorldBench 5 score: 73 • Overall design: Good • Tested battery life: 4:48	Nicely priced, boxy laptop has great sound, impressive battery life, and a seven-in-one media card reader.
5	HP Pavilion dv4000 $1324 (★★★★☆ July 05) find.pcworld.com/47827	• 1.86-GHz Pentium M 750 • 15.4-inch wide screen • 7.6 pounds	• Double-layer DVD±RW drive • Touchpad pointing device • 802.11a/g, ExpressCard slot, Microsoft Works 8	• WorldBench 5 score: 77 • Overall design: Good • Tested battery life: 3:23	Elegant wide-screen model features an ExpressCard slot and includes a six-in-one media card reader.
	ALL-PURPOSE NOTEBOOK				
1	HP Compaq nc8230 $2114 (★★★★½ May 05) find.pcworld.com/47228	• 2-GHz Pentium M 760 • 15.4-inch wide screen • 7.3 pounds	• DVD-ROM and CD-RW combo drive • Touchpad and eraserhead pointing devices • 802.11g, Bluetooth, SD Card slot	• WorldBench 5 score: 85 • Overall design: Good • Tested battery life: 5:11	Classy-looking unit has a quick-launch presentation button and a high-resolution screen.
2	Lenovo ThinkPad R52 Best Buy $1349 (★★★★☆ July 05) find.pcworld.com/47828	• 1.73-GHz Pentium M 740 • 14.1-inch screen • 7.0 pounds	• DVD-ROM and CD-RW combo drive • Touchpad and eraserhead pointing devices • 802.11g, Bluetooth, ExpressCard slot	• WorldBench 5 score: 77 • Overall design: Outstanding • Tested battery life: 3:30	This notebook has a comfortable keyboard, and its modular bay accepts many optional drives.
3	Gateway M250E $1729 (★★★★☆ NEW) find.pcworld.com/49490	• 2.13-GHz Pentium M 770 • 14.0-inch wide screen • 6.8 pounds	• Double-layer DVD±RW drive • Touchpad pointing device • 802.11g, six-in-one media card reader	• WorldBench 5 score: 82 • Overall design: Good • Tested battery life: 6:25	An optional 12-cell battery gives this big laptop a comfortable typing slant, as well as long battery life.
4	Dell Latitude D510 $1509 (★★★½☆ NEW) find.pcworld.com/49492	• 1.6-GHz Pentium M 730 • 15.0-inch screen • 7.0 pounds	• DVD-ROM and CD-RW combo drive • Touchpad pointing device • 802.11g	• WorldBench 5 score: 76 • Overall design: Very Good • Tested battery life: 4:41	This sensibly priced business portable is a standout in both battery life and expandability.
5	Chem USA ChemBook 2070 $1769 (★★★½☆ Sept 05) find.pcworld.com/48552	• 2-GHz Pentium M 760 • 15.4-inch wide screen • 7.6 pounds	• Double-layer DVD±RW drive • Touchpad pointing device • 802.11a/g, four-in-one media card reader	• WorldBench 5 score: 89 • Overall design: Good • Tested battery life: 2:53	High-resolution (1680 by 1050) model makes a fine stand-alone CD and DVD player. TV tuner is optional.
	ULTRAPORTABLE				
1	Lenovo ThinkPad X41 $2049 (★★★★☆ Sept 05) find.pcworld.com/48670	• 1.5-GHz Pentium M LV 758 • 12.1-inch screen • 5.6 pounds	• DVD-ROM and CD-RW combo drive [2] • Eraserhead pointing device • 802.11g, gigabit ethernet, SD Card slot	• WorldBench 5 score: 64 • Overall design: Good • Tested battery life: 5:19	Updated ultraportable now carries a biometric fingerprint reader and includes a comfortable keyboard.
2	Fujitsu LifeBook P7010 $1949 (★★★½☆ Sept 05) find.pcworld.com/48558	• 1.2-GHz Pentium M ULV 753 • 10.6-inch wide screen • 4.2 pounds	• Double-layer DVD±RW/-RAM drive • Touchpad pointing device • 802.11g, four-in-one media card reader	• WorldBench 5 score: 63 • Overall design: Very Good • Tested battery life: 5:18	Full-featured laptop delivers long battery life but has an awkward keyboard layout and a small screen.
3	Toshiba Portégé R200-S234 $2414 (★★★½☆ NEW) find.pcworld.com/49493	• 1.2-GHz Pentium M ULV 753 • 12.1-inch screen • 5.0 pounds	• DVD±RW/-RAM drive [3] • Touchpad pointing device • 802.11g, Bluetooth 2.0, SD Card slot	• WorldBench 5 score: 60 • Overall design: Good • Tested battery life: 4:38	This superportable laptop has a good keyboard and screen, but no built-in optical drive.
4	WinBook X512 Best Buy $1098 (★★★½☆ Sept 05) find.pcworld.com/48672	• 1.5-GHz Pentium M 715 • 12.1-inch wide screen • 5.6 pounds	• DVD-ROM and CD-RW combo drive • Touchpad pointing device • 802.11g	• WorldBench 5 score: 67 • Overall design: Fair • Tested battery life: 3:24	This unit has an elegant Media Center Edition knockoff app and makes a dandy stand-alone DVD player.
5	Dell Latitude X1 $2096 (★★★☆☆ Sept 05) find.pcworld.com/48674	• 1.1-GHz Pentium M ULV 733 • 12.1-inch wide screen • 4.4 pounds	• DVD-ROM and CD-RW combo drive [3] • Touchpad pointing device • 802.11g, Bluetooth, gigabit ethernet	• WorldBench 5 score: 60 • Overall design: Fair • Tested battery life: 2:40	Lightweight ultraportable offers a sharp 12.1-inch wide screen and has a dedicated CompactFlash slot.

FOOTNOTES: [1] Features listings are not exhaustive. [2] Optical drive is housed in docking station. [3] Optical drive is an external device. **CHART NOTES:** Street prices are as of 8/19/05. Weight includes AC adapter, power cord, and optical drive. Optical drives are removable unless otherwise noted. Price is taken into consideration for Best Buy honors only. All tests designed and conducted by the PC World Test Center. All rights reserved. See find.pcworld.com/10860 for details on *PC World*'s Star Ratings.



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TOP 10 PRINTERS

★ Products in this chart are ordered by star rating. Visit find.pcworld.com/49476 for reviews of all products tested this month and ranked in this chart.

TWO NEW INKJETS EARN BEST BUYS this month: the $130 Canon Pixma iP4200 and the $80 HP Deskjet 5440. The Pixma iP4200 is fast, prints high-quality photos, and comes with an automatic duplexer for making double-sided prints. The Deskjet 5440 prints banners up to 24 inches long and produces high-quality prints of text, line art, and color graphics. And like the Pixma iP4200, the Deskjet 5440 offers a PictBridge port for printing directly from a compatible digital camera. The Deskjet 5440 printed a glossy photo in 44 seconds—faster than any other model we tested—though the prints looked slightly grainy.

Two other new models that we tested didn't fare as well. The $50 Canon Pixma iP1600, the least-expensive model to make the chart this month, printed text almost as quickly as the pricier iP4200, but its letters exhibited rougher edges and the colors in its photos looked slightly faded. Similarly, the new $80 Epson Stylus C88 printed rough-looking text. The C88 is the only model here that can print banners up to 44 inches long; on plain paper, however, its color graphics lacked some of the fine details that many other models reproduced, and line art printed with unsightly banding.

The new, $100 HP Deskjet 5940 printed line art with obvious banding, and its glossy photos suffered from the same flaw. The unit's color graphics, on the other hand, showed sharp details and accurate colors.

CANON'S PIXMA iP4200 is fast.

	INKJET PRINTER	Features and specifications		Performance	Bottom line
1	Canon Pixma iP4200 Best Buy $130 (★★★★☆ NEW) find.pcworld.com/49446	• 9600 by 2400 dpi • Five individual ink cartridges • Up to legal-size paper	• USB and PictBridge ports • Automatic duplexer • 300 sheets input, 150 output	• Text quality: Good • Photo quality: Very Good • Speed: 6.9 ppm text, 2.5 ppm graphics	Fast printer has lots of paper capacity and a duplexer for double-sided prints. Glossy photos had sharp details and vibrant colors.
2	HP Deskjet 450wbt $350 (★★★★☆ June 04) find.pcworld.com/41820	• 4800 by 1200 dpi • Tricolor plus black or photo • Up to legal-size paper	• USB, infrared, parallel ports • Bluetooth, CompactFlash slot • 45 sheets input, no output tray	• Text quality: Good • Photo quality: Outstanding • Speed: 3.8 ppm text, 0.8 ppm graphics	Portable model is slow but makes printing on the go very convenient. Graphics quality was high. Battery rated to last 350 pages.
3	HP Deskjet 5740 $90 (★★★½☆ Dec 04) find.pcworld.com/44956	• 4800 by 1200 dpi • Tricolor plus black or photo • Up to 8.5-by-24-inch paper	• USB port • 100 sheets input, 50 output	• Text quality: Good • Photo quality: Good • Speed: 5.8 ppm text, 1.5 ppm graphics	This no-frills model delivered high print quality overall, and it produced the sharpest line art we've seen from an inkjet.
4	HP Deskjet 5440 Best Buy $80 (★★★½☆ NEW) find.pcworld.com/49426	• 4800 by 1200 dpi • Tricolor plus black or photo • Up to 8.5-by-24-inch paper	• USB and PictBridge ports • 100 sheets input, 50 output	• Text quality: Very Good • Photo quality: Fair • Speed: 5.1 ppm text, 1.6 ppm graphics	The 5440 printed sharp text and attractive graphics on plain paper; glossy photos, however, looked grainy and lost some details.
5	Canon Pixma iP90 $250 (★★★½☆ Apr 05) find.pcworld.com/46660	• 4800 by 1200 dpi • Tricolor plus black • Up to legal-size paper	• USB, PictBridge, infrared ports • Optional Bluetooth adapter • 30 sheets input, no output tray	• Text quality: Very Good • Photo quality: Good • Speed: 6.3 ppm text, 1.4 ppm graphics	This speedy portable printer delivered good overall output quality; optional equipment for it can be pricey, though.
6	HP Deskjet 5940 $100 (★★★☆☆ NEW) find.pcworld.com/49432	• 4800 by 1200 dpi • Tricolor plus black or photo • Up to 8.5-by-24-inch paper	• USB and PictBridge ports • 100 sheets input, 50 output	• Text quality: Good • Photo quality: Fair • Speed: 5.8 ppm text, 2.2 ppm graphics	The 5940 printed nice-looking color graphics on plain paper, and it has a direct-print port; but glossy photos showed obvious banding.
7	HP Deskjet 6840 $180 (★★★☆☆ Dec 04) find.pcworld.com/44548	• 4800 by 1200 dpi • Tricolor plus black or photo • Up to 8.5-by-24-inch paper	• USB, Wi-Fi, ethernet ports • PictBridge port • 150 sheets input, 50 output	• Text quality: Fair • Photo quality: Good • Speed: 5.2 ppm text, 2.1 ppm graphics	Wireless and ethernet ports are pluses, but print quality was disappointing. Color graphics on plain paper earned a Poor rating.
8	HP Business Inkjet 1200d $200 (★★★☆☆ Dec 04) find.pcworld.com/44550	• 4800 by 1200 dpi • Four individual ink cartridges • Up to legal-size paper	• USB and parallel ports • Automatic duplexer • 150 sheets input and output	• Text quality: Good • Photo quality: Fair • Speed: 6.5 ppm text, 2.6 ppm graphics	This business-focused inkjet has a duplexer and high-capacity ink cartridges; graphics print quality was disappointing, however.
9	Canon Pixma iP1600 $50 (★★½☆☆ NEW) find.pcworld.com/26448	• 4800 by 1200 dpi • Tricolor plus black • Up to legal-size paper	• USB port • 80 sheets input, no output tray	• Text quality: Fair • Photo quality: Good • Speed: 6.6 ppm text, 1.9 ppm graphics	Unit printed text quickly, but letters lacked sharp edges. Glossy photos looked good, though colors were slightly undersaturated.
10	Epson Stylus C88 $80 (★★½☆☆ NEW) find.pcworld.com/49434	• 5760 by 1440 dpi • Four individual ink cartridges • Up to 8.5-by-44-inch paper	• USB and parallel ports • 120 sheets input, 30 output	• Text quality: Fair • Photo quality: Good • Speed: 5.3 ppm text, 1.6 ppm graphics	Colors in photos looked accurate, but with slightly grayish skin tones. Graphics quality on plain paper was subpar; line art was poor.

HOW WE TEST: We run timed tests for text, line art, color graphics, and photo samples. Data based on tests designed and conducted by the PC World Test Center. All rights reserved. See find.pcworld.com/10860 for details on *PC World*'s Star Ratings. **CHART NOTES:** We list maximum enhanced color print resolution. PictBridge ports allow printing directly from compatible cameras. Photos printed at best-quality settings; optional photo inks used when offered. Listed text speed is the average time required to print a ten-page text document; graphics speed is the average of the speeds for printing graphics from various applications in color.

PHOTOGRAPH: RICK RIZNER

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TOP 5 SCANNERS

★ Products in this chart are ordered by star rating. Visit find.pcworld.com/49674 for reviews of all products tested this month and ranked in this chart.

THIS MONTH WE tested seven value scanners. The first thing you notice about these flatbeds is their attractive price tags: The least expensive costs only $80, and the average runs about $155.

Price isn't the only consideration, of course, and our chart champ is a good example of the adage that you get what you pay for. Epson's Perfection 4490 Photo, though the most expensive on the chart, delivers a neat package of sweet scans—crisp even on challenging small fonts—and handy features. The standout among these is Digital ICE technology, a time-saver that automatically removes dust and scratches from scanned transparencies instead of leaving them to you for cleanup later with editing software.

With its $99 price and superb images, the Epson Perfection 3490 Photo earns our Best Buy badge. This versatile model, though less feature-laden than the 4490, offers the essentials for a typical home user. The Canon CanoScan LiDE 60's $80 price gives its excellent monochrome scanning even more appeal. But be prepared to spend some quality time: Its overexposed, reddish color reproduction at default settings means you must make several trial runs to obtain satisfactory scans.

Microtek's ScanMaker S400 and HP's Scanjet 4890 Photo Scanner demonstrated significant—and opposite—strengths and weaknesses. The ScanMaker S400 produced colorful and accurate images with clean details, but it required twice as much time as our Best Buy did to make a 300-dpi scan. The Scanjet 4890, on the other hand, was a speed demon that left reddish, pixelated color images in its wake. One point in the Scanjet's favor: Its unusually large transparency-scanning area—the entire scanning bed—makes short work of large numbers of slides and negatives.

EPSON PERFECTION 4490 Photo.

We also tested Canon's $50 CanoScan LiDE 25 (a smaller, slower version of the 60) and Umax's $119 Astra 6700. When tested at its defaults, the LiDE 25 showed the same image-quality problems that the 60 did. Although the 25 responded equally well to tweaking, its scanning speed lacked its sibling's zip. The Astra 6700 scanned quickly enough, but its scans disappointed our testers with poor color and indistinct details. With its advanced SilverFast SE scanning driver—an extra in addition to Umax's own driver—the Astra addresses the needs of the expert and the newbie but neglects those users in between. Because of these problems, neither the LiDE 25 nor the Astra 6700 reached the chart.

	VALUE SCANNER	Features and specifications		Performance	Bottom line
1	Epson Perfection 4490 Photo $249 (★★★★½ NEW) find.pcworld.com/49306	• 4800 by 9600 dpi • USB 2.0 • 8.5 by 11.7 scanning area	• 10.71-by-18.7-by-4.5-inch case • Built-in transparency adapter • Optional automatic document feeder	• Image quality: Good • Speed: Very Good • 300-dpi scan: 22 seconds	This high-end model's film-scanning features, excellent software package—including Adobe Photoshop Elements—and beautiful high-resolution scans set it above garden-variety small-office scanners. Has a lofty price to match.
2	Epson Perfection 3490 Photo Best Buy $99 (★★★★☆ NEW) find.pcworld.com/49302	• 3200 by 6400 dpi • USB 2.0 • 8.5 by 11.7 scanning area	• 6.5-by-10.8-by-3.4-inch case • Built-in transparency adapter • Optional automatic photo and business card feeder	• Image quality: Good • Speed: Very Good • 300-dpi scan: 23 seconds	With a low price, operating modes for different skill levels, and (by a small margin) the best image quality on the chart, this model is a great deal all around and is a smart choice for anyone performing basic scanning tasks.
3	Microtek ScanMaker S400 $150 (★★★★☆ NEW) find.pcworld.com/49312	• 4800 by 9600 dpi • USB 2.0 • 8.5 by 11.7 scanning area	• 11.6-by-19.0-by-3.2-inch case • Included transparency adapter • No automatic document feeder	• Image quality: Good • Speed: Very Good • 300-dpi scan: 46 seconds	An excellent software bundle, including image organizers from Adobe and Ulead, adds value to this unit. The LightLid 35 Plus film scanning attachment now handles up to four slides or five negative frames.
4	HP Scanjet 4890 Photo Scanner $200 (★★★½☆ NEW) find.pcworld.com/49308	• 4800 by 9600 dpi • USB 2.0 • 8.5 by 12.3 scanning area	• 11.8-by-19.9-by-4.2-inch case • Built-in transparency adapter • No automatic document feeder	• Image quality: Fair • Speed: Outstanding • 300-dpi scan: 14 second	The swift scans this model delivers aren't as sharp as those from other products on the chart, but its full-bed transparency-scanning area takes up to 30 negative frames or 16 35mm slides at once.
5	Canon CanoScan LiDE 60 $80 (★★★½☆ NEW) find.pcworld.com/49300	• 1200 by 2400 dpi • USB 2.0 • 8.5 by 11.7 scanning area	• 10.1-by-14.7-by-1.5-inch case • No transparency adapter • No automatic document feeder	• Image quality: Fair • Speed: Very Good • 300-dpi scan: 22 seconds	A space-saving stand lets you position this model vertically for single-page scanning or for easy storage. It cuts clutter by using the USB cable to draw power as well. You may have to tweak the settings to improve images.

HOW WE TEST: We run timed tests for line art and for color and grayscale photo samples, on which a panel of judges rates image quality. Data based on tests designed by the PC World Test Center. All rights reserved. **CHART NOTES:** Street prices are as of 9/2/05. All USB 2.0 devices are backward-compatible with USB 1.1 ports; however, performance may vary from our test results, as we test with USB 2.0 (unless otherwise noted). Case dimensions are in order: width, depth, height. Star ratings are based on scan quality, features, ease of use, speed, and service and support. Price is taken into consideration for Best Buy honors only. See find.pcworld.com/10860 for details on *PC World*'s Star Ratings.

PHOTOGRAPH: RICK RIZNER

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MORE REVIEWS

MISSED AN ISSUE OF *PC World* or passed your copy along to a friend? Here's a recap of *Top 100* topics from previous issues. To read reviews of the products listed in these charts, go online and type in the *PC World* Find-It URL from the top of each chart. Next month in the *Top 100*, we'll look at advanced and SLR digital cameras, and our Spotlight review will cover the latest DVD-burning software suites. Also, be sure to see our in-depth feature on color laser printers.

PALM'S TUNGSTEN T5, a Best Buy, offers 160MB of data storage through USB.

CASIO'S SVELTE EXILIM EX-Z750 offers an assortment of manual controls.

SEAGATE'S SATA Barracuda drive is affordable, and spacious at 400GB.

PDAs

find.pcworld.com/48856

WINDOWS MOBILE PDA

1	Dell Axim X50v	Best Buy (★★★★½ Sept 05) find.pcworld.com/48760
2	Asus MyPal A730W	(★★★★☆ Sept 05) find.pcworld.com/48762
3	HP iPaq Hx4705	(★★★★☆ Dec 04) find.pcworld.com/44636
4	HP iPaq Rx3715	(★★★★☆ Sept 05) find.pcworld.com/48768
5	Garmin iQue M5	(★★★★☆ Sept 05) find.pcworld.com/48758

PALM OS PDA

1	Palm Tungsten T5	Best Buy (★★★★½ Sept 05) find.pcworld.com/48761
2	Palm LifeDrive	(★★★★☆ Sept 05) find.pcworld.com/48756
3	Palm Tungsten E2	(★★★★☆ Sept 05) find.pcworld.com/48766
4	Palm Zire 72	(★★★★☆ July 04) find.pcworld.com/42246
5	Garmin iQue 3200	(★★★½☆ Dec 04) find.pcworld.com/44438

From the September 2005 issue

POINT-AND-SHOOT CAMERAS

find.pcworld.com/49260

1	Casio Exilim EX-Z750	Best Buy (★★★★☆ Oct 05) find.pcworld.com/com/49024
2	HP Photosmart R717	Best Buy (★★★★☆ May 05) find.pcworld.com/47128
3	Canon PowerShot S70	(★★★★☆ July 05) find.pcworld.com/48090
4	Fujifilm FinePix F10	(★★★★☆ July 05) find.pcworld.com/48085
5	Nikon Coolpix 7900	(★★★★☆ June 05) find.pcworld.com/47704
6	Sony Cyber-shot DSC-H1	(★★★★☆ Oct 05) find.pcworld.com/49033
7	Canon PowerShot SD500 Digital Elph	(★★★★☆ July 05) find.pcworld.com/48092
8	Olympus C-5500 Sport Zoom	(★★★½☆ June 05) find.pcworld.com/47708
9	HP Photosmart R817	(★★★½☆ Oct 05) find.pcworld.com/49030
10	Kodak EasyShare Z740	(★★★☆☆ July 05) find.pcworld.com/48082

From the October 2005 issue

INTERNAL HARD DRIVES

find.pcworld.com/49274

SERIAL ATA HARD DRIVE

1	Seagate Barracuda 7200.8 ST3400832AS	(★★★★½ Mar 05) find.pcworld.com/46340
2	Hitachi Global Storage Technologies Deskstar 7K500	(★★★★☆ Oct 05) find.pcworld.com/49090
3	Western Digital Raptor WD740GD	(★★★★☆ Mar 05) find.pcworld.com/46348
4	Western Digital Caviar SE WD2500JD	(★★★★☆ Mar 05) find.pcworld.com/46350
5	Maxtor DiamondMax 10 6B300S0	Best Buy (★★★★☆ Mar 05) find.pcworld.com/46358
6	Hitachi Global Storage Technologies Deskstar 7K400	(★★★½☆ Mar 05) find.pcworld.com/46338
7	Western Digital Caviar SE WD3200JD	(★★★½☆ Oct 05) find.pcworld.com/49098

PARALLEL ATA HARD DRIVE

1	Seagate Barracuda 7200.8 ST3400832A	(★★★★☆ Mar 05) find.pcworld.com/46342
2	Hitachi Global Storage Technologies Deskstar 7K500	(★★★★☆ Oct 05) find.pcworld.com/49088
3	Western Digital Caviar SE WD3200JB	Best Buy (★★★½☆ Oct 05) find.pcworld.com/49096

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PHOTOGRAPH: RICK RIZNER (RIGHT)

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LG 16X DVD+-RW Drive
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AMD Athlon™ 64 X2

4400+CPU	$ 1979
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AMD Athlon™ 64

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3500+CPU	$ 895
3200+CPU	$ 859
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AMD 64 Athlon X2

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3800+CPU $1259 CSE109
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4000+CPU $1299 CSE103
3700+CPU $1179 CSE104
3500+CPU $1139 CSE105
3200+CPU $1109 CSE106
3000+CPU $1059 CSE107

$1,059

Nvidia Nforce 4 SLI Chipset MB with Dual 16X PCI-E
Corsair 1024 MB PC3200 DDR400 MEMORY
200GB Serial ATA 150 7200 RPM HD 8mb Cache
(2) Nvidia Geforce 6600 GT 128MB DDR3 Powered By XMDIA Over 80% Performance Gain over single video card solution
LG 16X DVD+-RW Drive & 16X DVD-ROM
nFORCE-4 7.1 Surround Sound
600 Watt Subwoofer Speaker System
Logitech Deluxe 104 Keyboard & Logitech Optical Wheel mouse
Microsoft® Windows® XP HOME Edition w/ SP2
Turbo X-Cruiser Case 420 Watt with See Through Windows.
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Gamer Xplorer-64 9700

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MT-37 $1385
MT-34 $1339
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MT-30 $1265

$1,265

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-HyperTransport Technology
-Enhanced Virus Protection
1024MB PC5200 DDR400 MEMORY
60 GB Ultra ATA100 Hard Drive
Mobile ATI X700 x16 PCI-Express 128MB Video
15.4" WXGA Wide-Screen TFT Display 1280x800 Pixelss
16X/8X CD-RW/DVD-RW Combo Drive
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EDITED BY ERIC DAHL AND DENNIS O'REILLY

WINDOWS TIPS

SCOTT DUNN

Great Freeware Squeezes More Out of Windows

THE BEST THING about Windows is the amazing programs that developers outside of Microsoft create to make the OS better. Here's my list—in no particular order—of the ten best Windows freebies of 2005.

SHRINK YOUR FILES

IF YOUR WEB SITE needs some speed or your photo collection takes up too much disk space, try Nuetools' StripFile (find.pcworld.com/48992). The program can shrink HTML and common Web image files (GIF, JPEG, and PNG) not by altering the content but by removing nonessential information such as color profiles and comments. Adjust the utility's Settings options to specify the kind of data it should remove. Or just point the program to a file or folder and click *Compress*. Another alternative is to right-click a folder or file in Explorer and choose *Strip* to remove extra information. StripFile creates a backup folder for your originals in case you run into problems.

Results vary depending on the type of file being compressed, but the application promises reductions of up to 50 percent. In my own tests, StripFile reduced the size of HTML files by 7 percent and that of JPEG files by 6.3 percent. Such slimming may not seem a huge difference, but over a large number of files it can add up to significant savings on disk space.

A+ PICTURE MANAGER

THERE ARE MANY ways to manage your digital images, but few are as well designed as the Picasa image service from Google (www.picasa.com). Picasa organizes the images and movies on your hard drive into a library. From there, you can copy, move, delete, and perform other file-management chores. Picasa's image editing features let you crop, rotate, perform tonal adjustments, and apply special effects to your images (see **FIGURE 1**).

Although you'll see the results of your editing appear in Picasa's various views of your photos, none of your changes directly alter your original picture, which Picasa preserves as a kind of digital negative. To make your changes permanent, you must export a copy of the edited image to another folder.

One of my favorite features (and one sorely missing from Windows) is Picasa's group renaming. With this feature I can automatically add the date and/or image resolution to a file's name. Other options allow me to group my photos into albums bearing custom labels without having to make copies that take up additional disk space. Picasa's built-in slide-show features can create great gift CDs, and I can even back up my images to CD or DVD. Other features let me generate image galleries for the Web, e-mail photos, and

ILLUSTRATION: JAMES O'BRIEN

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Ten free programs put Windows on its best behavior, and teach the old OS useful new file and interface tricks.

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Get the Web delivered straight to your browser by automating your RSS news feed updates.

184 HARDWARE TIPS
Keep your PC sounding (and hearing) its best by tweaking your speakers and microphone; an oversize power strip.

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A do-it-yourself Windows CD rescues a floppy-less notebook; transparent desktop icon names; DOS Printer shareware.

188 GADGET TIPS
Download podcasts automatically via Windows Media Player; move video files from your cell phone to a DVD; convert video files for playback on the PlayStation Portable.

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order prints from online services. Picasa is no Photoshop; but it's easy to use, and it provides just about all the image editing tools that many of us will ever need.

LEAN, CLEAN FILE TOOL

Windows 2K XP 98 ME

KEEPING THE VARIOUS folders and program windows you have open at any given time arranged properly as you move among them can be a hellish task. But window disarray becomes a thing of the past when you install Nikolay Avrionov's ExplorerXP (www.explorerxp.com). The program lets you tile or otherwise arrange your open folder windows inside its parent window. ExplorerXP offers a customizable toolbar, multiple file renaming, and the ability to drag and drop files out of and into Explorer windows and its own windows. Limitations? The program can't show thumbnails or any file views other than Details. Nor is there any simple way to browse network drives, though you can enter UNC network paths (such as "\\server\share" to access remote shares). All the same, for basic file management ExplorerXP is a fast and elegant utility.

FIGURE 1: GIVE YOUR digital photos a makeover or add some finishing touches at Google's Picasa image editing site.

FIGURE 2: ADD A MAC-LIKE LOOK to your Windows icons via Stardock's ObjectDock utility.

PDFs IN A JIFFY

Windows 2K XP 98 ME

YOU CAN CONVERT nearly any document to Adobe's convenient Portable Document Format without slapping down a cent. Though some free PDF utilities insert advertising or a watermark in the resulting PDF file, Acro Software's CutePDF Writer (www.cutepdf.com) does not.

The application adds a CutePDF printer icon to your system. Point your prints to this virtual printer instead of to your regular printer to get a PDF version of the files. CutePDF Writer requires you to download and install a separate PostScript print language interpreter, such as Ghostscript (available from the same Web page). You won't find anything like Adobe Acrobat's security features, font selections, or optimizing options; in fact, CutePDF's configuration choices are pretty close to nil. But for most of your PDF-creation needs, CutePDF Writer fits the bill very well.

MAC ICONS FOR WINDOWS

THERE'S HOPE for Mac mavens who have been forced into the body of a Windows user—as well as for anyone else who wants an alternative to Windows' boring taskbar and Start menu. Stardock's ObjectDock utility (www.objectdock.com) launches and switches between applications and uses Mac-like zooming and animation whenever you hover your mouse pointer over an icon (see **FIGURE 2**). I have to admit that I never managed to get the program's weather-reporting icon to work, but I had much better luck with ObjectDock's clock and pop-up Google search box. (For $20, you can upgrade from the free version to one that supports multiple monitors, tabbed docks, and many other features.) If you're ready for a new way to launch and manage your applications, give the program a try.

AFTER-HOURS CLEANUP

IF YOU LEAVE YOUR system on all the time, you can use Windows' Scheduled Tasks tool to automate virus and spyware scans, backups, and other maintenance chores while you're away from your PC; see my June 2004 column (find.pcworld.com/48982) for more on creating these shortcuts. But what if you prefer to shut

off your computer at the end of the day? Use the simple controls included in FileWare's LastChance (find.pcworld.com/49268) to add the applications and commands you want to run prior to shutdown. When you exit Windows, LastChance interrupts the shutdown process, runs the commands you specified, and finishes shutting down Windows when they are complete. You can set the utility to run commands when a particular resource (such as a network drive) becomes available. You can also schedule your shutdown for a preset time.

FIGURE 3: DO YOU HAVE too many apps running? Organize your taskbar buttons more clearly with TaskArrange.

KEEP YOUR ICONS IN LINE

ONE DAY YOU START UP Windows and notice that suddenly your desktop icons are in disarray. Lots of things can bump icons out of place. For an instant fix, give Tim Taylor's Icon Restore a try (find.pcworld.com/48984). The utility installs two new commands on the right-click context menu of My Computer, as well as on most other system icons. Set your icons the way you like them, right-click *My Computer*, and choose *Save Desktop Icon Layout*. Thereafter, anytime your desktop gets cluttered, just right-click *My Computer* again and choose *Restore Desktop Icon Layout*. If you've hidden your system icons, you can see the same commands by right-clicking *Recycle Bin*. The utility has no built-in uninstall capability, so be sure to download the companion UnInstall Icon Restore program just in case you want to remove this freeware in the future.

A TIDY TASKBAR

IN THESE DAYS of madcap multitasking, nobody runs only one or two applications at any given time. For example, my system's taskbar is filled with an appalling number of buttons, each of them corresponding to a program that is currently open on my machine. Under these circumstances, even using the <Alt>-<Tab> keys to switch between open windows soon becomes a chore.

Elias Fotinis's TaskArrange program (find.pcworld.com/48986) lets you drag and drop all of your taskbar buttons into a single window to order them the way you want; alternatively you can arrange the icons using the program's own convenient controls (see **FIGURE 3**). If you have Windows XP's taskbar grouping feature turned on (right-click the taskbar and choose *Properties* to find this option), TaskArrange can reorder items in the grouped item pop-up menu.

Just remember to exit TaskArrange once you have achieved your desired order. That way the program will take up no more memory for itself, nor will it require a pesky tray icon of its own.

FIGURE 4: NOW YOU SEE THEM, now you don't, when you click the Tray Pilot Lite button.

HIDE TRAY TRASH

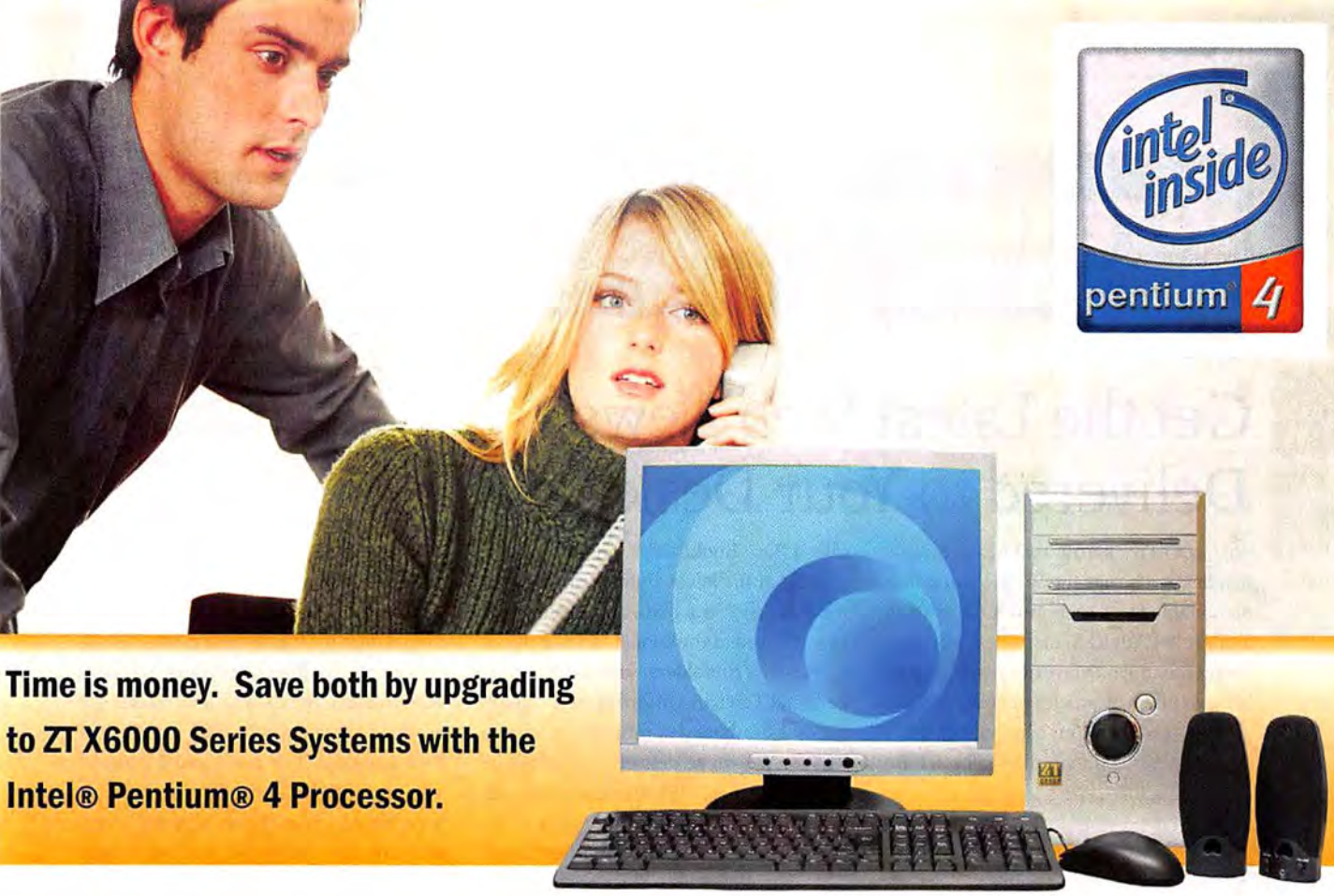
ICONS REPRESENTING your many (but vital) always-on utilities can clutter your system tray. Make more room with Two Pilots' Tray Pilot Lite (find.pcworld.com/48988), which adds a button near the system tray for toggling the tray—including the clock—into and out of view (see **FIGURE 4**). Click to see your system tray icons, and click again to clean out unnecessary ones. For a little under $16, you can upgrade to a version that hides the system tray but not the clock (to use a different clock, see the next item).

A BETTER CLOCK

WINDOWS' OWN CLOCK (in the taskbar tray) is small and plain. It doesn't display seconds, and it has no alarm. Replace it with ClocX (find.pcworld.com/48990), a freebie that lets you set alarms to go off once or on a regular schedule. The alarms can play a sound, display a message, launch an application, or even exit Windows. You can display a pop-up calendar for a quick check of the date, or see both the date and time on your clock face (see **FIGURE 5**). Use the program's antialiasing, its transparency levels, or one of its downloadable faces or "skins" to improve the clock's readability. Set ClocX to stay on top of open windows, or activate its "click-through" to place it beneath windows. ■

FIGURE 5: NOT JUST ANOTHER pretty face, ClocX is a handsome timepiece that can remind you of your appointments.

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



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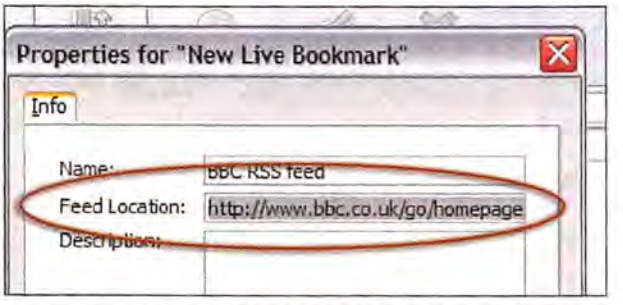

FIGURE 1: SUBSCRIBE TO AN RSS FEED in the Firefox browser by entering its URL in the Live Bookmark Properties dialog box.

The reality of RSS is a little less glorious, however. Though free RSS news feeds and tools abound, getting them to work is rarely as easy as clicking a link. It's nice that Microsoft has integrated RSS support into the upcoming version 7 of its Internet Explorer browser. Unfortunately, people who are using current versions of IE will have to rely on an RSS reader such as one of those described in "The News Stands Alone" below.

Using Firefox, you can subscribe with one click to XML news feeds from the BBC, the *New York Times*, and Slashdot, and to others that use the Atom syndication specification. Whenever you visit a site offering an Atom feed (which Firefox calls a 'Live Bookmark'), an orange icon appears at the lower right of the browser window; click the icon, and Firefox will save the feed to your bookmarks menu or to one of its subfolders, such as the handy Personal Toolbar. Unfortunately, though Atom is an up-and-coming alternative to RSS for Web news delivery, not every site (PCWorld.com included) supports it.

On the other hand, Firefox doesn't make subscribing to standard RSS feeds simple: Right-click the feed's *RSS* or *XML* button, choose *Copy Link Location*, select *Bookmarks•File•Manage Bookmarks•File•New Live Bookmark*, type an appropriate title for the selected feed in the Name field, press **<Tab>**, and then press **<Ctrl>-V** to paste the address into the Feed Location field (see **FIGURE 1**). If that's too arduous for you, a free Firefox extension called Sage allows you to grab embedded news-feed links with a click, and then the app shows a nicely formatted page of each feed in Firefox's main window. Visit find.pcworld.com/49018 for the download.

If you use the Opera 8 browser, you can subscribe to both RSS and Atom feeds with a single click. When you visit a Web page bearing an RSS link, a small blue icon labeled 'rss' appears at the right side of Opera's address field. Click the icon, and Opera will pop up a dialog box asking whether you'd like to add the news feed to your Feeds menu. To look at your news feeds, just choose *Feeds•Read feeds*.

THE NEWS STANDS ALONE

FOR INDUSTRIAL-STRENGTH news-feed reading, use a program designed to aggregate and manage RSS and Atom feeds (see "RSS Toolbox" for download information). The free, open-source Feedreader program is sleek and easy to use. Nick Bradbury's $30 FeedDemon adds a few bells and whistles, including RSS feed search channels and the ability to synchronize podcasts with your iPod or other media player (see this month's *Gadget Tips* column on page 188 for more on automating your podcast downloads).

Microsoft Outlook users who prefer to funnel their feeds into their personal folders can use the free Consumer Standard version of the NewsGator RSS reader; the program lets you display RSS feeds in any Web browser. The Gold and Platinum versions of NewsGator add other features for a fee of a few dollars a month. Versions of the reader for business users allow you to view your feeds in Microsoft Outlook and Outlook Express. ■

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HARDWARE TIPS

KIRK STEERS

The Correct Equipment Makes Your PC All Ears

IF YOU AREN'T already talking to your computer, you probably will be soon. Whether you're making low-cost phone calls over the Internet, dictating e-mail via the latest voice recognition software, or chatting with fellow online gamers, you need to make sure your PC hears you loud and clear.

Accurately converting your voice into the zeroes and ones that move through your computer requires a good microphone, which translates the vibrations of your voice into analog electrical signals; and a good sound card, which turns the analog signals into digital form.

Stand-alone Voice-over-IP phones often cost $100 or more. For less than half that price, you can buy a headset that combines a microphone with earphones. Such headsets are required for making PC-to-PC and PC-to-phone calls via most popular VoIP services. (Visit find.pcworld.com/49270 for Jeff Bertolucci's review of two Wi-Fi phones and find.pcworld.com/49053 to read Associate Editor Liane Cassavoy's review of ScanSoft's Dragon NaturallySpeaking 8 voice recognition software.)

FIGURE 1: MAKE SURE YOUR PC gets the message by using an audio headset such as the Plantronics DSP-400.

CANCEL THE BACKGROUND

DEVICES WITH built-in noise canceling position one microphone to capture voice, and point another in the opposite direction to capture background noise. This allows the device to remove some background noise, improving sound quality.

I've had good results with Logitech's Premium USB Headset 350 (about $45 online; find.pcworld.com/49048). And when traveling, I like the collapsible DSP-400 from Plantronics (about $40 online; find.pcworld.com/49049; see **FIGURE 1**). Both products connect to the PC via USB.

You can also use a stand-alone microphone and your PC's speakers for sound. The $35 Superbeam SoundMax Array Microphone from Andrea Electronics (find.pcworld.com/49050) has two microphones mounted about 4 inches apart that do a pretty good job of capturing your voice from a few feet away, such as while the device is set atop your PC's monitor.

SPEAKING IN DIGITAL

THE SOUND EQUIPMENT in nearly any PC that's less than three years old can do this, but older and budget computers may not be up to the task. Here are two features to look for.

Full duplex: A full-duplex sound card can process inbound and outbound signals at once, which is very important when you're carrying on a live conversation. Half-duplex cards process only one signal at a time, like a walkie-talkie. This often clips the beginning and ending of spoken sentences.

To check for full-duplex sound, simultaneously play and record a .wav file using the Windows Sound Recorder utility: In Windows XP, click *Start•All Programs•Accessories•Entertainment•Sound Recorder* (the steps are similar in older Windows versions). Repeat the steps to open a second Sound Recorder window. In the first window, play a .wav file that's at least 30 seconds in length. While it is playing, go over to the second window and record the file. If the file records, your card is full duplex.

Noise reduction: Electromagnetic fields in your PC can distort analog voice signals before they're digitized. To reduce this static, get a USB microphone, which digitizes the signal before it enters the PC. If your mike plugs into the sound card, Andrea Electronics has a USB adapter for $50 (find.pcworld.com/49056). ■

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. Contributing Editor Kirk Steers is author of* PC Upgrading and Troubleshooting QuickSteps, *published by Osborne Press.*

POWER ON A TETHER

TODAY'S POWER strips and surge protectors suffer from overcrowding: They just don't provide enough room between outlets to accommodate the bulky adapters that power most electronic devices. Power Sentry's $15 PowerSquid brilliantly solves this space problem by placing each outlet at the end of a separate tentacle-like cord. The PowerSquid isn't a surge protector, but you can easily plug it into one. Visit find.pcworld.com/49060 for more information.

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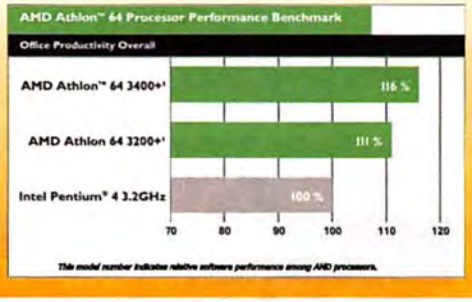

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ANSWER LINE

LINCOLN SPECTOR

Create a Windows CD for PCs That Don't Have One

MY NEW laptop came with a recovery disc but not with a stand-alone Windows XP CD. What can I do?

Abdul Hamid, Denver

MICROSOFT REQUIRES that every PC bundled with Windows provide some way of restoring the operating system, but too many bundled Windows XP "restore" CDs merely return your hard drive to its factory condition, which wipes out all of your data and any apps you've added.

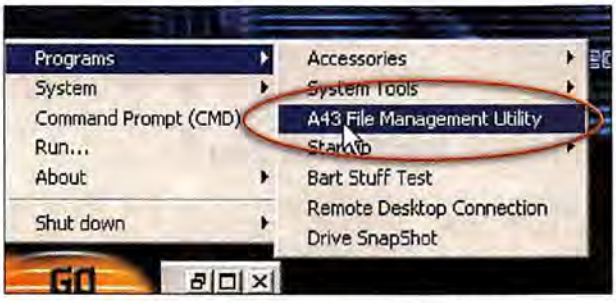

FIGURE 1: BOOT INTO THE BartPE environment for a safe place to start reinstalling Windows—without an actual Windows CD.

Fortunately, vendors appear to be moving away from these data-wiping recovery discs. I recently looked at new PCs from ABS, Dell, Gateway, Lenovo, and WinBook, all of which came with either a real Windows XP CD or another way to perform nondestructive OS reinstalls.

If your PC lacks a Windows CD, a folder named 'i386' containing the Windows installation files is probably in the root directory of drive C: or in your C:\Windows folder. Your system may have several i386 folders, but the one you want has a lot of files with extensions ending in underscores (_), along with the executable files expand.exe, regedit.exe, and winnt32.exe. Copy this folder onto a CD for safekeeping, though you'll use the version on the hard drive to actually reinstall Windows.

Keep your 25-character Windows Product Key handy—you'll need it to reinstall the OS. The number is on the back of your PC, on the bottom of your notebook, or in some other hard-to-read spot; it may be listed in the documentation as well.

You'll also need a bootable CD for starting the install process. Bart Lagerweij's free PE Builder creates a CD-bootable version of XP called Bart's Preinstall Environment, or BartPE, from either a Windows CD or the i386 folder. Visit find.pcworld.com/49064 to download PE Builder.

Open PE Builder's main dialog box and select the folder or drive containing your i386 folder, but not the folder itself. Check *Create ISO image*, click *Burn to CD*, and select your CD-RW drive from the Device drop-down menu. If PE Builder doesn't support your burner, double-click the PE Builder–created .iso file to launch your CD authoring program and burn the CD.

To reinstall Windows, boot from the BartPE CD you just created and select *Go•Programs•A43 File Management Utility* (see **FIGURE 1**). Navigate to the hard drive's i386 folder (do *not* use the i386 folder on the CD). Double-click *winnt32.exe* to start the installation process. When the installation program closes, reboot your PC, remove the CD, and select *Microsoft Windows XP Setup* from the resulting boot menu. The installation will pick up where it left off.

OPAQUE OR TRANSPARENT DESKTOP TEXT?

I FIDDLED with some Windows settings, and now all the icon names on my desktop appear in a block of color rather than on top of the desktop wallpaper. How do I revert to showing the icon names' transparent background?

Joshua Fisher, Newport News, Virginia

SOME PEOPLE like their wallpaper showing through the letters; others hate it. To change this setting in Windows XP, right-click *My Computer* and select *Properties•Advanced*. In the Performance box, click *Settings*. Check or uncheck *Use drop shadows for icon labels on the desktop*. Click *Apply* to see if you like the results. When you're satisfied, click *OK* twice.

No other version of Windows offers this icon-label option. If you use another Windows version and don't like the resulting color blocks behind your icon names, check out Transparent, a free program by Jay Guerette that makes your wallpaper shine through. Browse to find.pcworld.com/48076 to download your copy. ■

Send 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.thelinkinspector.com.*

MAKE A DOS APP WORK WITH A USB PRINTER, AGAIN

A NUMBER OF READERS weren't satisfied with my advice from last June's column for printing from an old DOS program to a new USB printer (find.pcworld.com/49664), and they were right. I concentrated on parallel versus USB port issues. A bigger difficulty is that many of today's printers don't understand DOS commands. The $20 DOS Printer shareware program (find.pcworld.com/49665) solves this problem by running in the background, looking for any printer instructions headed for LPT1. When it gets these instructions, it converts them into something Windows—and your real printer's driver—will understand.

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CISCO SYSTEMS

GADGET TIPS

RICHARD BAGULEY

Windows Media Player Updates Your Podcasts

PODCASTS BRING personal broadcasting to the masses: Anybody with a microphone and a PC can share their bons mots with the world. (Visit find.pcworld.com/48994 to read Contributing Editor Dan Tynan's take on podcasting tools and services.) Instead of using iTunes or downloading new podcasts to your MP3 player manually, let Windows Media Player 10 do it for you.

If you don't already have one, download and install a podcast receiver program like iPodder (find.pcworld.com/48996), and set the program to download new podcasts automatically. Note where the program stores its podcasts (by default, iPodder stores them in My Documents\My Received Podcasts).

Next, open Windows Media Player 10 and select *File•Add to Library•By Monitoring Folders*. Click *Add* and browse to the directory where your receiver stores its podcasts. Select the folder and click *OK* twice.

Next, click the *Library* tab, right-click the *Auto Playlists* entry (located near the bottom of the left pane), and select *New* to open the New Auto Playlist dialog box. Enter **Podcasts** in the 'Auto Playlist name' box and choose *Click here to add criteria* below 'Create an auto playlist that includes the following'. Select *More•File Name•OK*. Back in the New Auto Playlist dialog box, choose *click to set* next to 'File name Contains'. Enter the name of the directory where the podcasts are stored ('My Documents\My Received Podcasts' in the iPodder example I've been outlining; see **FIGURE 1**). A simple way to do this is to select the folder in Windows Explorer, copy the path in the Address bar, and paste it into this field. Click *OK*, and Podcasts will appear in the auto playlists. Right-click it and select *Add to Synch List*.

FIGURE 1: ENTER THE FILE PATH of the folder containing the podcasts you want to add in Windows Media Player 10's New Auto Playlist dialog box.

Now when you connect your MP3 player and click *Start Synch*, all of the latest podcasts you subscribed to will be copied to the device automatically.

CELL-PHONE VIDEOS ON DVD

IT'S EASY TO CONVERT videos that were captured by cell phones in the 3GPP format into a format you can put on a DVD. Of course, cell-phone movies may be great for candid moments, but they can't match the quality of a camcorder's output, so don't be surprised if the videos come out looking blocky and jerky.

The Nokia 6620 video cell phone I use saves its files to a memory card, so I simply pull the card out and pop it into my PC's memory card reader. Other video cell phones allow you to e-mail the clips.

Once you've transferred the files onto your PC, open Windows Explorer and click *File•New•Folder*. Name the folder **3GPP**. Next, browse to find.pcworld.com/49006 to download the free video decoder contained in the file 3gptorawavi.zip. Unzip this file and place its contents into the 3GPP folder that you just created. Move your video files into the same folder. Now open a command prompt window: In Windows XP, select *Start•All Programs•Accessories•Command Prompt* (the steps are slightly different for older Windows versions). Type **cd C:\3GPP** and press **<Enter>**. To convert a 3GPP video, type **3gptorawavi.exe filename**, replacing 'filename' with the name of the video file (but excluding the .3gp suffix). For example, if you want to convert a cell-phone file named 'video(001).3gp', you'd type **3gptorawavi.exe video(001)**. This instruction creates a new video file in the MPEG-2 format that retains the same name but has the .avi suffix.

Now open your DVD authoring program and import the AVI video file. To start a new DVD-video disc in Nero Express 6, for example, you would merely click *Add Video Files* and select the AVI file. Once the video file is written to the disc, you can pop it into any relatively new DVD player and enjoy! ■

Richard Baguley writes PC World's Making Movies *column (find.pcworld.com/49004).*

WATCH VIDEOS ON PSP

SONY'S PLAYSTATION Portable makes a great portable video player, thanks to its big, bright screen. But first you have to convert the video files and rename them. Fortunately, the free PSP Video 9 program (find.pcworld.com/49008) converts TV shows, downloaded movie trailers, and other video files, and places them on a Memory Stick memory card that you can plug into your PSP.

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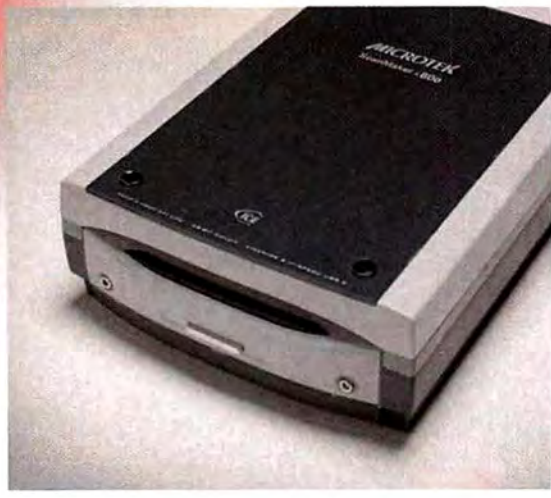

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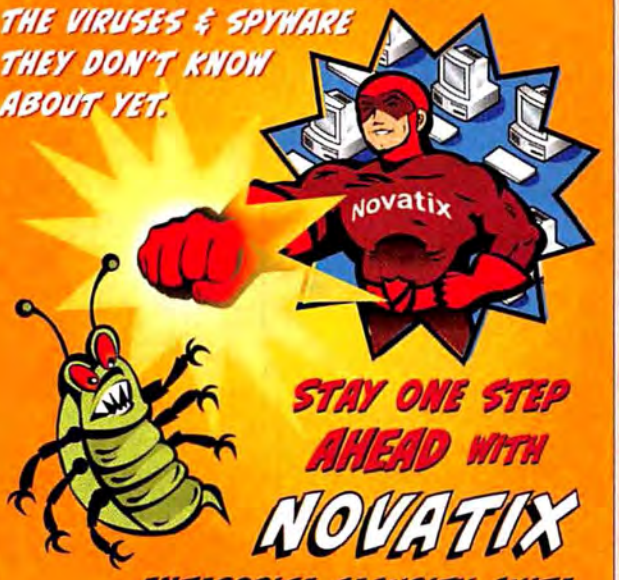

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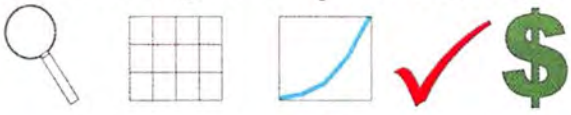

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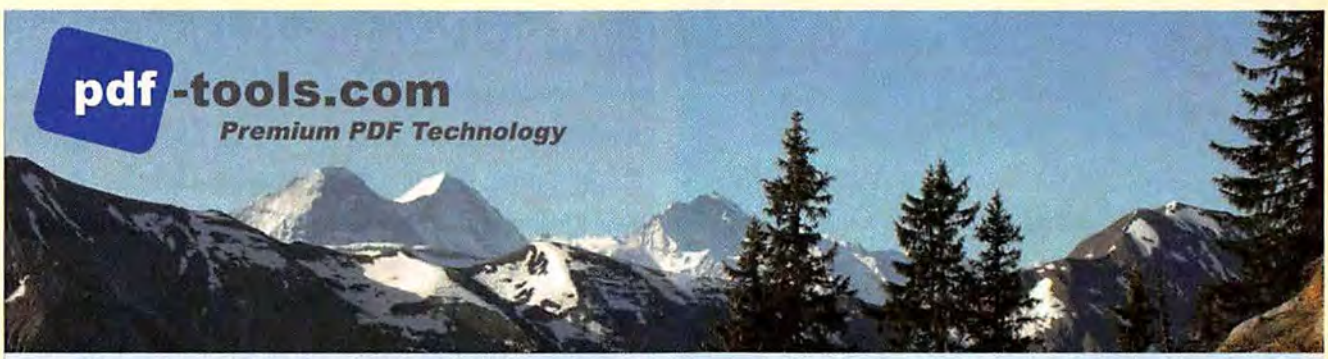

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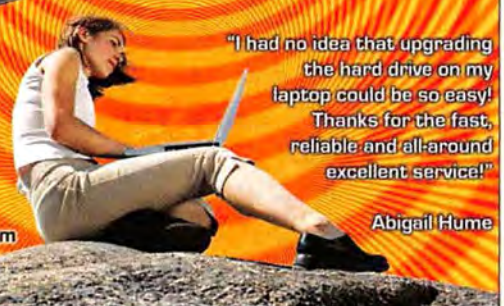

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FULL DISCLOSURE

STEPHEN MANES

Auto Updates: No Quick Security Fix

YOU'RE CONCERNED ABOUT COMPUTER SECURITY. You know you need all the latest Windows patches, fixes, and updates, including crucial ones relating to new threats like those we examine in this special issue. And you need them installed before a new attack inflicts its damage.

But you chose "automatic" updating when you set up your system, so you figure no sweat—your PC will have the newest safeguards from the moment you boot it up.

Wrong. Microsoft's Automatic Updates service may be automatic, but it is definitely not instantaneous. As I write, no information on Microsoft's Web site fully explains the details, perhaps because of the horrified shrieks that would resound if the facts were available. But the bottom line is this: The only way to ensure that you'll get updates immediately is to surf to update.microsoft.com (via Internet Explorer only, of course) and explicitly request them.

The way Automatic Updates really works is as confusing as it is undocumented. After a long discussion and several e-mail exchanges with Microsoft product people, I can't presume to say I fully understand it. The short story is that the Automatic Updates client on your machine pings servers every 17 to 22 hours to see whether you need updates. If you do, it downloads them; after that (unless you've arranged for it to ask you before proceeding), Automatic Updates will install the files either at 3 a.m. (by default) or at a time you select. Then it may reboot Windows, even if your PC is in the midst of doing something important, like recording the latest episode of *Entourage*. Or it may wait for you to accept an end user license agreement before it proceeds.

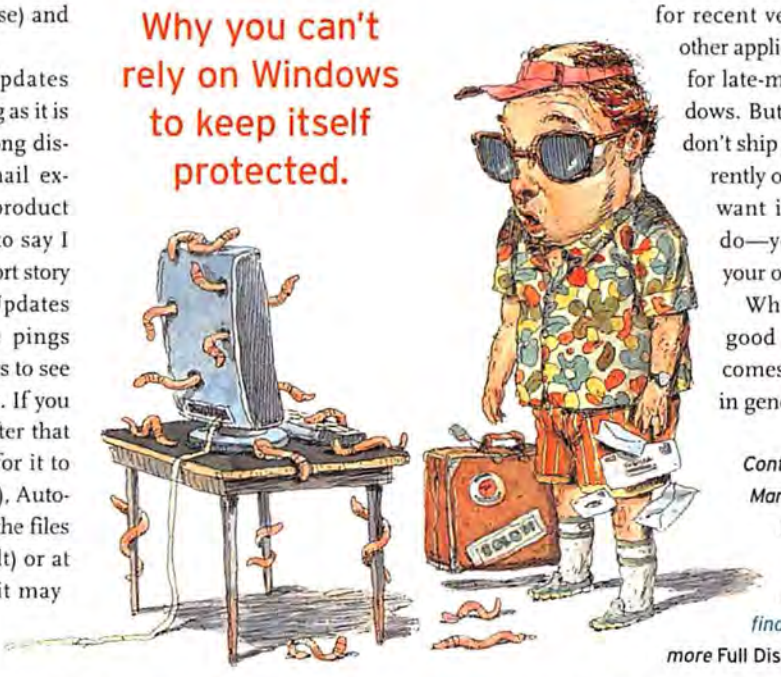
THE WAITING GAME

BUT THE FULL STORY is more like a Kafka novel. On some machines, updates can get installed when you shut the computer down (before the official installation hour). This might help if the patches come in before you turn the machine off for the night. But what if you're away on vacation—with your PC turned off—when some worm appears? Will Automatic Updates go out and grab the fixes immediately upon your return? The quick answer appears to be no.

And updating may take longer than you expect. According to a Microsoft product manager responsible for this stuff, up to five days may elapse before every PC with Automatic Updates turned on actually gets updated. There's no way to know whether your machine is at the front of the line or the back; the only way to jump the queue is to head directly for Microsoft's update site. It's also the only way to collect "optional" updates, such as new versions of Windows Media Player, which never arrive automatically.

Unlike the ancient Windows Update, the new Microsoft Update delivers fixes for recent versions of Office and other applications as well as those for late-model editions of Windows. But components it needs don't ship with any machine currently on the market. So if you want it—and you probably do—you'll have to manage your own downloading.

Which turns out to be a good philosophy when it comes to Windows updates in general. ■



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