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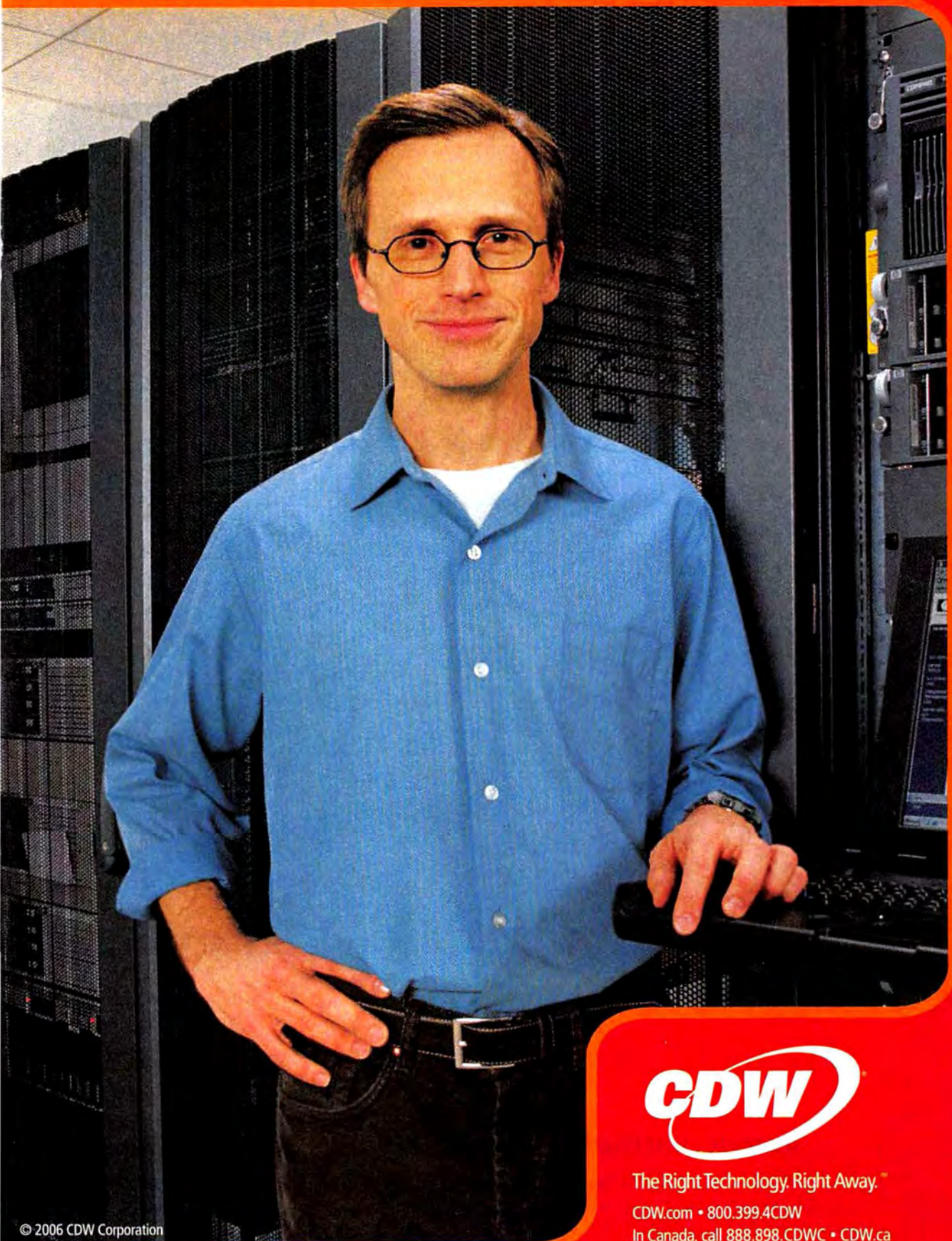


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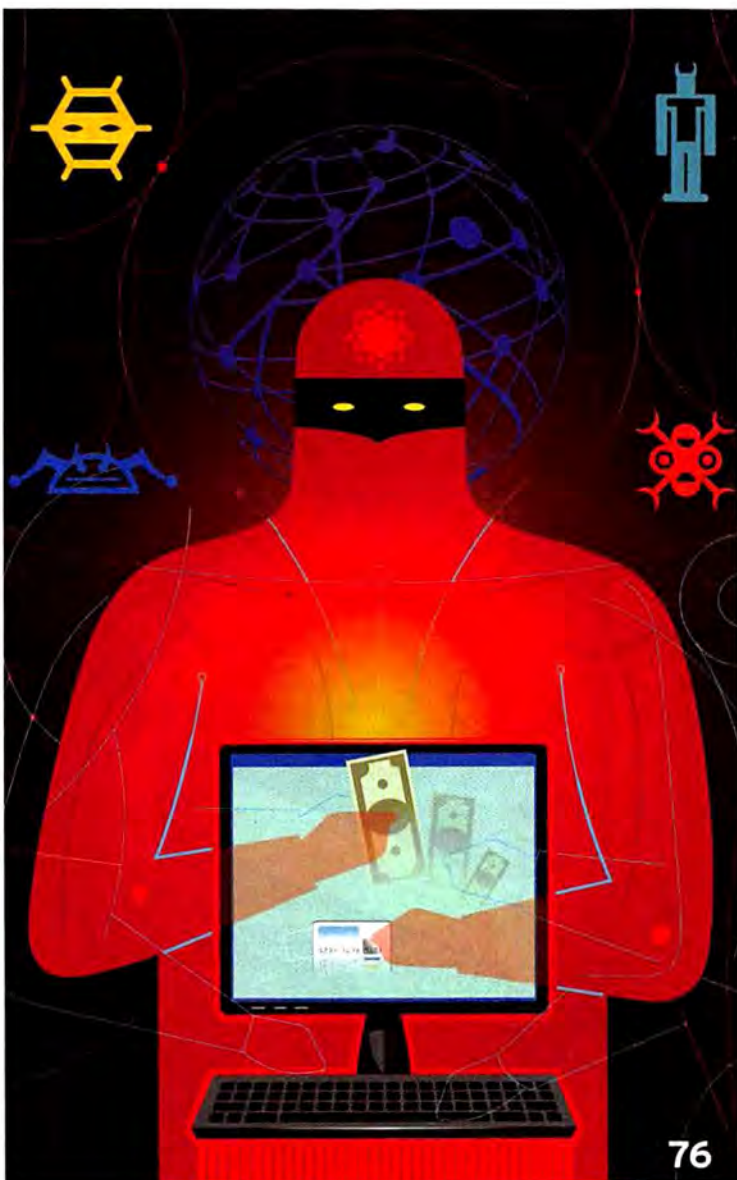


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COVER STORY

76 The 10 Biggest Security Risks You Don't Know About

You're vigilant against standard-issue malware. But what do you know about zombie PC botnets, rootkit-based threats, cell phone viruses, keyloggers, compromised RFID chips, data-file kidnapping, or cache poisoning? We examine these and other emerging dangers.

Cover illustration by Oliver Wolfson.



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DUAL-CORE PCs

92 One PC, Two Brains

When dual-core processors from AMD and Intel debuted last year, they commanded a hefty premium. Today, about \$1500 will buy a nicely equipped desktop PC based on one of these powerful CPUs. Learn how six such value systems fared in our multitasking tests, and see which one delivers the best combination of essentials and extras.

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113 Web News Wranglers

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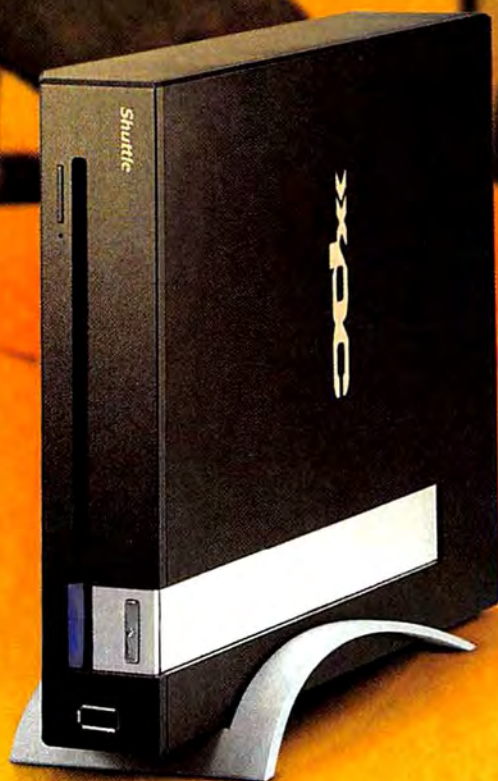
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Point-and-Shoots: We put an all-new crop of smarter, more powerful digital cameras to the test.
Video Everywhere: Create and acquire video, and then share it over the Web or via mobile devices.



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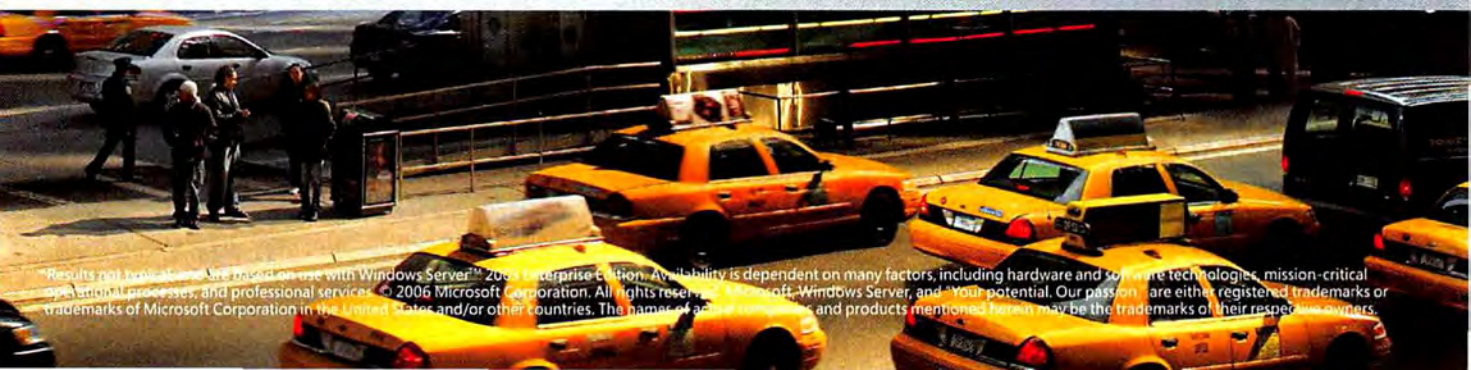
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User Interfaces: Which Way From Here?

Vista's face-lift is short on substance; Office 2007's is a change for the better.

WHEN IT COMES to software, I like living dangerously. So for many months now, I've been spending my workdays laboring in multiple pre-release versions of Microsoft's upcoming Windows Vista and Office 2007, starting with early iterations that were crashy first drafts at best.

At first, I felt like a crazed loner. Now I have plenty of company, thanks to new beta 2 editions that are free to anyone who's adventurous enough to download and install them. If you're game, check out Yarden Arar's review of Vista beta 2 on page 22, and Michael S. Lasky's coverage of Office 2007 beta 2 on page 24.

Final versions of Vista and Office 2007 are still months away, but the betas are close enough to fully baked that I've been able to form real opinions about them. As I live in these two upgrades, I'm struck by how utterly they differ in usability.

Clarity, Microsoft says, is a key Vista goal. But if consistency is a component of clarity, Vista beta 2 still skews fuzzy. Everything from Computer (née My Computer) to Windows Photo Gallery to Internet Explorer 7 does away with traditional menus, but each replaces them with something slightly different, and it's not always clear what was objectionable about menus in the first place.

That's not the only instance of change in Vista masquerading as improvement. For instance, networking options, which

were merely disorganized in Windows XP, have become downright baffling.

I'm not saying that nothing in Vista's interface will make your life easier. (The tidy, compact new Start menu, for in-

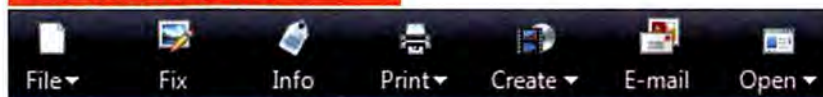
At first, Microsoft's enthusiasm for the Ribbon set off alarms in my head. After all, this is a company that thought a talking paperclip was a breakthrough. After a few weeks in Office 2007 beta 2, though, I'm enthusiastic, too. For the first time in eons, I feel like Office's interface is helping me find features, not hiding them.

Why the wholesale change? "It's not as if the idea of Office being bloated is new," says Jensen Harris, a Microsoft program manager. Earlier makeovers tried to sim-

COMPUTER (VISTA)



PHOTO GALLERY (VISTA)



RIBBON (OFFICE 2007)



WINDOWS VISTA DUMPS menus, but its replacements (such as in Computer and Photo Gallery, shown here) are wildly inconsistent; Office 2007's Ribbon is mostly coherent and consistent.

stance, is a lot more manageable.) And the operating system's hardware-related enhancements alone could make it a worthy upgrade. But purely from the standpoint of interface changes, the OS, at least in beta form, is no great leap forward.

Office 2007 is a different story—and thank heaven for that. With dozens of toolbars, hundreds of menu items, and thousands of features, its interface buckled long ago under the sheer weight of the suite's features. Office 2007's solution: Replace most standard menus and toolbars with the tabbed, visual Ribbon.

plify on top of the existing UI, and muddled matters further. This time, Microsoft aims to reinvent rather than tweak.

I can't think of another example of a major developer trashing a decade's worth of interface design and starting over. I'm glad Microsoft did. Here's hoping that other products, Microsoftian and otherwise, crib some of Office's ideas—and that Vista isn't the end of the road for Windows interface evolution. ■

Harry McCracken is the editor in chief of PC World.

STARTING IN THIS issue, the column formerly known as *Up Front* becomes *Techlog*, which is also the name of my blog (blogs.pcworld.com/techlog). In both of *Techlog*'s flavors, I'd like the column to be a dialogue: Drop me a line at harry_mccracken@pcworld.com, or stop by the blog and comment.

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NEWS & TRENDS

EDITED BY EDWARD N. ALBRO

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Web Phone Woes

LURED BY THE PROSPECT OF SAVING MONEY, CALLERS ARE SIGNING UP FOR INTERNET PHONES IN DROVES. BUT WATCH OUT FOR SNAGS UNHEARD OF WITH LANDLINES. **BY TOM SPRING**

PAMELA STODGHILL OF Alabama thought Internet-based telephone service would help lower her household's \$65 monthly phone bill. An "unlimited" calling plan from the company 8x8 looked like a great way to stay in touch with distant family and friends.

But despite spending 12 hours on a (landline) phone with 8x8's tech support staff over the course of a month and despite paying \$104 in fees, Stodghill never received working phone service, and she lost the family's phone number of three years while trying to transfer it from Bell-South, her landline carrier, to 8x8 (www.packet8.net).

Millions of consumers are tempted by inexpensive Net phone services—some priced as low as \$10 a month—and Stodghill isn't the only one to



incur huge headaches when things go wrong. She says she gave up on VoIP after spending far too much time dealing with technical problems and installing replacement equip-

ment. "At a certain point you just have to throw in the towel and say, 'Is this really worth it?'" Stodghill says.

The number of people turning to VoIP as a low-cost alter-

native to traditional phone service has nearly doubled in the past year, and the industry has struggled to keep pace. Among the hundreds of complaints regarding VoIP service that are filed to state public-utility commissions, the most common involve dropped phone calls, poor sound quality, problems with transferring numbers from standard phone companies to VoIP providers, and long wait times for customer service.

Not only did 8x8 keep Stodghill on hold for an inordinate amount of time, she says, but its customer service staff was condescending and rude. In the end, she demanded her old telephone number back and a refund. She was told that her phone number could not be returned, and she is still waiting to receive the re-

fund. So she filed a complaint against 8x8 with the Better Business Bureau (BBB).

With just 113,000 customers nationwide, 8x8 has racked up 112 complaints in the past year with the BBB of Santa Clara, California, where 8x8 is based. In response to those complaints, the BBB rated the company as having an "unsatisfactory business performance record." But other VoIP firms have poor records with the BBB, too. The BBB says it has collected 1088 complaints against Vonage (which operates the largest Net phone service, with 1.6 million customers in the United States and Canada) in the past 12 months. During the same time period, Verizon fielded 1039 complaints filed against its landline service—though it manages 48.8 million phone lines nationwide. Another VoIP provider, BroadVoice, is the eighth-most-complained-about company in eastern Massachusetts, Maine, and Vermont, according to the BBB office serving those areas.

Huw Rees, a spokesperson for 8x8, says that the company is doing its best to reply to BBB complaints. "I think we are doing a good job with customer service," Rees says. "Could we do better? Yes." He says problems such as number portability are out of 8x8's control, and he complains that traditional phone companies control most phone numbers and don't make it easy to transfer them.

"With hypergrowth come hypergrowing pains," says Theresa Mastrangeli, VoIP expert with market analysis

firm Broadband Trends. She says Internet phone services can't hire customer care representatives fast enough. Meanwhile, she adds, the nascent VoIP industry has yet to straighten out such thorny technical issues as how to provide emergency 911 to all its customers and how to transfer phone numbers between phone companies.

New Jersey's Raymond Bey found out how precarious



PAMELA STODGHILL TRIED to sign up with VoIP provider 8x8, but never got working service.

new technology can be when he signed up for Vonage in 2004. For over a year, he tried to get his service with Vonage to run properly with the right phone number—to no avail. "I had problems with Vonage's phone service that I didn't know you could have with your phone," Bey recalls.

For eight months, outbound calls from his Vonage phone displayed an incorrect telephone number on recipients' caller ID service. When people used the caller ID info to return Bey's call, he says, a recording said the phone was out of service. Other service

snafus included voice mail that frequently did not work, faulty equipment, and the loss of his phone number of 30 years when Vonage tried to transfer it from Verizon.

"I've filed complaints with every agency I know," Bey says. He also filed a lawsuit against Vonage in the U.S. District Court for New Jersey seeking over \$1 million in punitive damages, alleging negligence and fraud. His case was dismissed, but he's appealing the ruling.

VOIP TECHNOLOGY: STILL YOUNG

SOME OF THE VoIP industry's problems stem from the way that it markets the technology, says Amanda Sabia, analyst with Gartner Research. Too often, she says, Internet phone service is touted as a simple alternative to traditional phones, and many consumers don't fully understand the technical issues and trade-offs

involved in replacing their landlines with Net phones.

At least one VoIP provider concedes that the technology remains a work in progress. "We like to remind people they are dealing with a technology that is still under ten years old and not as mature as the 100-plus-year-old traditional telephone network," says Gene Cornfield, BroadVoice spokesperson. Cornfield says his company doesn't always advise potential customers to replace their phone lines with VoIP.

One of the biggest technical challenges is the task of providing all customers with reliable access to 911 emergency services. Broadband tech- ▶

IN BRIEF

Product Pipeline



SONY'S SLR DEBUT:

Sony's first digital single-lens reflex camera, the 10-megapixel Alpha A100, sports a 2.5-inch LCD display, a lithium-ion battery rated for 750 shots on one charge, and a sensor that moves to remove dust and to fight blur. Slated to ship in July, the camera has an automatic focusing system that begins working as you put your eye to the viewfinder rather than when you press the shutter button. The suggested retail price is \$899 (body only); a \$999 kit includes an 18-70mm lens.

GATES TO STEP DOWN AT MICROSOFT:

Bill Gates, Microsoft's founder and chief software architect, will step out of his daily role at the company in July 2008. Ray Ozzie, current chief technology officer at Microsoft and creator of IBM Lotus Notes, has assumed Gates's chief software architect title and will work side-by-side with Gates until July 2008. Gates plans to take on a full-time role at the Bill and Melinda Gates Foundation, the charity organization he runs with his wife. He will continue to advise Microsoft on key projects and to serve as chairman of the company's board of directors after the transition period is complete.

nology, which VoIP depends on, isn't completely reliable, so access to emergency services via VoIP isn't either—even assuming that you have access in the first place. FCC regulations require VoIP firms to inform customers of the important differences between calling 911 using a Net phone and doing so with a traditional landline phone. For example, power outages, among other occurrences, can render your broadband modem and (as a result) your phone inoperable.

SOME VOIP FIRMS DON'T OFFER 911

WITH TRADITIONAL 911 emergency calls (aka enhanced 911), a caller's phone number and address appear on the emergency operator's line. This may not happen with 911 services offered by VoIP carriers. In some cases 911 calls made from a VoIP phone are routed to call centers whose operators must ask for

CALL ISSUES

COMMON VOIP COMPLAINTS

VOICE-OVER-IP TELEPHONE SERVICE continues to grow in popularity nationwide, and many customers like the service. But a surprising number of people have run into problems with VoIP providers and with the relatively young technology. Here are some of the more common complaints.

Dropped calls	Hiccups or outages in the broadband connection that VoIP service uses can disconnect calls in midconversation.
Poor sound quality	Broadband has plenty of bandwidth to ensure high-quality voice transmission, but some users complain of choppy, garbled, and latency problems.
Problems transferring phone numbers	VoIP providers must work with traditional phone companies to carry over existing numbers; if you cancel your existing phone account before the VoIP provider completes the transfer, your old phone company may give your number to someone else.
Limited 911 accessibility	Some VoIP providers provide access to 911 emergency operators, but they don't transmit your phone number and address; as a result, you must give the operator that information when you place a 911 call. Other VoIP providers have no 911 access at all.
Hidden fees	The fine print on many companies' terms of service imposes limitations you'd never find in a landline phone contract, such as fees for not using your connection often enough or for having substantially more outbound calls than inbound ones, or vice versa.

At this time BroadVoice does not provide 911 or E911 services. E911 is a very important feature that BroadVoice plans to offer as soon as thorough testing has been completed. BroadVoice technicians are working very diligently to integrate E911 service; however, it is a complicated process that requires verification many times over to be sure the system works correctly.

VOIP PROVIDER BROADVOICE signs up new customers on its Web site. But one of its support pages says that the company does not offer 911 services.

for comment for this report.

For more information on E911 services, see "VoIP Firms Don't Answer FCC's 911 Call" (find.pcworld.com/53842).

WATCH HOW MUCH YOU SAY

MANY VOIP PROVIDERS impose very restrictive terms of service, including low-usage fees—surcharges that apply if you don't incur enough regular charges in a month—huge early termination fees, and mandatory shipping costs for returning faulty equipment. ViaTalk (www.viatalk.com) requires that the ratio of calls received to those placed be roughly equal; if you receive 75 percent or more of the calls on your account, or make 75 percent or more of them, you risk being designated as a business account and incurring a steep rate hike.

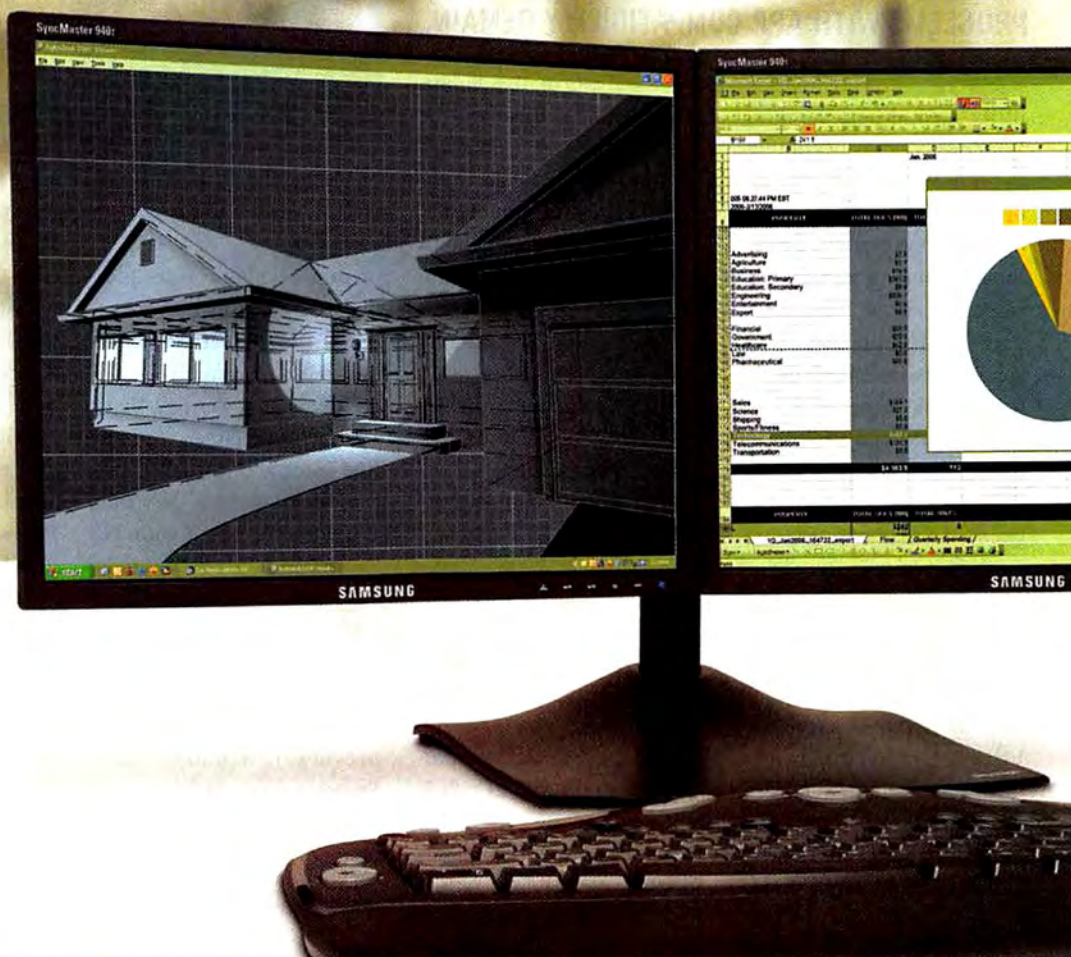
Jean-Claude DeMars of Texas says that Primus (www.primustel.com) tried to charge him \$5 extra one month as a low-usage fee. He angrily canceled his service—but then discovered that he would have to pay the shipping fees to return his Primus equipment or face a \$40 disconnect fee.

"I saw the [VoIP] ads and thought this was the answer. Apparently, I've got a lot to learn," DeMars says.

providers to implement 911 services for their customers. In areas where companies weren't routing 911 calls to emergency response centers, Internet phone companies were supposed to discontinue marketing to—and signing up—new customers.

Some VoIP providers still don't offer 911 service but continue to market and sell service in areas that lack it, in seeming defiance of FCC regulations. BroadVoice's Web site says that "At this time, BroadVoice does not provide 911 or E911 services." The company says that it expects to do so sometime in the near future, but in the meantime its Web site continues to accept new customers. When asked to explain why BroadVoice was selling service in what appeared to be violation of the FCC rules, Cornfield declined to comment.

Other companies, including New Jersey-based MyPhoneCompany.com, make E911 an optional service (even though the FCC intends for 911 service to be mandatory on all phones; it does not want customers to be able to opt out of it). MyPhoneCompany did not respond to repeated requests



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OPERATING SYSTEMS

Public Vista Beta: Load With Care

THOUGH THE LATEST BUILD LOOKS SHARP, PROBLEMS WITH APP COMPATIBILITY REMAIN.

WITH THE PUBLIC release of its second beta version, Windows Vista is beginning to fulfill Microsoft's promise of a handsome and secure operating system filled with forward-looking features for work and leisure. But our experience with the new build suggests that Microsoft needs to address some usability issues—and that we'll have to wait for a new generation of Vista-ready peripherals—before the OS becomes truly powerful and user-friendly.

FINE TUNING

INITIALLY RELEASED IN May along with Beta 2 of 2007 Office (see page 24), Vista Beta 2 fine-tunes features from earlier versions of the new OS, including numerous security measures; sophisticated search tools; support for mobile workers (who can now set up and collaborate on an ad-hoc wireless network); and, for IT pros, tools for easy OS deploy-

ment and PC management. Microsoft says Vista will be ready for corporate customers this November, but consumers will have to wait until early next year to buy PCs with Vista preinstalled (or to upgrade existing machines with shipping code). In June, the company made the beta available for limited public download (visit find.pcworld.com/54028 for instructions).

Microsoft has finally provided specific hardware requirements for Vista's flashy Aero graphics system, which offers translucent window frames; thumbnail previews of minimized windows that pop up when you pass the pointer over their taskbar button; and the ability to switch between apps displayed as a three-dimensional parade of flip-through windows (a feature called Flip 3-D). To get the Aero look, you will need some fairly hefty hardware (see "Future PC Vista Ready?"



THUMBNAIL PREVIEWS OF minimized apps pop up from the Vista taskbar.



DO THE WINDOWS SHUFFLE: The Flip 3-D feature in Vista's Aero graphics lets you sort through all open application windows.

on page 54) plus a business or high-end consumer edition of the OS (Vista Enterprise, Business, Home Premium, or Ultimate). The lower-end Vista Basic will run either a simplified interface (called Basic) that looks more or less like Windows XP or—if your PC has the necessary hardware to support Aero—a Standard interface with some of Aero's features (such as the glass window frames) but not others (Flip 3-D and thumbnail previews). Windows Vista Starter, a version intended for third-world countries, will offer only the Basic interface.

NEW JARGON

AMONG THE OPERATING system's promising features are SuperFetch, performance-enhancing memory caching that draws on your usage patterns; ReadyBoost, which uses a USB flash memory drive to supplement system RAM; SideShow, which enables you to access the PC's data on such auxiliary displays as a small screen on your notebook's exterior; and Windows Rally, a family of technologies for setting up and using intelligent devices on networks. The

new OS also introduces the XPS (XML Paper Specification) file format, similar to Adobe's ubiquitous—and far more capable—PDF.

Rally and SideShow won't come into their own until Vista-aware devices debut. But what's most annoying about Beta 2 are the frequent security-related pop-ups (most prevalent right after you upgrade) seeking administrator passwords for tasks as routine as saving documents to previously accessible folders. Clearly, lax security in Windows XP and Internet Explorer 6 has been a big problem, but Beta 2's approach seems like too much of a swing in the opposite direction.

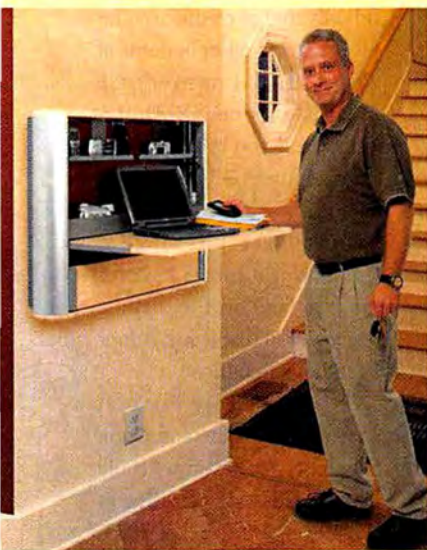
I'm also on the fence about Aero: The glass windows are cool, but they don't appear on all apps (which makes for a hodgepodge look), and they drain system resources.

By all means, try the beta—but only if you're willing to brave the security prompts, and even then only on a non-mission-critical PC. Three weeks after upgrading, I'm still unable to run Photoshop Elements 4 or Rhapsody.

—Yardena Arar

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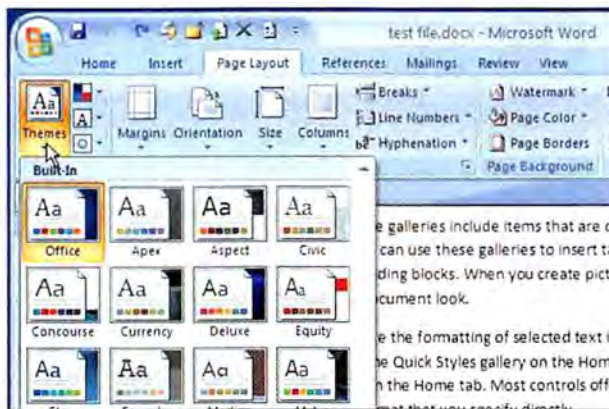
Office Beta: Good Looks, Tricky Formats

TO HANDLE THE NEW FORMATS, OLDER VERSIONS OF OFFICE REQUIRE TWO BIG DOWNLOADS.

A REVAMPED INTERFACE and new default XML file formats make 2007 Microsoft Office—formerly called Office 12—the most dramatic reworking of the best-selling productivity suite in more than a decade. Unfortunately, our tests of the first public beta version (see find.pcworld.com/53726 for details on how to obtain your copy) indicate that 2007 Office's integration with earlier releases may be far from automatic.

Users of Office 2003 and XP who want to open files in the new edition's default formats must first update their current version of Windows and Office via update.microsoft.com and then download and install two Microsoft patches for their version of the OS: the File Format Awareness Update, and the Compatibility Pack (find.pcworld.com/54060). Together, the Awareness Update and Beta 2 of the Compatibility Pack exceeded 60MB, and the downloads took more than 30 minutes to complete over a DSL line.

January's private 2007 Office beta (find.pcworld.com/53728) unveiled the startling new look of Word, Excel, PowerPoint, Access, and Outlook. Each app replaces most of its drop-down menus and toolbars with a context-sensitive 'ribbon'—an interactive strip stretching across the top of the screen that displays functions relevant to whichever top-level tab is selected.



THE 2007 OFFICE ribbon (shown here in Word) changes from tab to tab and is designed to simplify access to the suite's many options.

(Outlook retains its old interface except in windows that are used to compose e-mail.)

Current Office users may at first find the feature relocation confusing, but the ribbon—combined with the live preview capability that shows how a feature will look in your documents without permanently applying it—does expose a number of functions that previously were buried.

One of 2007 Office's most useful new interface elements appears when you highlight text in Word or cells in Excel and then right-click: It's a shadow menu of frequently used options that comes alive only if you mouse onto it.

The View tab, missing in

the earlier private beta, returns in this iteration. Click it to see a ribbon that permits single-click access to screen views (Web, outline, and others), split screens, multiple-page views, and instantaneous switching between multiple open documents. In the previous Office beta, you had to hunt through menus, use arcane key combinations, and perform multiple steps to access one of these functions.

CRAMPED SCREEN

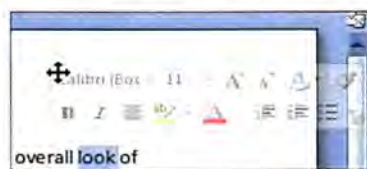
THE PRICE YOU pay for the ribbon's fast access to features is a constricted work area: You can't resize the ribbon, although it does disappear in windows measuring less than about 5 inches across. If you are working on a 17-inch or smaller screen, you may want to invest in a larger display. And notebook users beware: The ribbon will reduce your viewable area even more.

Dwarfing the screen-

size issues are concerns surrounding the revamped programs' compatibility with earlier Office applications, primarily due to the switch to Microsoft's new trio of XML file formats—.docx, .xlsx, and .pptx—as the defaults in Word, Excel, and PowerPoint, respectively. The programs in 2007 Office can open and work on files created in previous releases back to Office 97, and you can change the default settings to create files in any existing Office format. To take full advantage of the smaller file sizes and other benefits of 2007 Office, however, you must use its new XML formats. And you still won't be able to convert Office files into PDF files without using an add-in program. (Browse to find.pcworld.com/53988 for more details on the dispute between Microsoft and Adobe over PDFs in Office.)

Using the File Format Awareness Update and Compatibility Pack Beta 2, we could open .docx and .xlsx files in Word 2003 and Excel 2003, respectively—but when we tried to open a .pptx file in PowerPoint 2003, we were prompted to download the Compatibility Pack that we'd already installed. Even if this glitch is fixed prior to release of the shipping product (expected early next year), questions remain about how easy it will be to ensure that old and new versions of Office work harmoniously together.

—Michael S. Lasky



RIGHT-CLICKING HIGHLIGHTED TEXT in 2007 Office brings up a shadow menu that quickly fades if you don't use it.



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MOBILE COMPUTING

AMD Notebook Chips Go Dual-Core

LAPTOP WITH NEW TURION 64 X2 PROCESSOR CAN'T SURPASS RESULTS OF INTEL MACHINES.

AMD'S DESKTOP CHIPS have outperformed Intel's for some time, but on the notebook side Intel has held the advantage. AMD was hoping that the new Turion 64 X2—the first dual-core mobile CPU from the company—would change things, but our tests of one of the first laptops to use the chip suggest that it hasn't.

We saw solid performance from the Turion 64 X2-based notebook we tested, but it set no speed records, and megahertz for megahertz, you'll probably still get more from a similar Intel-based system. Likewise, battery life appears average, not spectacular.

We examined the \$1249 HP Compaq nx6325, a general-purpose business laptop loaded with the 1.8-GHz Turion 64 X2 TL-56 CPU and 1MB of Level 2 cache. The system also has 512MB of 667-MHz DDR2

memory, and its graphics are powered by an ATI Radeon Xpress 1150 chip set, which relies on 128MB of main memory. In addition, the unit has a 15-inch LCD screen, an 80GB hard drive, Windows XP Professional, a multifunction DVD burner, and a multifunction media card reader.

The nx6325, which earned a respectable WorldBench 5 mark of 76, should ably handle any productivity task. It came in just a few points below the 79 average score of two single-core 1.8-GHz Turion 64 ML-34 laptops with twice the memory, and it outperformed them on our multitasking test. The unit's World-



HP'S COMPAQ NX6325 portable (\$1249) features AMD's new dual-core Turion 64 X2 mobile processor.

Bench 5 score was 10 points beneath the average of two comparably configured laptops with 1.66-GHz Intel Core Duo T2300 chips, however, and those models significantly outpaced it in multitasking. Its battery life was adequate at 3 hours, 2 minutes.

The Turion 64 X2 line incorporates several platform im-

provements. Unlike older Turions, it supports DDR2 memory, which increases memory speed from 333 MHz to 667 MHz. The new chips also possess a smaller socket, and dynamic thermal management, which helps them fit into more-compact laptops. Each core of the Turion 64 X2 gets its

own Level 2 memory cache, unlike Intel Core Duo CPUs, which share one L2 cache (but most AMD CPUs have about half the total cache of Intel chips). The new line ranges from the 1.6-GHz Turion 64 X2 TL-50 with 512KB of L2 cache to the 2-GHz 64 X2 TL-60 with 1MB of L2 cache.

Though you'll pay less for a dual-core AMD laptop than for a comparably configured Intel one, the difference often should be less than \$50. Users will have to judge specific configurations, but it looks as though performance mavens should stick with Intel-based laptops. And Intel will further up the mobile performance ante with new dual-core 64-bit chips, code-named Merom, due in the third quarter of this year. Intel says Merom will fit in today's motherboards, will double the L2 cache from 2MB to 4MB, and will boost performance with improved processing capabilities.

—Anush Yeghazarian

TEST REPORT

AMD DUAL-CORE LAPTOP TRAILS INTEL MODELS

OUR TESTS OF one of the first notebooks to use AMD's Turion 64 X2 processors show solid but unspectacular performance and battery-life scores.

SYSTEM	CPU	Memory	WorldBench 5 <small>Faster</small>	TIME (IN SECONDS) TO RUN:		Battery life (hours: minutes)
				Multitasking test	Windows Media Encoder 9	
HP Compaq nx6325	1.8-GHz Turion 64 X2 TL-56	512MB DDR2-667	76	630	358	3:02
COMPARISON SYSTEMS						
Intel dual-core notebooks <i>Average of two systems¹</i>	1.66-GHz Core Duo T2300	512MB DDR2-667	86	532	350	5:46
AMD single-core notebooks <i>Average of two systems^{1,2}</i>	1.8-GHz Turion 64 ML-34	1GB DDR333	79	858	484	3:54

TEST CENTER HOW WE TEST: We tested all of the systems with WorldBench 5; for details, see www.worldbench.com. All tests performed by the PC World Test Center. All rights reserved. **CHART NOTES:** In WorldBench 5 and battery life tests, higher scores are better. Elsewhere, lower scores are better. Bold denotes best score. **FOOTNOTES:** ¹One of these notebooks ran Windows XP Home Edition. ²One of these notebooks had discrete graphics and dedicated graphics memory.



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PLUGGED IN

ERIC DAHL

Hybrid Drives to Speed Vista

PLUS: ONLINE CD AND DVD TRADING; GAMES GET PHYSICAL.

FLASHY NOTEBOOK DRIVES

The Buzz: More details are emerging about the power-saving, performance-boosting hybrid hard drives from Samsung and Seagate. These intriguing disks include a built-in cache of ultrafast flash memory to help PCs run Microsoft's upcoming Windows Vista operating system more efficiently. The first models will be notebook hard drives with either 128MB or 256MB of buffer. Vista can use this nonvolatile memory to accelerate performance and boot times (by caching frequently used data), to prioritize data transfers (making your machine more responsive), to spin down the disk (boosting battery life), and to let PC vendors "pin" impor-



tant applications in the cache permanently (thereby achieving faster program load times). **Bottom Line:** These hybrid disks are fast becoming my favorite reason to upgrade to Vista. Sorry, notebook vendors: They are also my current favorite reason to hold off on buying that new laptop.

SWAPPING SITE SURGE

The Buzz: Sites such as Switchdiscs and Peerflix have been allowing you to

trade old CDs, DVDs, and other media for a while, but suddenly there's lots of excitement around a couple of new stuff-swapping players. My favorite, Lala.com, enables you to list your CD collection using a sweet autocompleting search box or an iTunes plugin. Then you ship CDs from your collection to other Lala users, and in return you receive CDs off your want list for \$1.49 per disc. Another service, called Swaptree, facilitates more-direct trades of CDs, games, DVDs, and books. Both sites show promise, but they'll have to attract lots of interest to keep busy users coming back for more.

Bottom Line: I enjoyed Lala's music-centric approach. More than likely, however, most of these sites will "swap" several million in VC funding for a few months of a service using questionable business model.

CONTROLLER CRAZINESS

The Buzz: Nintendo is planning a big splash with the controller for its upcoming Wii console. Employing its full motion sensitivity, gamers will be able to wave the two-piece unit around to mimic actions like brandishing a sword or swinging a golf club. Not to be outdone, Sony has added motion sensitivity

HERE\NOW

- 1 AUCTIONS HARK:** Site compares auction prices with prices for new products at several online stores. auctionshark.com
- 2 FARECAST:** Beta site tracks airline fares to tell when prices will go up or down. farecast.com
- 3 MOTOROLA Q:** Razr-thin PDA/phone has finally arrived, and at \$199 it's pretty affordable. find.pcworld.com/54022
- 4 GOOGLE BARD:** Custom Google books landing page for Shakespeare's complete works. find.pcworld.com/54042
- 5 RIYA:** Shutterbugs will appreciate this evolving site that helps you sort your photos. riya.com



to its PS3 controller, and other companies—among them, Xavix (xavixstore.com)—are working on their own physical game controllers.

Bottom Line: This is a very welcome development. Aside from games like Guitar Hero, most innovation in controllers has been in creating less ergonomic shapes. ■

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

FUTURE TECH

AMD PLUGS COPROCESSORS

IF AMD GETS its way, future computers might have a media or physics coprocessor sharing the same bus as the CPU. By opening up the speedy HyperTransport protocol that it uses to connect the CPU, memory, and chip set in its systems, AMD hopes to give vendors ways to configure superfast, customized PCs. AMD calls the technology Torrenza, and it's likely to show up first in servers to accelerate things like Java code and high-end physics simulations. But computer vendors are already planning PCs with multiple sockets for gamers, so don't rule out desktop applications' making use of this promising new technology in the next few years.

Growth Soars with Call Center Solution and VoIP Phones

Flight plan at Silver State Helicopters includes AltiGen Communications

As the world's largest helicopter flight training operation, Silver State Helicopters couldn't afford to have its aggressive growth plans grounded by an antiquated call center operation. Anxious to turn phone responses from its advertising efforts into hot leads for student pilots, Silver State decided to dump its outsourced call center provider and take the operations 100% in-house.

But first the company had to find the ideal phone system, one that would not only make its call center operations hum, but would also have the IP phone capabilities and features Silver State required.

"The AltiGen system turned out to be exactly what we needed," says Steve King, IT manager at Las Vegas-based Silver State. "It has vastly increased our productivity and our efficiency, no doubt about it."

Installed by Capture Technologies, Inc., a leading AltiGen Communications reseller, the entire call center deployment took less than three days, including a seamless integration with Microsoft CRM, King notes. "The best part is that after the installation, there is very little asked of the IT department here to support the call center system," he says. "Call center managers can handle recording of prompts,

changing screens, changing auto-attendant features, you name it. This is a highly intuitive phone system with built-in commands that puts the call center staff in control and frees up our IT people to do other important work."

SUCCESS BREEDS SUCCESS

John Babin, the vice president of communications solutions at Capture Technologies, says the inherent flexibility of the AltiGen phone systems allows users like Silver State to easily fine-tune the systems to their precise specifications. For example, Silver State is now able to inform call center staff of the exact geographical market from where the call is originating. Then the staff member's screen can be populated with various offers and up-selling opportunities geared for that specific area.

At Silver State, the call center installation went so well that the

company soon rolled out AltiGen's IP phone system to the accounting department. Today that IP capability stretches across all major departments and across multiple office suites at Silver State. The company is also adding 100 corporate office users to a new AltiGen IP system, which will be easily linked to other AltiGen systems. The corporate connection will have added features like four-digit dialing between offices and a single phone number with which to reach



AltiGen's IP 710 Phone

Silver State's mobile workforce no matter where business takes them.

In addition, Silver State is rolling out smaller branch office AltiGen systems in its local flight school offices, replacing antiquated PBX solutions. AltiGen will be the system of choice in new local offices as Silver State continues its expansion across the country.

"In the last few years, we've gone from one flight school with 20 students to 22 schools with over 1,700 students enrolled," King says. "Bringing our call center and other phone operations in-house with AltiGen has allowed us to take control of the sales process. It has greatly increased the rate of actual sign-ups from initial calls, meaning we get more bang for the buck from our advertising. And the IP capabilities have made everyone's life more productive." ▲

AltiGen Communications, Inc.

AltiGen Communications, Inc. (NASDAQ: ATGN) is a pioneering manufacturer of VoIP business phone systems and call center solutions. Founded in 1994, AltiGen was first to market with self-administration, and recently received *Internet Telephony Magazine's* 2005 Product of the Year for its IP 710 telephone.



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LETTERS

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**PC MAINTENANCE:
CHECK, CLEAN**

**DIGITAL SLRs
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**A HOME THEATER
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RATING TECH STORES

IN JUNE'S "All-Star Tech Stores," Christopher Null quotes a consumer as saying, "You can spend an endless amount of time obsessing over which product to get.... But you're making a more informed choice." Oh, if only that were true! Sometimes a mass of data just leads to confusion or misunderstanding.

To be truly informed, we would need an accurate and full picture of each company's track record for successful rebate redemption (sometimes so complicated that it ensures lack of fulfillment), for customer service (the hassle isn't always worth the money you might save), and for the difficulty level of its return policies (the policies can seem acceptable until you have to use them).

Lloyd Speer, Jonestown, Pennsylvania

WHILE YOUR REVIEW gave us some insight into the "top ten" stores, I would recommend the following Web site for a more extensive list: www.resellerratings.com. Also, by typing in a store's name, you may discover a user rating and the

TELL US WHAT YOU THINK

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

comments of other buyers.

*Keith Oxby, Kimberling
City, Missouri*

I WAS DISAPPOINTED at the omission of Provantage.com from the list of online tech retailers in your study.

Operating out of Ohio for more than 20 years, Provantage is top-drawer in all the rated categories.

Jim Fisher, Keyser, West Virginia

I WAS SURPRISED that TigerDirect fared so well in your report. This online retailer's prices are competitive, but only after you figure in the rebates. Unfortunately, the company uses a rebate service that seems to have a history of making rebates complicated and then rejecting them.

Doug Stennett, Harrisburg, Pennsylvania

THE SIDEBAR "Rebates Get Easier to Collect" does not mention that most companies will not send rebates to post office boxes—a detail usually not made explicit at the time of purchase either in the store or online. People have valid reasons for using post office boxes, and I think they should not be penalized for having one.

Roger Aday, Grass Valley, California

MORE DO-IT-YOURSELF TIPS

IN JUNE'S "Never Call Tech Support Again!" the section "Has the PC gone silent?" might have suggested that read-

ers check whether Windows Audio service has been enabled (set to automatic).

Months ago, my Creative SoundBlaster Live card quit working. I tried everything in the book to fix the problem (including all the suggestions of Creative's support), but nothing worked. Finally I called Microsoft. My problem was cured when we turned Windows Audio service on. No one knows why it went off, but it did.

Robert E. McCalla, Memphis, Tennessee

HERE'S ANOTHER USEFUL (and low-tech) tip. Twice a year, disconnect the power cord from your computer and open the case. Vacuum out the dust bunnies (with a minivacuum), and make sure no dirt is blocking the case ventilation holes under the front panel. Use a clean, dry toothbrush to clean the dirt off the blades of the fans and the heat sink on the CPU. This will keep your PC from overheating and make the fan quieter.

Sue Kayton, Menlo Park, California

SLR FANS DEFEND FAVORITES

WHAT WAS Eric Butterfield smoking [Top 5 Digital Cameras, June]?

Ranking the Canon EOS 30D third in this lineup of digital SLRs and behind the Canon EOS Digital Rebel XT defies common sense—the 30D is a semiprofessional-to-professional camera.

We have an XT and a 30D; you rate both as having Superior image quality and the new Olympus EVolt E-500 with Very Good image quality—but which gets the top of the chart? The E-500!

You write: "The E-500 offers 15 scene modes; most digital SLRs we've tested have less than half as many"—for a good reason. SLRs are not for people who have no idea what an f-stop is; they should be reviewed under different criteria.

Luca Diana, Jackson, Wyoming ►



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LETTERS

TO COMPARE A Nikon D200 to any of the other cameras listed is like comparing apples to oranges.

None of the other four have the professional build and feature set that the Nikon D200 has (only the Canon 30D comes even close)—yet you placed the Nikon D200 at number five.

Brad Bledsoe, Hermiston, Oregon

A FREAKY GADGET

IN HIS JUNE *Gadget Freak*, Dan Tynan suggests items for a home theater system. He left out one important—albeit expensive—item.

At the CES show in Las Vegas early this year, the Guitammer company exhibited a low-frequency-effect device for home theaters. It is a very large electromagnet that slips under your furniture and connects to your subwoofer.

When the bass goes off, your furniture shakes—it's just like a ride at Disneyland. If the movie has earthquakes, bombs, or spaceships going by, you will really feel it. It makes even a bad movie good. You need never go out to a theater again.

Pat Rooney

Palm Springs, California

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

CORRECTIONS

IN THE JULY roundup, "All-in-One Security," we should have clarified that we tested a beta version of Microsoft's Windows Live OneCare.

In July's *Reviews and Rankings*, the review of the Toshiba Satellite P105-S921 notebook should have said that the model's speaker set does not include a subwoofer.

July's *Full Disclosure* should have noted that the 1080p video format means 1080 progressive lines of data every one-sixtieth of a second.

May's "More Reviews at PCWorld.com" should have said that Interactive GT IMSpellchecker XP offers a free trial but costs \$25 to keep.

PC World regrets the errors.

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CONSUMER WATCH

YARDENA ARAR

**WHEN TO MAKE
THE MOVE TO HDTV**

**ROOTKIT REVEALERS
REVIEWED**

**ZONEALARM CONFLICT: A
TALE OF TWO FIREWALLS**

HDTV: Is Now the Best Time to Buy?

Deciding when to move to high-definition TV involves more than just the set.

I'M GOING TO get an HDTV set. The beautiful, detailed images and the Dolby Digital audio have me hooked. I'm going to buy—just not right now.

I suspect others may feel the same. Why? It isn't merely a matter of budgeting for a set. If it were that simple, I'd probably have jumped in by now. Yes, prices are still going down, but we've all heard that argument before for all manner of tech gear. If you hold off for a lower price (or faster/better/cooler models), you'll probably wait forever.

Rather, I'm holding off purchasing because I don't want to lay out a significant sum of money for a set until I can have everything else I'd like to see in a home entertainment system. For instance, I want to be able to record the volume of high-def shows I currently record with my analog service and DVR.

That's only the beginning. Some people may be waiting for a resolution to the high-def optical disc format war between Blu-ray Disc and HD DVD, or for a greater variety of HD content to come on stream. The point is, if you buy an HDTV without considering the implications of transitioning from your existing analog gear, you may be in for a big letdown.

I WANT MY HD-DVR

HERE'S MY BOTTOM line: For several years now, I have pretty much abandoned live TV. I record the shows I want to see on a digital video recorder and later watch them at my convenience. To use the TV industry's patois, I'm a time-shifter.

But my ReplayTV (like most current DVRs) doesn't accept a digital signal, as it has only analog inputs. Now, that doesn't

mean I wouldn't be able to record shows from an HDTV—only that I would be recording at the same low-res quality I now get from my analog system.

But what's the point of spending a lot of money on an HDTV if you're never watching high-def programming?

CABLE OPTIONS

THIS PROBLEM MAY not be insurmountable. You can rent cable boxes containing built-in high-def digital video recorders from many cable operators, including the giants Comcast and Time-Warner. The monthly fee is typically \$10 to \$15 (on top of your other charges, of course), which isn't outrageous when you consider that you don't have additional electronic program guide fees (TiVo charges \$17 to \$20 per month for a DVR and its program guide, but that amount is for a standard-definition setup).

Note that the operator-provided boxes can be somewhat quirky, especially if you are accustomed to the polished reliability of an analog TiVo or ReplayTV.

For me, though, the deal-killer is that the hard-drive capacity of these digital boxes isn't yet up to the huge space requirements of high-definition programming: The devices can't store more than 10 to 15 hours of HD content. I'm used to having 30 to 40 hours of recorded TV to watch at any given moment.

If you want an earful about one of the most widely available cable box/HD DVR combos, check out PVRblog's review of



the Comcast Motorola 6412—and some six months' worth of telling user comments—at find.pcworld.com/53678. While it has one feature I've been longing for in a DVR (dual tuners, for watching one show while recording another), it gets a fair number of complaints, most notably about an unacceptable lag between initiating an action via remote and the unit's response. Of course, many people go to message boards when they have a beef, so the product may be better than such gripes might indicate.

THE SATELLITE STORY

YOU CAN GET an HD-recording TiVo by subscribing to a satellite service, though one satellite provider, DirecTV, will ►

soon transition to its own HD recorder. Alternatively, you can buy an HD DVR that isn't coupled with a cable or satellite service—but these devices are pricey, and they can record only over-the-air HD programming. I'm not ready to limit my choices in programming to what's available over the airwaves (I want to keep receiving my TNT and USA shows).

Bjorn Dybdahl, owner of the San Antonio consumer electronics store Bjorn's, ruefully acknowledges that HDTV recording technology is in many respects a work in progress: He has had the experience of finding all the shows he'd recorded on the hard drive of one of his cable provider's HD DVRs mysteriously erased.

"We're in this time frame where all these technologies are being dumped on the market and the hardware hasn't quite caught up," Dybdahl comments.

NEXT-GEN TIVO

BETTER CHOICES IN HD set-top gear are coming, but it isn't clear when: Consider that, at the Consumer Electronics Show in January, TiVo showed a prototype

next-generation set-top box with support for HD and for two-way CableCards.

A CableCard is basically a PC Card-like item that plugs into a slot in a TV or other device to decrypt digital cable signals; first-generation CableCards, which appeared last summer and are available from most cable services, don't support

If you watch a lot of specialty TV, you may be disappointed.

interactivity, while two-way cards will support interactive features such as electronic program guides—but there's no standard yet for two-way cards.

TiVo spokesperson Krista Wierzbicki says the company still plans to ship its Series3 box this year, but has no word on its features. She adds that the CES box was only a "technology demo."

Another reason you might want to hold off on an HDTV is because you won't receive enough programming that interests you. HDTV industry consultant Peter Putman advises carefully scrutinizing the HD content available in your area—via cable, satellite, or over the air—so that you know what you'll be able to get and how much you'll have to pay for it.

SHOW ME THE SHOWS

YOUR BEST BET is to check out TV listings on sites such as TV Guide (www.tvguide.com) and TitanTV (www.titantv.com). Both sites let you apply a filter to their listings so that you can view only the results for HDTV programs.

In general, if you favor shows on the major broadcast networks, PBS, sports channels like ESPN, and the few cable services (such as the Discovery Channel and HBO) that are available in HD, you should be happy. If you watch a lot of specialty programming, you may be disappointed. You'll still have to study your cable or satellite provider's site to determine which HDTV channels cost extra. ▶

PRIVACY WATCH

New Rootkit Detectors Help Protect You and Your PC



BY NOW YOU'VE heard about Windows rootkits—tools malware authors use to hide their evil creations from our antivirus or antispyware software. Because rootkits often hide dangerous viruses, Trojan horses, or spyware, detecting them is important.

Only a few rootkit-detection tools have received attention: the free RootkitRevealer from sysinternals.com, and F-Secure's BlackLight (find.pcworld.com/53994—freeware until September 1). But luckily for us, developers are working on a number of powerful, no-cost tools to detect rootkits.

One is IceSword, developed by a Chinese programmer who doesn't speak a word of English. Makers of rootkits consider it the toughest rootkit scanner. In fact, the creators of the Hacker Defender rootkit, one of the most widely used tools among the bad guys out there, made it their goal to defeat IceSword. So far, they've failed. Download an international version that has English dialog boxes and controls from find.pcworld.com/53710. (Note: IceSword comes compressed in the RAR format, so you may also need to download the WinRAR utility from rarlabs.com before you can use it.)

Another scanner that can find many of the most stubborn rootkits is GMER (www.gmer.net), a freeware tool from Poland that has been described as a combination of RootkitRevealer and another key Sysinternals utility, Process Explorer. The program can list running processes (*procesy* in Polish), modules (*moduly*), and Windows services (*uslugi*), in addition to scanning for the presence of rootkits (click the *Rootkit* tab and then click the button labeled *Szukaj* to start the scan).

Hook Explorer from iDefense (find.pcworld.com/53712) can tell you if a file has hidden itself behind legitimate programs, sometimes fooling firewall software. A file hooked into the Windows program winlogon.exe, for example, could record your keystrokes as you type your system password, and if you tried to kill the winlogon program, you'd crash your system.

On her site, invisiblethings.org, security researcher Joanna Rutkowska has built an impressive library of command-line scanning utilities—programs with no graphical interface that look for changes to files or folders made by rootkits.

Some of these tools may lack the spit and polish of BlackLight, but it's heartening to know that at least as much research is going into defeating rootkits as into creating them.

—Andrew Brandt



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The question marks about programming and the problems with some HD-related gear shouldn't necessarily discourage all would-be HDTV buyers—if they keep their expectations realistic.

Bjorn Dybdahl, who has observed many of HDTV's growing pains first hand, has absolutely no regrets about being an early adopter. For him, the HDTV experience is so compelling that he's willing to put up with the hassles, "and there are less of those today than there were a year ago, and the year before that." ■

Yardena Arar is a senior editor, Andrew Brandt is a contributing editor, and Amber Bouman is an editorial assistant for PC World. E-mail them at consumerwatch@pcworld.com, privacywatch@pcworld.com, or onyourside@pcworld.com. To read previously published Consumer Watch, Privacy Watch, or On Your Side columns, visit find.pcworld.com/31703, find.pcworld.com/31706, or find.pcworld.com/31709, respectively.

ON YOUR SIDE

When ZoneAlarm Apps Conflict

I BOUGHT ZONEALARM Pro to protect my computer. However, after I installed it, I found out it did not have an antivirus program. So I purchased ZoneAlarm Antivirus, but when I installed that program, it deleted ZoneAlarm Pro's protections against spyware, identity thieves, and pop-ups. Zone Labs' customer service department said the applications are incompatible. But shouldn't programs from the same company work together? Nowhere on either program's box does it say that they won't.

Charlie Dickson, Tonawanda, New York
On Your Side responds: When we contacted Zone Labs to determine what causes the incompatibility, the company told us that both ZoneAlarm Pro and

ZoneAlarm Antivirus include the company's TripleDefense Firewall. To prevent conflicts, many firewalls will disable themselves when another firewall is installed. However, Zone Labs says that its products do not disable each other, so a user running both should be protected, but that running any two firewalls at the same time is generally a bad idea as it can cause sluggishness and instability on a system.

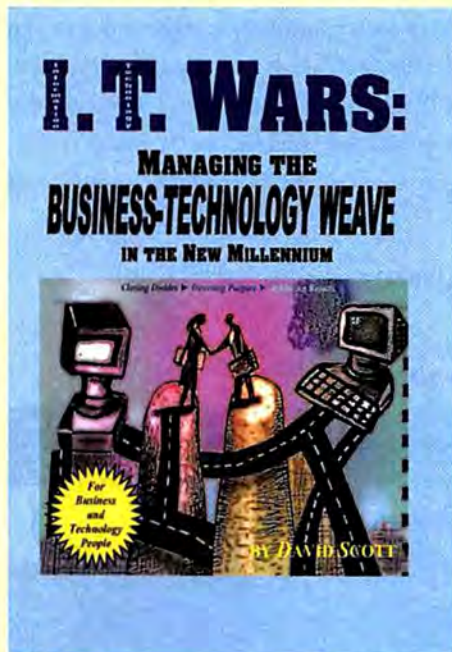
While Zone Labs doesn't currently warn customers of this problem, it says it is working to find a resolution, including revising the language on its product boxes. In the meantime, it has provided Dickson with a key to upgrade to its ZoneAlarm Internet Security Suite.

—Amber Bouman

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STEVE BASS

HASSLE-FREE PC

New Uses for Old Hard Drives

Avoid the frustration of burning DVDs, and save money on long-term storage.

CALL ME CHEAP, but I use old hard drives, no matter how small, as long as I can. This month I have two neat ways to give ancient drives new purpose.

The Hassle: I legitimately downloaded a few episodes of ABC's *Lost*. I want to watch them on a TV, so I tried to burn them onto a DVD. But first I couldn't figure out the correct format, and then an episode wouldn't fit on just one disc.

The Fix: You can string all of your ruined discs together and build a wind chime, because I have a nifty contraption that makes playing movies on a TV a hassle-free affair—and it has nothing to do with DVD burning.

My secret is the Galaxy TVisto Multimedia Center (find.pcworld.com/53246), an external drive enclosure that you attach to your PC via a USB 2.0 or FireWire connection. You then hook up the device to a TV to watch your movies.

Start by dragging and dropping the video that you want to watch, including uncompressed ISO files, onto the TVisto. (Your PC will see the TVisto as another drive.) Afterward, link the device to your TV, choosing from five standard connectors. The TVisto's built-in, menu-driven,



Linux-based software permits you to play back videos of various formats. I tried several kinds—MPEG-1, -2, and -4; DivX (which is based on MPEG-4); and AVI—and they all played. Though I was interested in using the device only for videos, the TVisto can play music (.wav, MP3, and other formats) and show images, too. The product costs about \$143, and it includes a remote control and cables.

The catch is that you need to supply and install your own hard drive. I used an old 60GB, IDE hard drive I raided from an unused PC. But, hey, hard-drive bar-

gains are everywhere. At press time, a Maxtor 80GB drive, adequate for around 20 videos, costs about \$50; a 250GB drive runs about \$80. (See find.pcworld.com/53248 for other prices.) Fortunately, installing the drive into the TVisto takes just a few minutes: You remove some screws, pop in the drive, connect the cable, and reinsert the screws. And when you're not watching videos, you can use the TVisto for backup storage.

The Hassle: I have some perfectly good hard drives I've removed from old PCs.

They're small (most are 40GB), but I hate wasting the drives. What can I do with them?

The Fix: I have a quick, cheap fix that will let you use the drives for long-term storage of photos and videos: an \$18 adapter that allows you to connect any IDE drive to your PC's USB port. The PCMS IDE to USB 2.0 Drive Adapter (find.pcworld.com/53492) consists of a USB cable that terminates with an IDE connector and a power supply. That's it—there's no enclosure, and you provide the 2.5-, 3.5-, or 5.25-inch drive. Attach the drive to the connector, turn on your computer, copy the files, and disconnect the drive once you've shut down the system. This is a great way to use old 20GB drives. Though I wouldn't waste a new SATA drive in this manner, you might need to; if so, the \$30 Young Micro USB 2.0 Adapter (find.pcworld.com/53494) can help. ■

TOOL OF THE MONTH

Adjust Audio With Your Mouse

VOLUMOUSE is a clever and handy freebie that makes your mouse the maestro of your PC's sound. With it you can use the mouse wheel, alone or in combination with keys, to lower or raise the volume, mute, and unmute. I've configured it to let me control the system's volume by spinning the mouse wheel when my pointer is hovering anywhere over the

buttons on the Taskbar. Muting takes just one wheel turn with the pointer on any program's menu bar. As a bonus, the tool can also change a window's transparency: If I want to read, say, a help menu while working in an application, I can alter the help window and see right through it. You can grab a copy at find.pcworld.com/53252.

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

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GADGET FREAK

DAN TYNAN

Dial-a-Deal: Finding Bargains By Phone

Can your cell phone save you from the tyranny of paying retail prices?

I'D FINALLY DECIDED to give in to gadget lust and buy a video iPod. But standing in front of that \$300 icon of self-indulgence in my favorite store, I couldn't pull the trigger. Surely there was a better deal somewhere. Then it hit me: I had a Web-enabled cell phone in my pocket; I could find a better deal right there, in aisle 17b near the dweeby sales clerk.

Actually, I had two cell phones: a Palm Treo 700w Smartphone equipped with Internet Explorer, and a Samsung phone running a WAP 2.0 browser. I also had a small list of mobile shopping engines to try out. Did I find great deals? Yes—along with some vanishing products, scary storefronts, and more hassles than were really necessary.

THE SORTED DETAILS

GOOGLE'S MOBILE SHOPPING tool (winl.froogle.com) exemplifies what's wrong with mobile search. A search for "iPod 30GB" returned hundreds of hits—for everything from auctions of iPod skins to \$600 accessory bundles—but Froogle would display results only five at a time, and sorting them was a pain. First I tried sorting from low price to high; 25 screens later I was still staring at \$9 iPod skins. Sorting from high price to low wasn't any better—I had to go through more than 30 screens before prices fell below \$299.

Sorting by "best-match" put me in the right ballpark, but the prices were all over the map. On my fourth screen, I found a model for \$250 at Shop.com, but that's all I found—there was no link to the site, and no way to buy the thing. Later, when I visited Shop.com from my desktop, that deal had disappeared. Most of Froogle's

other hits were from obscure shops and/or some of the scariest storefronts on the Net. No, thanks, I'd rather pay the retail price.

In my testing, I found Yahoo's beta search engine (shopping.yahoo.com) a bit better, but using the Treo to navigate past the ads and graphics was like trying to watch a movie through a keyhole. The Samsung phone, however, provided a simple text display of the first ten hits, all



more or less on target. But there was no way to sort results, and no discernible logic in how they were listed. I found a \$229 model from The Refurb Depot, but no way to get to the site. Unlike with Froogle, most of the Yahoo hits were from well-known sites (like Apple's), though I found a few odd ones in the mix (onlinecelebritywear.com, anyone?).

GRABBIER ALTERNATIVE

THE MOBILE SEARCH at PriceGrabber (www.atpgw.com) was easily superior to both Froogle's and Yahoo's, though it wasn't without flaws (full disclosure:

PriceGrabber powers PCWorld.com's Product Finder function). I got exactly four hits, sorted by product name, not price. Clicking one of the hits brought me to a list of stores sorted by price from low to high, where I found a tempting black model for \$249 from Tech For Less. Clicking that link brought me to Tech for Less's rating page, where I discovered it had an excellent reputation (4.6 out of 5) based on nearly 900 reviews.

Like Froogle and Yahoo, PriceGrabber doesn't provide links—the company says that's in the works—though unlike the others, it does list the shop's phone number. When I called, I discovered that the \$249 price was for a refurbished model—a detail that PriceGrabber had neglected to mention. And once you've reached the store page, there is no way to retrace your steps—you have to start the search all over again (a pain when you're using a cell phone keypad to tap out the URL). Nevertheless, I made a mental note to return to the store site if I couldn't find anything better elsewhere.

On a whim, I decided to check Overstock.com's mobile search site (mobile.overstock.com). Yes, there was a video iPod (for \$260); and yes, I could buy it online from my phone—a fairly easy process, since I already have an account at that site. However, this model, too, was refurbished. So that settled it: I'd take my chances with Tech for Less.

Bottom line? Mobile search sites leave much to be desired, but good deals can be had—if you shop carefully. ■

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

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BUGS & FIXES

STUART J. JOHNSTON

Flash and QuickTime Media Danger

Plus: Windows Genuine Advantage notifications, Word attachment risk.

MEDIA PLAYERS ARE a necessary part of today's digital entertainment world, but they also give crooks another entry-way into your system. Cases in point: critical holes found in Adobe's Macromedia Flash Player and in Apple's QuickTime media player. A successful exploit of either bug could enable crackers to hit you with a drive-by malware download that you wouldn't soon be able to forget.

Bugged versions of Flash Player 4, 5, and 6 accompanied virtually every copy of Windows, from Windows 98 first edition on up through Windows XP SP2 (see find.pcworld.com/53832). The only exceptions are Windows 2000, Windows XP Pro x64, and Windows Server 2003. According to Adobe (find.pcworld.com/53834), all versions prior to 8.0.22 are at risk.

Because of this vulnerability, if you simply view a poisoned Web site or e-mail message containing a doctored flash movie (.swf) file,



Bugged Flash Players came with most Windows versions.

the player will crash due to a buffer overflow, and the corrupted file can run any command its perpetrator wants it to: download spyware, erase files, or what have you.

No attacks had been reported at press time, but don't take any chances. Update the

Microsoft-redistributed versions via Automatic Updates, or get version 8.0.24 from Adobe at find.pcworld.com/53836 if you've already upgraded from older versions.

QUICKTIME HOLES

MEANWHILE, APPLE HAS patched 12 critical holes in its own player with QuickTime 7.1 (for Windows and Mac OS). As with the Flash bugs, these vulnerabilities could cost you control of your PC if you view a poisoned media file in QuickTime, but in this case, a range of movie and image file types may be used, including JPEG, BMP, AVI, MPG and QuickTime movies. You can obtain more information and the patched version at find.pcworld.com/53962.

BEWARE WORD DOCS

CROOKS HAVE TARGETED a serious new hole in Microsoft Word, sending corrupted .doc files in e-mail attachments to invade vulnerable PCs. Some of the e-mail messages have subject lines like "Notice" and "RE Plan for final agreement." By the time you read this, Microsoft should have patched the vulnerability in Word XP and Word 2003; the patch should be available via Automatic Updates in June. So far, the number of known attacks is small; but as always, be extra careful with e-mail

IN BRIEF

Mozilla Patches

MOZILLA HAS upgraded its Firefox browser and Thunderbird e-mail program to version 1.5.0.4 to close security holes, some of which could enable an attacker to take control of your PC.

So be sure to say yes when either application prompts you to upgrade via its new (as of version 1.5) automatic update feature. Read more on the patched vulnerabilities at find.pcworld.com/53964.

HP Camera Recall

HEWLETT-PACKARD is recalling 679,000 HP Photosmart R707 cameras worldwide. A firmware screwup that tries to charge nonrechargeable batteries creates a fire hazard. Download the fix at find.pcworld.com/53990.

attachments, even if they purport to be from someone you know. Read more on the bug at find.pcworld.com/53838. ■

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

BUGGED?

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WGA NOTIFICATIONS QUIETLY INSTALLED

EVERY TIME YOU GO to Microsoft Update, Microsoft's Windows Genuine Advantage program checks whether your copy of Windows XP is pirated. Now, Microsoft has begun quietly distributing a WGA Notifications program to some users via Automatic Updates.

The problem is, the automated process sometimes gets it wrong, repeatedly sending you a pop-up alert claiming that your legitimate Windows copy is bogus.

For now, Microsoft says, users will have the option of not installing the notifier when it pops up a license agreement for them to accept. At some point it will become mandatory, though. And once installed, the program can't be removed.

Microsoft has a community site to help users who are having problems with WGA at find.pcworld.com/53840.

REVIEWS & RANKINGS

EDITED BY MELISSA J. PERENSON AND ERIC BUTTERFIELD

- 51 KASPERSKY INTERNET SECURITY 6.0
- 54 PALM TREO 700P
- 56 KODAK EASYSHARE V610
- 56 I-O DATA BRD-UM2/U BLU-RAY DISC DRIVE
- 60 SONDIGO SIROCCO WIRELESS AUDIO BRIDGE
- 60 SAMSUNG T509 CELL PHONE
- 64 SAGETV MEDIA CENTER 5.0, SNAPSTREAM MEDIA BEYOND TV 4.2

High-Quality Video on a Budget

MiniDV camcorders deliver features for novices and serious videographers—for as little as \$400.

DIGITAL VIDEO

TEST Center

CAMCORDERS THAT record to mini-DVD discs have become increasingly popular with consumers, because you can pop their discs directly into a DVD player and watch the video you just shot. But camcorders that record to MiniDV tape continue to be less expensive than the mini-DVD models, plus they offer one big advantage: easier video editing.

If you plan to edit your video footage and add a sound track, a MiniDV camcorder is your natural choice (getting footage off of a mini-DVD disc for editing on your PC is a more cumbersome chore).

In addition, prices for low-end MiniDV camcorders have been falling—the least expensive one we tested costs \$380, and other models cost less



than \$300. Some of the newer low-cost camcorders are incorporating sophisticated features usually found on higher-end units, such as multiple CCD sensors (one each for red, green, and blue) and optical image stabilization, which is more effective than electronic image stabilization at preventing blurry images.

Three of the models we tested, though not inexpensive, have three sensors, including our Best Buy, the \$1000 Panasonic PV-GS500. The \$700 Panasonic PV-GS300 and the \$1300 JVC GR-X5US also have a trio of CCDs. These models all earned higher scores for video quality than camcorders with one CCD.

We tested seven MiniDV

camcorders in conjunction with *Macworld*, our sister publication. We evaluated the quality of video captured in both normal and low-light situations, critiqued audio quality, and compared the camcorders' still images.

The Panasonic PV-GS500 earned our Best Buy because it provides the most controls, took the nicest-looking video and still shots, and is moderately priced considering all that it offers. Bargain hunters would do well with either the Canon Elura 100 or the Sony DCR-HC36: Both mod-

THE PANASONIC PV-GS500, Panasonic PV-GS300, and JVC GR-X5US each have three CCD sensors—contributing to their very high video quality.

els cost just \$400, and they come with enough features to keep most users satisfied.

PANASONIC PV-GS500

THE PV-GS500 EARNED top marks for its video quality in both normal and low-light conditions, displaying bright, accurate color and plenty of fine detail. It can capture video in 16:9 wide-screen mode; its wide-mode video looked as impressive as video shot in standard mode (which

- 66 DELL 2400MP, INFOCUS WORK BIG IN26
- 67 APPLE MACBOOK
- 67 ALPINE ELECTRONICS BLACKBIRD PMD-B100
- 68 MICROSOFT WINDOWS MEDIA PLAYER 11
- 68 GOOGLE MINI SEARCH APPLIANCE
- 70 HP COMPAQ TC4400 TABLET PC
- 72 PIONEER INNO AUDIO PLAYER

- 52 TOP 5 20-INCH LCDs
- 58 TOP 5 BACKUP UTILITIES
- 62 TOP 10 NOTEBOOK PCs
- 65 TOP 10 HARD DRIVES



68



56

is the mode we evaluate in our lab tests). The excellent 2.7-inch wide-aspect LCD screen makes it especially easy to see the footage you're shooting, because it doesn't letterbox your video by placing a black band above and below the picture.

The PV-GS500 feels very solidly constructed, with a tough metal frame—and at

just over 3 pounds it is the heaviest model we tested. Commonly used controls (such as the zoom and record buttons) are located where most people's fingertips will fall comfortably, though the joystick that controls the on-screen menu is awkward to reach with your thumb.

The PV-GS500 offers a fully manual mode, shutter- and

aperture-priority modes, and various scene modes. Best of all, this camcorder's manual focus employs a focus ring instead of requiring you to manipulate on-screen controls, making this feature much easier to use. Plus, you get optical image stabilization: An element in the lens moves to compensate for small camera movements.

It has no built-in light, but the LCD can double as a spotlight, which is fairly effective. The flash on the camera's front is for still images only.

PANASONIC PV-GS300

THE \$700 PANASONIC PV-GS300 is the least-expensive three-CCD camcorder we tested. Its video quality is impressive, and it offers a lot of features. Like its pricier cousin, the PV-GS500, it has optical image stabilization.

The GS300 captured video with bright, accurate colors and good detail. It outperformed all other camcorders except the two pricier three-CCD models, the PV-GS500 and the JVC GR-X5US. The GS300's low-light video did look a little pale, and some objects in our test video lacked the vivid color they showed under normal light. But the PV-GS300 shot 3.1-megapixel still images that showed impressive color and fine detail. The PV-GS300 lacks a focus ring and some of the PV-GS500's manual controls.

SONY DCR-HC36

AT \$400, SONY'S DCR-HC36 MiniDV Handycam is very affordable, but it produced ▶

	MINIDV CAMCORDER	PCW Rating	Performance	Features and specifications
1	Panasonic PV-GS500 Best BUY \$1000 find.pcworld.com/53786	84 Very Good	<ul style="list-style-type: none"> Video/still-image quality: Superior/Superior Overall design: Good Battery life: Superior (132 minutes) 	<ul style="list-style-type: none"> 12X optical zoom 2.7-inch wide-aspect LCD screen 4.0-megapixel still-image capture 51 ounces
▶ Bottom line: This unit has many controls, three CCD sensors, and optical image stabilization. It earned the highest video quality score.				
2	Panasonic PV-GS300 \$700 find.pcworld.com/53788	82 Very Good	<ul style="list-style-type: none"> Video/still-image quality: Superior/Good Overall design: Good Battery life: Very Good (117 minutes) 	<ul style="list-style-type: none"> 10X optical zoom 2.7-inch wide-aspect LCD screen 3.1-megapixel still-image capture 48 ounces
▶ Bottom line: This model has three CCDs and optical image stabilization, but lacks a focus ring and some of the PV-GS500's controls.				
3	Sony DCR-HC36 MiniDV Handycam \$400 find.pcworld.com/53790	75 Good	<ul style="list-style-type: none"> Video/still-image quality: Good/Poor Overall design: Good Battery life: Good (100 minutes) 	<ul style="list-style-type: none"> 20X optical zoom 2.5-inch LCD screen 0.7-megapixel still-image capture 15 ounces
▶ Bottom line: Light and easy to use, the DCR-HC36 offers a touch-screen LCD, but 16:9 wide-aspect video is letterboxed on screen.				
4	Canon Elura 100 \$400 find.pcworld.com/53792	75 Good	<ul style="list-style-type: none"> Video/still-image quality: Good/Fair Overall design: Good Battery life: Superior (148 minutes) 	<ul style="list-style-type: none"> 20X optical zoom 2.7-inch wide-aspect LCD screen 1.0-megapixel still-image capture 13 ounces
▶ Bottom line: Small unit offers long battery life and full 16:9 wide-screen video on the LCD, but lacks manual focus and S-Video output.				
5	JVC GR-X5US \$1300 find.pcworld.com/53794	74 Good	<ul style="list-style-type: none"> Video/still-image quality: Very Good/Superior Overall design: Good Battery life: Poor (49 minutes) 	<ul style="list-style-type: none"> 10X optical zoom 2.5-inch LCD screen 5.0-megapixel still-image capture 18 ounces
▶ Bottom line: LCD placement on the back gives a wide viewing angle, but there's no viewfinder. Has three 0.22-inch CCDs.				

CHART NOTE: Prices and ratings are as of 5/2/06. For information about how we test camcorders, visit find.pcworld.com/53160.

some of the lowest-quality video in our tests, showing pale colors and a decidedly fuzzy, grainy look. These problems show up even under good lighting conditions and are much more exaggerated in low light, which may pose a difficulty for anyone shooting video indoors.

The DCR-HC36 is easy to use and fits comfortably in the hand, with the zoom control falling under the index finger. It seems designed for point-and-shoot camera users, offering an Easy Mode button that automates most settings. Most controls are located in an on-screen menu, which you access through the touch screen. Many of those options are buried deep within menus, however, and reaching them requires several taps of the screen.

The 2.5-inch LCD display is clear and bright, but if you shoot video in 16:9 mode, two black bars letterbox the top and bottom of the screen. The 20X zoom lens is powerful, and the electronic image stabilization does a reasonably good job of reducing the effects of camera shake, though it's not as effective as the optical image stabilization of the two Panasonic models.

The DCR-HC36 shoots still images at just 640 by 480 resolution, but the images look so grainy that, frankly, they aren't worth bothering with.

CANON ELURA 100

THE \$400 ELURA 100 is one of the smallest camcorders available, at 2.2 by 3.0 by 4.3 inches (and 13 ounces). Its controls are in the right spots

for easy shooting. The 20X zoom is longer than on most camcorders, and the digital zoom goes up to 800X; but as with all camcorders, the image quality at that extreme magnification is so poor, it's unusable. You access most controls via an on-screen menu, but some features, such as wide-screen mode, have dedicated buttons.

The 2.7-inch LCD screen is clear and bright, and, like the LCD on the more expensive Panasonic camcorders, it's a

the top of the case recorded good-quality sound, they also picked up the motor's noise, which was audible in the quieter parts of recordings.

JVC GR-X5US

THE \$1300 JVC GR-X5US has a boxy but lightweight case—it weighs a mere 1.1 pounds. The swiveling LCD screen resides on the back of the unit, which enables it to provide a wider viewing angle than the side-mounted LCDs commonly found on camcord-

after a paltry 49 minutes—not even enough shooting time to fill up a MiniDV tape.

OFF THE CHART

TWO MODELS DIDN'T make our chart: The Canon Optura 600 and the JVC GR-D396.

Canon's \$1100 Optura 600 is very portable, easy to use, and has a good selection of buttons; however, its high price kept it off the chart. It can shoot video in 16:9 wide-screen mode and also has a wide-screen CCD sensor, but the video is letterboxed. Its 0.36-inch image sensor is bigger than those in some cheaper camcorders, but we saw no boost in video quality over models with a smaller sensor. (See find.pcworld.com/53796.)

Despite being the least-expensive camcorder we tested, the \$380 JVC GR-D396 also missed the chart. It earned only a Fair for its video in our tests and a Poor for its still images, and it lacks advanced controls. Though the 32X lens is the longest optical zoom of the tested camcorders, it's something of a waste: At longer zoom settings, the edges of images became rather fuzzy and indistinct; and because the electronic image stabilization doesn't seem to be very effective, the smallest camera movement can lead to jittery, unattractive video. (See find.pcworld.com/53798.)

Bargain hunters and videographers in need of a lightweight camcorder would do well with the Canon Elura 100 or Sony DCR-HC36: Both cost just \$400 and offer enough features for most users.

—Richard Baguley



THE SONY DCR-HC36 and the Canon Elura 100 cost an affordable \$400 each and offer powerful 20X optical zooms.

true wide-screen display: When you're shooting in 16:9 wide-screen mode, video fills the entire screen. The Elura 100's ability to shoot true wide-aspect-ratio video is unusual for a budget camcorder. Many other camcorders letterbox their video, but the Elura 100's CCD is a true wide-screen sensor, which delivers higher resolution.

Though video showed good detail, it lacked the vivid colors we saw from more expensive models, especially in low-light conditions. Also, though the stereo microphones on

ers. This pricey model lacks a viewfinder, however.

The GR-X5US captured very high quality video in our tests, with strong, bright colors and plenty of detail. The camcorder's three-CCD design no doubt helped its performance. Also, the GR-X5US took quite attractive still images at 5-megapixel resolution, the highest offered by the camcorders we tested.

The GR-X5US has no video assist light but it's the only model with a headphone jack.

Unfortunately, in our tests the standard battery ran out

Lenovo recommends Windows® XP Professional



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Travel Weight 3.15 lbs⁵

512MB⁶ memory, 60GB Hard Drive⁷

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Option

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ThinkPad help at your fingertips

system features

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Intel® Core™ Duo Processor 2300E
Intel® Pro/Wireless 2915ABG

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Titanium Silver Cover

512MB memory DDR2, 80GB Hard Drive

Integrated Fingerprint Reader, DVD+/-RW

TopSeller Model

\$1,349 PN 945035U

Option

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\$179 PN 40Y6797

Z60m – 2529E6U – 3 yr onsite & 3 yr
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system features

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Intel® Pro/Wireless 3495ABG

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14.1" XGA Display (1024x768)

512MB memory, 60GB Hard Drive

CD-RW/DVD Drive

Travel Weight 4.65 lbs and only 1" thin¹

TopSeller Model

\$1,349 PN 1953D6U

Option

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from Lenovo

\$40 PN 73P2582

ThinkPad T60

distinctive innovations

Integrated Fingerprint Reader

system features

Intel® Centrino® Duo Mobile Technology
Intel® Core™ Duo Processor T2400
Intel® Pro/Wireless 3495ABG

Genuine Windows® XP Professional

15" XGA Display (1024x768)

512MB memory, 80GB Hard Drive

CD-RW/DVD Drive, ATI x1300 64MB Graphics

Travel Weight 5.3 lbs and only 1" thin

TopSeller Model

\$1,599 PN 2623DAU

Option

ThinkPad Advanced Mini Dock

\$219 PN 250410U

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One-button recovery and restore solution

system features

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256MB memory

40GB Hard Drive, CD-ROM

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TopSeller Model

\$479 PN 8288A2U

Option

L171 ThinkVision® Flat Panel Monitor

\$229 with
system purchase

\$249 PN 9417AC1
Regular Price

ThinkCentre A52 Tower

distinctive innovations

Rescue and Recovery™ –
One-button recovery and restore solution

system features

Intel® Pentium® 4 Processor 521 (2.80 GHz)

Genuine Windows® XP Professional

512MB memory

80GB Hard Drive, CD-RW/DVD Drive

6 USB 2.0 Ports (2 Frontside)

TopSeller Model

\$649 PN 8288A1U

Option

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Desktop Color Inkjet Printer

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Kaspersky's Best-of-Breed Security Suite

SECURITY

WHEN IT COMES to detecting any kind of malware, **Kaspersky Internet Security 6.0**—a suite of antivirus, antispyware, firewall, antispam, and Web protection tools—is top-shelf. But at \$80 it is expensive, and its unique interface may be initially confusing.

The prerelease build we looked at (a shipping version is now available) scored 100 percent in nearly all of the malware detection tests conducted for us by German security research company AV-Test.org, with which *PC World* regularly partners to evaluate security products.

Kaspersky's suite caught all boot, file, macro, and script malware on a subset of the January 2006 WildList, a public list of widespread threats. It also found AV-Test's entire collection of back doors, bots,

and Trojan horses. When deprived of signature updates from January 2006 and later, the suite nabbed 76 percent of malware, which suggests that it is very good at detecting undiscovered threats.

The suite spotted nearly 100 percent of AV-Test's samples of adware, missing only 2 out of 713 files. It also detected all malware samples packed within file archives (such as .zip). It detected an excellent 83 percent of the malware hidden within compressed program files—bad news for malware writers looking to stuff old worms into new packaging. The firewall was solid as well, blocking all attacks from inside and outside our test PC.

The app was good—but not as good as other products—at disinfecting ten worms already active on our test com-



KASPERSKY INTERNET SECURITY'S naming and organizing conventions are unique and can take some getting used to.

puter. Though the package cleaned up worm files, it left remnants of Hosts-file and Registry changes made by six worms. In addition, Kaspersky's suite incorrectly flagged as malware 8 out of 20,000 clean files; this false-positive rate, though low, suggests that you can't blindly trust its recommendation for action.

During our timed tests the suite proved relatively slow at performing the first system scan, but it should get faster with each subsequent scan, as it caches data from previous passes. However, the package also caused two of our World-Bench 5 application tests to take 15 percent more time, so you will likely notice a drag on system performance.

Another drawback: Rather than using the standard antivirus, antispyware, and firewall naming conventions common to other security software products, Kaspersky has its own detailed naming scheme. For example, it breaks down antivirus settings into File Anti-Virus, Mail Anti-Virus, and Web

Anti-Virus; firewall settings are labeled Anti-Hacker. This made finding certain common settings more difficult.

The application also leaves out a few tools that come standard on competing products from vendors like McAfee and Symantec, such as parental controls and support for individual instant-messaging clients. It does, however, provide important security features such as rootkit detection and protection against downloading dangerous scripts while Web surfing.

Kaspersky's Internet Security suite is powerful. If PC security is your primary concern, you will be able to rest easy with this product.

—Narasu Rebbapragada

Kaspersky Internet Security 6.0

Kaspersky Labs

PCW Rating **86 Very Good**

This expensive suite is excellent at detecting all kinds of malware, but it lacks some extras.

Street: \$80 retail, \$70 download; \$60 second-year subscription
find.pcworld.com/53744

ASK OUR EXPERTS

DVD Burner Life Span?

MY DVD WRITER drive has worked hard and perfectly in its 20-month lifetime. But now it generates discs with errors. At what point does a drive become unreliable?

Antonio Brunacci, via e-mail



Senior Associate Editor Melissa J. Perenson responds: Optical drive vendors tell me that the expected point of failure for a DVD±RW burner is about 50,000 to 75,000 hours of operation—whether the PC is active, or simply drawing power in standby mode. Although a drive failure can occur after just a few months of vigorous use, the best drives can last five years or even more. Heat is your drive's greatest enemy; you can avoid premature failure by ensuring your PC has good internal air circulation.

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

TOP 5 MONITORS

Great Performers: 20-Inch Wide-Screen LCDs

TEST CENTER THE PC WORLD Test Center evaluated 20-inch wide-screen LCD monitors for the first time this month. These roomy displays support everything from clear, sharp text quality to enjoyable TV watching. We analyzed Acer's AL2051W and Ferrari F-20 models, Asus's PW201, Dell's UltraSharp 2007WFP, NEC's MultiSync 20WMGX2, Philips's 200WB7, Sony's MFM-HT205, and ViewSonic's VX2025wm.

On the glossy screen of the NEC MultiSync 20WMGX2, text looked crisp, colors appeared delectably saturated, and photos were nicely detailed. Not just a monitor, this NEC houses an NTSC (analog) TV tuner and composite, component, and S-Video in-

puts. The TV image quality doesn't live up to that of a full-fledged TV, but it's fine for the news. The included TV remote control is a convenient touch.

The \$539 Asus PW201 has the same inputs (but no TV tuner), plus a built-in, vertically swiveling Webcam. It's one of the few wide screens we tested that offers not only tilt adjustment but posture-saving height adjustment, landscape-to-portrait pivot, and swivel as well.

Our image-quality champ, the \$470 Acer Ferrari F-20, is a looker in both design and picture quality. There's no denying that the F-20's shiny



NEC'S MULTISYNC 20WMGX2 makes an excellent desktop monitor and a decent second TV.

black-and-red cabinet and stand look fantastic. Unfortunately, the F-20 provides a DVI connection only through a separate box that mounts on the rear of the unit. Still, like an exotic sports car, this Acer

model offers great performance (albeit with a few quirks).

The \$469 Philips 200WB7 focuses on productivity aids, such as all four physical adjustments. Many office workers won't need to use the included screen adjustment software, as

the 200WB7 received the highest score on our real-world Microsoft Word test.

Dell's \$488 UltraSharp 2007WFP comes with the full range of physical adjustments, plus composite and S-Video inputs. At default settings, the 2007WFP proved a letdown for photos: Detail eluded the dark areas, and skin tones appeared orange. Choosing the correct image mode for the content type made a huge improvement.

Of those that missed the chart, Acer's \$409 AL2051W slipped due to a dearth of features and support hours. ViewSonic's \$380 VX2025wm is very easy to use, and Sony's \$855 MFM-HT205 offers the same range of inputs and TV features as the NEC does (plus a comfortably curved remote); the generally good image quality of these two didn't suffice in this competitive arena.

—Laura Blackwell

ONLINE

FOR MORE INFORMATION about the 20-inch LCD monitors reviewed in this chart, including details on how we tested them, go to find.pcworld.com/53730.

	20-INCH WIDE-SCREEN LCD	PCW Rating	Performance	Features and specifications
1	NEC MultiSync 20WMGX2 Best BUY \$699 NEW find.pcworld.com/53638	82 Very Good	<ul style="list-style-type: none"> Graphics quality: 84.0 Very Good Text quality: 78.6 Good DVD motion quality: Average 	<ul style="list-style-type: none"> Inputs: analog and digital Adjustments: tilt and swivel 6ms response time Response type: gray-to-gray
▶ Bottom line: This handsome unit straddles the monitor/TV line with fine still-image quality and several TV functions; includes a remote.				
2	Asus PW201 \$539 NEW find.pcworld.com/53632	81 Very Good	<ul style="list-style-type: none"> Graphics quality: 79.2 Good Text quality: 79.0 Good DVD motion quality: Average 	<ul style="list-style-type: none"> Inputs: analog and digital Adjustments: multiple 8ms response time Response type: gray-to-gray
▶ Bottom line: Good image quality, entertainment extras, and a full menu of physical adjustments come together at a moderate price.				
3	Philips 200WB7 \$469 NEW find.pcworld.com/53640	76 Good	<ul style="list-style-type: none"> Graphics quality: 68.1 Fair Text quality: 75.0 Good DVD motion quality: Average 	<ul style="list-style-type: none"> Inputs: analog and digital Adjustments: multiple 8ms response time Response type: rise-and-fall
▶ Bottom line: A full range of physical adjustments is unusual at this price, and a little tweaking makes the display quality pretty good.				
4	Acer Ferrari F-20 \$470 NEW find.pcworld.com/53628	76 Good	<ul style="list-style-type: none"> Graphics quality: 83.2 Very Good Text quality: 80.7 Very Good DVD motion quality: Average 	<ul style="list-style-type: none"> Inputs: analog and digital Adjustments: tilt 8ms response time Response type: gray-to-gray
▶ Bottom line: Gorgeous design and excellent image quality set this designer model apart; its dearth of features is its greatest handicap.				
5	Dell UltraSharp 2007WFP \$488 NEW find.pcworld.com/53636	76 Good	<ul style="list-style-type: none"> Graphics quality: 65.0 Fair Text quality: 67.2 Fair DVD motion quality: Average 	<ul style="list-style-type: none"> Inputs: analog and digital Adjustments: multiple 16ms response time Response type: gray-to-gray
▶ Bottom line: Image quality disappoints at defaults, but selecting the right screen mode makes a great difference.				

CHART NOTE: Ratings are as of 6/2/06.

STORAGE REVOLUTION

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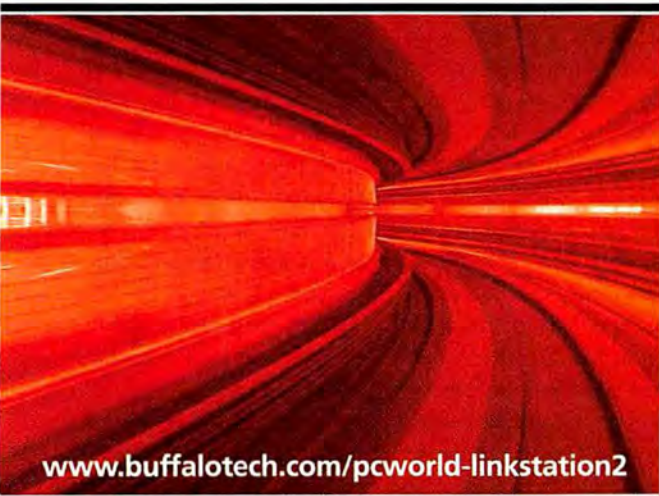
Shared Network Storage
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* LinkStation II is up to 5x Faster than Buffalo LinkStation and other competing products, based on Buffalo Technology internal testing. For maximum data speeds, Gigabit networking must be used (JumboFrame recommended). Maximum speed is also based on network activity and protocols.

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Go to find.pcworld.com/53384

Palm's Smarter, Faster Treo 700p Smart Phone

PDA / PHONE

TEST Center PALM TREO LOVERS rejoice: The new **Treo 700p** is here. The \$500 unit features a largely improved design, a faster processor, more memory, and a speedy network connection. It's a pricey but worthwhile investment for people serious about on-the-go productivity.

Following in the footsteps of Palm's Windows Mobile-based 700w (find.pcworld.com/53782), the 700p builds on that unit's advancements—including support for high-speed EvDO networks—while retaining the Palm operating system. Both Sprint and Verizon Wireless offer the new device; I tested a shipping version of Sprint's dual-band CDMA 2000 handset.

The Treo 700p's physical

setup is virtually the same as that of the 700w, providing squared-off keys that improve typing; a roomier, easier-to-press five-way navigational button; and six larger, more clearly positioned navigational buttons—including more prominent buttons for power (red) and send (green).

HARDWARE UPDATES

I DON'T LOVE all the changes. For example, the new send button functions like that of any cell phone—press it when you've dialed a number, and it initiates the call. A critical function, yes, but the Treo 650 handled it with the phone button, which now wastefully exists solely to take you to the phone application. As a result the 700p loses the centrally located menu button and the

second shift button; worse, the home button is now located too far to the right.

Such layout tweaks aside, the biggest changes in the Treo 700p are also its most welcome ones: a faster processor (Intel's 312-Hz XScale) and more on-board memory (like the 700w, it has 128MB total memory, 60MB available to the user). In handling, I found the 700p dramatically faster than my Treo 650, at everything from loading and viewing media to scrolling through files on a 1GB SD Card to switching among applications. You get rapid results when you use the 700p for Internet access, too. Its EvDO connectivity makes browsing sites (using the integrated Blazer Web browser) a pleasure—no more drumming your fingers while you wait for a page to load.

Battery life is less impressive. In our tests of talk-time battery life, it lasted 4 hours, 59 minutes. That's 33 minutes less than the Treo 650 (also Palm OS–based), and 28 minutes less than the 700w—and both of those models' battery-life scores were already among the lowest for PDA/phones we've recently tested.

Sprint and Palm have packed the Treo 700p with a slew of software. For starters, you get the very visual On Demand software, which delivers localized weather information, TV listings, maps, news updates, sports, and phone directories. Also included: My Treo, which helps you make the most of the device and includes a full user guide; the standard version of Pocket Tunes, which



WITH THE 700P, Palm has refined the Treo 650 design.

replaces the RealPlayer software offered on the Treo 650; Dataviz's Documents to Go 8, for reading and creating Microsoft Office files and PDFs; and Sprint TV, an interface for purchasing streaming media content.

Despite the 700p's poor battery life—and its few design missteps—I found a lot to like. The unit's speed improvements alone are enough to make this dedicated Treo 650 user consider an upgrade.

—Melissa J. Perenson

Treo 700p

Palm

PCW Rating **81** Very Good

Blazing performance and EvDO support make this Treo model a winner, but its shorter battery life is less than impressive.

Street: \$500 (with a two-year contract from Sprint)

find.pcworld.com/53784

GOTCHA!

Future PC Vista Ready?

IF YOU WANT to know whether the PC you're thinking about buying can handle Microsoft's upcoming Vista operating system, you'll first have to figure out the company's byzantine logo-program structure (see find.pcworld.com/53752).

Microsoft has two different levels of Vista-readiness, each carrying its own logo: Windows Vista Capable and Windows Vista Premium Ready.

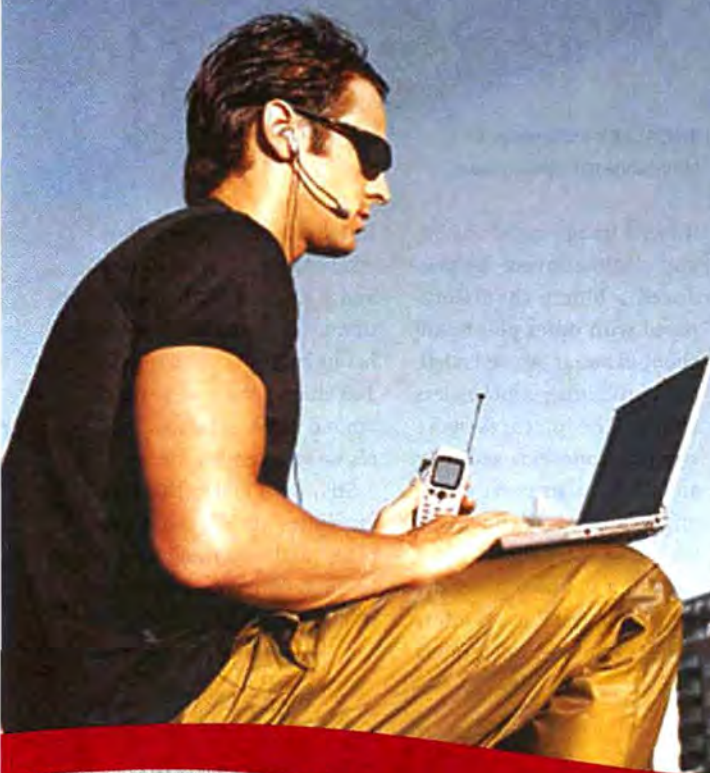
Vista Capable PCs need an 800-MHz (or faster) CPU, 512MB of RAM, a DirectX 9-capable graphics processor, and 15GB of free hard-drive space just to run the OS and its "core" features.

Windows Vista Premium Ready

machines will display the new interface and require a 1-GHz CPU, 1GB of RAM, and a DirectX 9-capable GPU that supports WDDM (Windows Display Driver Module), in-hardware Pixel Shader 2.0, and 32 bits per pixel. —Yardena Arar



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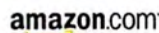


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Kodak's Slim Camera Has Double Vision

DIGITAL CAMERA

TEST WITH A long-range 10X optical zoom, Kodak's **EasyShare V610** can bring the farthest subjects into full, detailed view. Unfortunately, this \$450 dual-lens camera also has a propensity for blurred photos at its highest zoom levels, plus disappointingly short battery life.

EasyShare V610

Kodak

PCW Rating **74 Good**

Long-range zoom and a few helpful camera tricks make it enjoyable to use, but its short battery life will dampen the fun.

List: \$450

find.pcworld.com/53746

The 6.1-megapixel V610 is Kodak's second camera to sport two built-in lenses. The V610 has a 126mm-to-380mm (35mm equivalent) telephoto zoom lens that sits atop a 38mm-to-114mm standard zoom lens. When you're closing in on a subject, the V610's standard zoom handles up to 3X magnification; to go beyond that level, the telephoto lens kicks into action.

My outdoor shots usually came out sharp enough, but I got mixed results when shooting in indoor, low-light settings. It sometimes took clear, colorful photos at maximum zoom, but occasionally had trouble focusing. And because



THE SLEEK V610 offers a long-range 10X optical zoom.

it lacks image stabilization, any slight movement produced a blurry shot. Compared with other point-and-shoot cameras we've tested, the V610's images looked less sharp. The pictures were slightly underexposed, too, and white balance was a little off; we noticed a slight greenish cast in some shots.

On the features side, the V610 impressed us. It offers wireless photo transfers via

Bluetooth; in-camera photo stitching for panoramic shots; and a 2.8-inch LCD. The bad news: The V610 fared poorly in our battery test, lasting just 148 shots—the lowest result among point-and-shoot models we've recently tested.

Still, what makes this camera shine—its 10X zoom, ease of use, and sleek design—may be enough to compensate for its shortcomings.

—Grace Aquino

USB-Based Blu-ray Burner Is Good but Pricey

OPTICAL DRIVE

TEST THE TRICKLE OF Blu-ray Disc devices continues with I-O Data's \$999 **BRD-UM2/U**, the second PC Blu-ray burner to be put through its paces in the PC World Test Center. With its well-rounded specs and solid software bundle, this external USB 2.0 drive is a fine choice for early-adopter consumers and professionals alike.

Unlike the first Blu-ray Disc PC recorder that we evaluated, the Pioneer BDR-101A (find.pcworld.com/53754), this model supports the full gamut of optical CD, DVD, and Blu-ray Disc recording. Its specs do

match those of the Pioneer model in some respects: 2X BD-R (write-once) and BD-RE (rewritable) write speed, 2X BD-R/RE read speed, and up to 8X write speed on single-layer DVD-R and +R.

Not surprisingly, the I-O Data drive's performance is strikingly similar to that of the Pioneer. It took 44 minutes, 27 seconds to master

INSIDE THE ELEGANT case lies a powerful Blu-ray Disc burner.



22GB of data to BD-R, beating out the Pioneer unit by just 18 seconds. The I-O Data's rewrite (BD-RE) performance, however, was significantly slower than its write-once (BD-R) speed, as it took 97 minutes, 43 seconds to format a BD-RE disc and packet-write the same 22GB of data (we didn't test the BD-RE performance of the Pioneer drive, because it didn't ship with packet-writing software).

But the I-O Data drive is the more versatile of the two. It supports double-layer BD-R and BD-RE, so you'll be ready when 50GB media reach store shelves sometime this sum-

mer. Plus, it supports reading and writing to CDs—although the CD-R write speed tops out at 24X—and reading and writing to DVD-RAM at 5X. Even the I-O Data unit's DVD±RW and dual-layer DVD±R write speeds are a notch higher.

Factor in its robust software bundle and the convenience of an external USB drive, and the I-O Data is a winner.

—Melissa J. Perenson

BRD-UM2/U

I-O Data

PCW Rating **87 Very Good**

If you're burning for a Blu-ray drive and are willing to spend early-adopter bucks, the BRD-UM2/U is a fine choice.

List: \$999

find.pcworld.com/53756

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BACKUP SOFTWARE

Not All Backup Software Is Created Equal

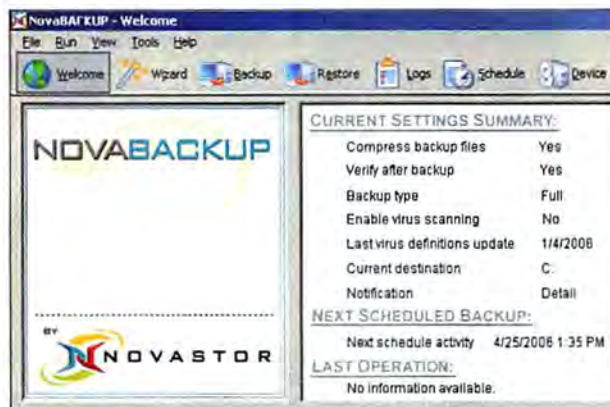
IT CAN BE devastating to lose important data when disaster strikes, yet backing up remains one of those PC maintenance chores that people often put off to another day, or even overlook altogether.

One of the keys to safeguarding your files for future access is having an easy-to-use, dependable backup program. Today's best backup utilities start at around \$50 (based on download prices) and include wizards that walk you through choosing what gets backed up and when.

For this month's chart we looked at six applications that let you schedule regular backups as well as compress and encrypt the data. Three of the programs also have disaster-

recovery functions that can help restore your system to a previous healthy state should you encounter a debilitating problem. Our Best Buy, NovaBackup 7.3, and the fourth-ranked Retrospect 7.5 Professional each allow you to create bootable CDs to restore your computer, while the second-place BackUp MyPC Deluxe 2006 provides a similar feature that unfortunately requires floppy disks.

Another increasingly common feature is the ability to back up open files, which means that even files in use by an application or the operating system are safely copied in the state they were in when the backup started. Each program in our chart offers open-



NOVABACKUP'S MAIN INTERFACE is logically laid out, allowing quick backup creation. It also offers wizards to help you get started.

file backup features—but note that the third-place Genie Backup Manager Professional 7.0 and the fifth-ranked WinBackup Standard 2.0 both require \$40 add-ons for this.

Also convenient is native

backup support, which lets you use Windows Explorer, instead of the app itself, to browse through your backups. Of the programs we looked at, only the Genie one offers the feature. Retrospect 7.5 has something akin to native backup support, but it works only with whole drives, not hand-picked folders or files.

Finally, all of the programs that made our chart back up to hard disk or CD/DVD, and all but WinBackup also support tape, a feature typically more of interest to small businesses. Only the Genie app currently works with Blu-ray Disc media; however, NovaStor and Roxio have both confirmed plans to introduce Blu-ray support in future revisions of their respective programs.

—Danny Allen

ONLINE

FOR MORE INFORMATION on the backup software reviewed in this chart, including details on how we tested each one, go to find.pcworld.com/53768.

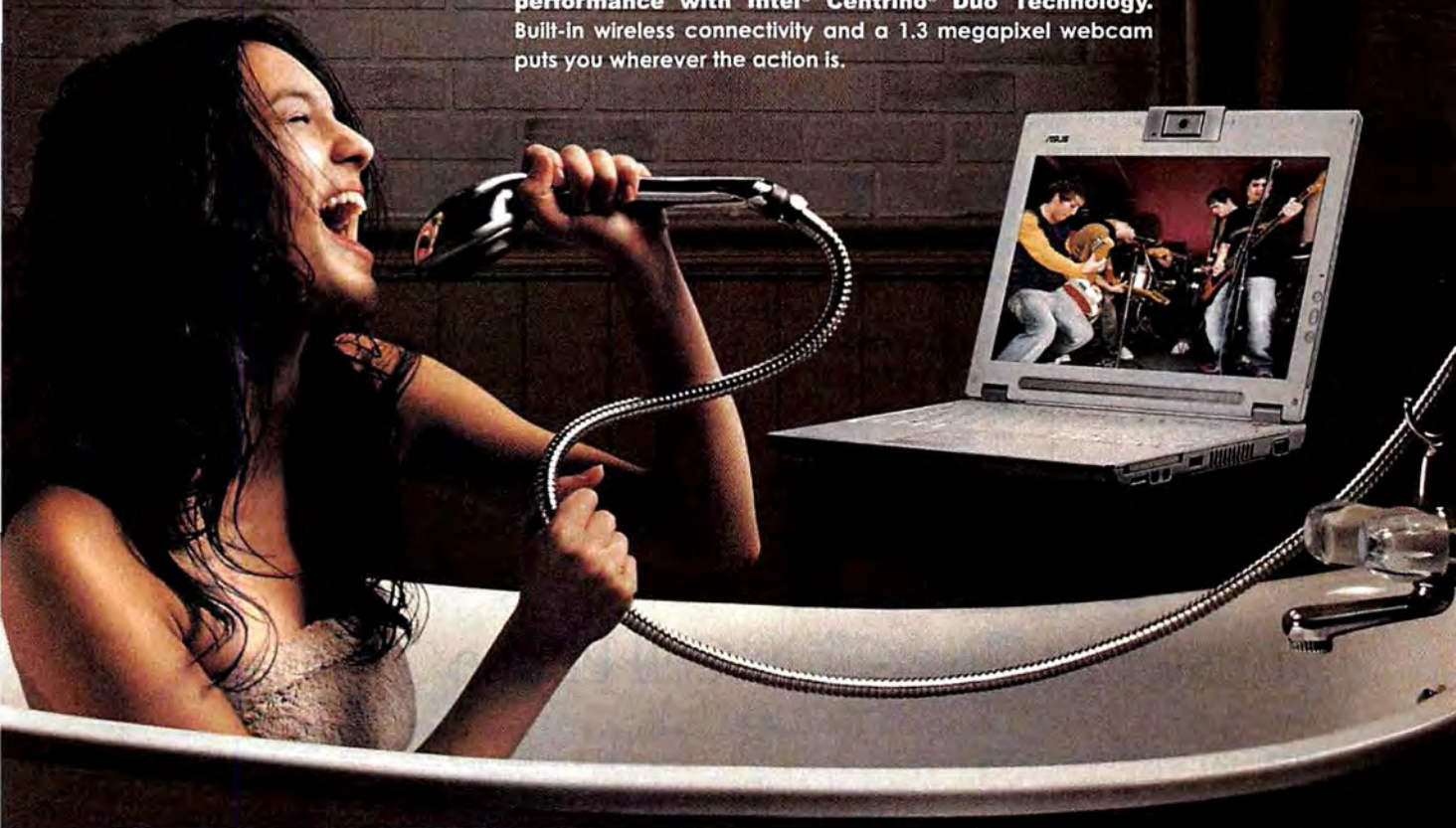
	BACKUP SOFTWARE	PCW Rating	Usability	Features and specifications ¹
1	NovaStor NovaBackup 7.3 Best Buy \$50 find.pcworld.com/53610 ► Bottom line: Affordable app is particularly easy to use, includes a wide range of features, and supports most current media types.	86 Very Good	<ul style="list-style-type: none"> • Documentation: Superior • Backup creation: Very Good • Backup restoration: Very Good 	<ul style="list-style-type: none"> • Media: CD/DVD, tape, Rev • Disaster recovery: Yes • Native file backup: No • Open file backup: Yes
2	Roxio BackUp MyPC Deluxe 2006 \$50 find.pcworld.com/53612 ► Bottom line: Though unchanged since its last incarnation, BackUp MyPC is still a highly capable backup program.	83 Very Good	<ul style="list-style-type: none"> • Documentation: Very Good • Backup creation: Very Good • Backup restoration: Very Good 	<ul style="list-style-type: none"> • Media: CD/DVD, tape • Disaster recovery: Yes • Native file backup: No • Open file backup: Yes
3	Genie-Soft Genie Backup Manager Pro 7.0 \$70 find.pcworld.com/53614 ► Bottom line: Simple to use package offers exceptional media support and some great features, but it lacks disaster-recovery tools.	76 Good	<ul style="list-style-type: none"> • Documentation: Fair • Backup creation: Very Good • Backup restoration: Very Good 	<ul style="list-style-type: none"> • Media: CD/DVD, tape, Rev, GoVault, Blu-ray • Disaster recovery: No • Native file backup: Yes • Open file backup: \$40 add-on (\$25 if bundled)
4	EMC Retrospect 7.5 Professional \$119 find.pcworld.com/53624 ► Bottom line: Powerful software provides numerous advanced features, but its complex interface makes it better suited to IS pros.	75 Good	<ul style="list-style-type: none"> • Documentation: Superior • Backup creation: Good • Backup restoration: Very Good 	<ul style="list-style-type: none"> • Media: CD/DVD, tape, Rev • Disaster recovery: Yes • Native file backup: Whole drive only • Open file backup: Yes
5	Uniblue WinBackup 2.0 Standard \$50 find.pcworld.com/53616 ► Bottom line: Application is easy to use but lacks disaster-recovery functions; backing up open files, as with Genie, costs extra.	74 Good	<ul style="list-style-type: none"> • Documentation: Fair • Backup creation: Very Good • Backup restoration: Very Good 	<ul style="list-style-type: none"> • Media: CD/DVD, Rev, GoVault • Disaster recovery: No • Native file backup: No • Open file backup: \$40 add-on

FOOTNOTE: ¹A program that supports "native file backup" allows access within Windows Explorer to backups in their native format.

CHART NOTES: Ratings are as of 5/25/06. Listed pricing is for download from the vendor.

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- 1024 MB DDR2 SDRAM
- 100 GB 5400 RPM Hard Drive
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- 8x Super Multi DVD-RW DL
- Microsoft® Windows® XP Pro



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- 100 GB 5400 RPM Hard Drive
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- 8x Dual Layer DVD-RW
- Microsoft® Windows® XP Pro

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PC-to-Stereo Streamer Puts You in Control

DIGITAL AUDIO

SONDIGO's **Sirocco Wireless Audio Bridge** is the latest contender for the job of wirelessly streaming digital audio from your PC to your stereo. It takes the same approach as Linksys's Wireless-G Music Bridge: Its software bypasses copy-protection issues by treating the device as a remote sound card that receives audio

over your 802.11b or g network and plays it through your stereo. The \$140 Sirocco is more expensive than the Linksys unit (which you can find online for about \$80), but its features and controls are well worth the premium.

The excellent PC setup utility swiftly configures the device for your network and installs Sirocco's easy-to-use software for controlling the PC connection as well as all of the device's audio features.

The Sirocco attaches to a standard two-channel stereo or to a Dolby Digital Live 5.1 surround-sound system via the device's analog outputs or its optical digital output. The software's impressive controls include some two dozen op-

tions for adjusting surround sound to fit the environment, plus a 10-band equalizer with a dozen presets.

A major plus is the device's Dynamic Audio Switching technology, which allows you to toggle between PC and stereo speakers in midtune. It worked flawlessly; with the Linksys Music Bridge, you have to shut down your audio player software before switching or you risk crashing the PC sound system (see find.pcworld.com/53724).

One non-Sirocco-specific complaint: Streaming lightly compressed audio over Wi-Fi makes quality-of-service demands that a wireless network can't always meet. The Sirocco's user-adjustable buffer,



THE SIROCCO WIRELESS Audio Bridge offers excellent controls.

another nice feature, helped to reduce (but did not eliminate) skips and stuttering.

Such network issues aside, the Sirocco offers an excellent way for you to enjoy your digital music collection.

—Yardena Arar

Sirocco Wireless Audio Bridge

Sondigo

PCW Rating **BB Very Good**

Excellent controls distinguish this device for wirelessly streaming two-channel or 5.1 audio from a PC to a stereo.

Street: \$140

find.pcworld.com/53762

Samsung's Sliver-Thin Cell Phone

CELL PHONE

TEST SAMSUNG'S exceptionally tiny **t509** handset makes quite a

fashion statement with its sleek profile. I looked at a shipping version of this standard cell phone, and was impressed with the number of features packed into its slim frame.

To say the t509 is small doesn't do the unit justice. Measuring 4.6 inches long by 1.8 inches wide by 0.4 inches thick, and weighing just 2.7 ounces, it will easily ride in a pocket unnoticed. But its



size comes with a trade-off: The exterior is plastic, and it feels less sturdy than a thin cell phone encased in metal.

And despite—or perhaps because of—its petite size, the t509 can be awkward to hold during long calls. Its slight frame is difficult to grasp, and its boxy shape can be uncomfortable against your ear. However, the voice quality and volume were good.

The unit's 1.9-inch-diagonal LCD takes up nearly half of the

handset, and the space is well used: With a resolution of 176 by 220 pixels, the bright and vibrant display makes viewing both text messages and photos a pleasure. Occupying the remainder of the candy bar-style phone are the keypad and navigation controls. The number keys themselves are slightly raised, which makes the phone easy to dial.

The t509 includes a 0.3-megapixel-resolution camera that features a 4X digital zoom and is fine for capturing quick snapshots. You can also capture serviceable video clips.

The t509's other notable features include support for T-Mobile's speedy EDGE network; built-in support for AIM, ICQ, MSN Messenger,

and Yahoo Messenger; integrated Bluetooth wireless; and very impressive talk-time battery life. In our battery tests the t509 lasted 9 hours, 55 minutes—significantly longer than the vendor-stated talk time of 3.5 hours.

The t509 costs \$200 with a two-year contract from T-Mobile. For such a fashionable phone, that's a fair deal; and with rebates and online discounts, you may be able to find it for as low as \$50.

—Liane Cassavoy

SAMSUNG'S T509

PHONE is about the size of a small chocolate bar.

t509

Samsung

PCW Rating **77 Good**

This fashion-forward cell phone packs plenty of impressive features into a very svelte frame. Street: \$200 (with a two-year contract from T-Mobile)

find.pcworld.com/53772



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NOTEBOOK PCs

Dell Leads in Performance, Toshiba in Price

TEST CENTER NEW PRODUCTS and new pricing rejigger both sides of our notebook chart. Among power models, the HP Pavilion dv8000z—with its beautiful screen and solid performance—still reigns supreme. The strikingly designed Dell XPS M1710 ranks as our current top performer, but its daunting price keeps it in the third spot.

On the value side, the reasonably priced Asus A6Jc-



THE ASUS A6Jc-Q029H has business and leisure appeal.

Q029H debuts at number four, with handy entertainment features and a generous 100GB hard drive. A \$300 price drop on the Toshiba Tecra A6-S513 bumps it up to the number two slot behind HP's nicely outfitted Pavilion dv5000z. Lenovo's ThinkPad R52 drops off the chart, replaced by the solid but hardly sexy Lenovo 3000 C100.

—Narasu Rebbapragada

ONLINE

FOR MORE INFORMATION about the notebook PCs that are reviewed in this chart, including testing details, go to find.pcworld.com/53830.

	DESKTOP REPLACEMENT	PCW Rating	Performance	Features and specifications ¹
1	HP Pavilion dv8000z Best BUY \$2200 find.pcworld.com/52714 ▶ Bottom line: The sleek dv8000z offers strong battery life, a built-in TV tuner, and solid performance in everything but gaming.	85 Very Good	• WorldBench 5 score: 95 Superior • Overall design: Very Good • Tested battery life: 3:09	• 2.2-GHz Turion 64 ML-40 • 17.0-inch wide screen • 9.2 pounds • DVD±R DL/DVD±RW
2	Toshiba Qosmio G35-AV600 \$2399 find.pcworld.com/52716 ▶ Bottom line: The hefty G35-AV600 has one-touch TV, a nice display, and terrific sound and battery life; gaming performance was disappointing.	84 Very Good	• WorldBench 5 score: 92 Very Good • Overall design: Superior • Tested battery life: 3:52	• 1.83-GHz Core Duo T2400 • 17.0-inch wide screen • 10.1 pounds • DVD±R DL/DVD±RW/-RAM
3	Dell XPS M1710 \$3425 NEW find.pcworld.com/53634 ▶ Bottom line: Giant-size notebook offers processing and graphics power to spare, plus a nice screen, but it's not particularly portable.	84 Very Good	• WorldBench 5 score: 106 Superior • Overall design: Very Good • Tested battery life: 2:33	• 2.16-GHz Core Duo T2600 • 17.0-inch wide screen • 8.9 pounds • DVD±R DL/DVD±RW
4	Toshiba Satellite P105-S921 \$1999 NEW find.pcworld.com/53212 ▶ Bottom line: This full-featured gaming system comes with a great screen, very good speakers, and a fair price.	82 Very Good	• WorldBench 5 score: 95 Superior • Overall design: Very Good • Tested battery life: 1:59	• 1.83-GHz Core Duo T2400 • 17.0-inch wide screen • 7.8 pounds • DVD±R DL/DVD±RW/-RAM
5	Acer Aspire AS9504WSMi \$1999 find.pcworld.com/50884 ▶ Bottom line: A Media Center notebook with impressive features and performance is marred by an awkward keyboard and mediocre speakers.	82 Very Good	• WorldBench 5 score: 99 Superior • Overall design: Fair • Tested battery life: 3:02	• 2-GHz Pentium M 760 • 17.0-inch wide screen • 8.5 pounds • DVD±R DL/DVD±RW
	ALL-PURPOSE NOTEBOOK			
1	HP Pavilion dv5000z Best BUY \$1350 NEW find.pcworld.com/51597 ▶ Bottom line: This well-priced, portable Media Center notebook benefits from thoughtful design plus very good performance.	82 Very Good	• WorldBench 5 score: 86 Very Good • Overall design: Very Good • Tested battery life: 5:58	• 2.2-GHz Turion 64 ML-40 • 15.4-inch wide screen • 7.4 pounds • DVD±R DL/DVD±RW
2	Toshiba Tecra A6-S513 \$849 find.pcworld.com/53130 ▶ Bottom line: This handsome, light, business-oriented model provides extra security and makes a great commuter notebook.	81 Very Good	• WorldBench 5 score: 77 Good • Overall design: Good • Tested battery life: 3:55	• 1.66-GHz Core Solo T1300 • 14.1-inch wide screen • 5.4 pounds • DVD-ROM/CD-RW
3	Dell Inspiron E1505 \$1023 find.pcworld.com/53124 ▶ Bottom line: Dell's inexpensive entertainment laptop navigates between multimedia features easily, and it's a terrific value.	79 Good	• WorldBench 5 score: 82 Good • Overall design: Good • Tested battery life: 2:19	• 1.66-GHz Core Duo T2300 • 15.4-inch wide screen • 6.5 pounds • DVD±R DL/DVD±RW
4	Asus A6Jc-Q029H \$1299 NEW find.pcworld.com/53602 ▶ Bottom line: This notebook comes with loads of quick-launch keys and has a good mix of consumer and business-focused features.	79 Good	• WorldBench 5 score: 90 Very Good • Overall design: Good • Tested battery life: 4:35	• 1.66-GHz Core Duo T2300 • 15.4-inch wide screen • 7.0 pounds • DVD±R DL/DVD±RW
5	Lenovo 3000 C100 \$999 NEW find.pcworld.com/52768 ▶ Bottom line: The affordable C100 has a basic design, but offers long battery life and fairly robust features for the price.	74 Good	• WorldBench 5 score: 77 Good • Overall design: Good • Tested battery life: 4:56	• 1.73-GHz Pentium M 740 • 15.0-inch screen • 6.3 pounds • DVD±RW

CHART NOTES: Prices and ratings are as of 6/2/06. ¹For each model, weight listed does not include the AC adapter, power cord, or optical drive.

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Apps Turn Your Computer Into a Powerful DVR

MULTIMEDIA

YOU DON'T NEED to buy a TiVo to experience the bliss of a digital video recorder. Any PC with the right hardware can handle the chore—the key is to use the right software. I tested shipping versions of SnapStream's **Beyond TV 4.2** (\$70) and **SageTV Media Center 5.0** (\$80), and found both apps full-featured and easy to use.

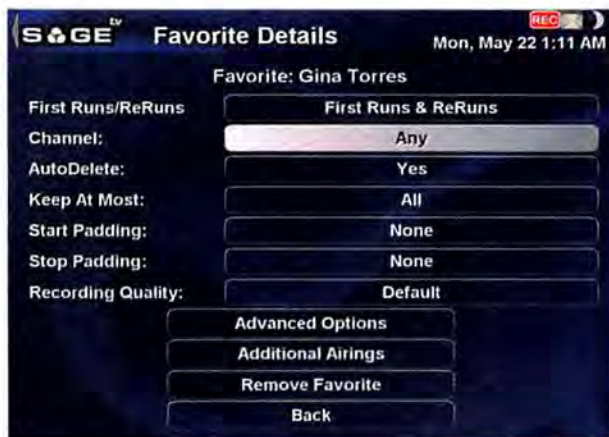
System requirements for the two are similar: a PC with a TV-tuner card and at least 15GB (for Beyond TV) or 20GB (for Sage) of hard-drive space for recording programs. The setup procedures are also comparable: Each demands about 10 minutes for setting up the TV tuner, selecting the cable provider, and choosing folders for saved videos.

Once installed, both apps

let me easily watch, record, pause, and rewind live TV via bright and clear full-screen windows. Each also manages multiple installed TV tuners, for recording two programs simultaneously or juggling HDTV and standard TV.

The differences between the two programs are in the details. Just two clicks of your mouse will record the show you're currently watching in Beyond TV; SageTV takes four. SageTV, however, offers extra customizability, permitting you to create keyboard shortcuts, for example.

Both applications download your cable provider's program guide, including specific information on each episode. You can decide between recording specific episodes or all episodes of a



SAGETV MEDIA CENTER 5.0's interface is more complicated than that of Beyond TV 4.2, but it offers greater control over recordings.

show, or you can set a daily or weekly recording schedule.

The two programs can also automatically record shows you might want to watch, based on your previous recording habits—but privacy-minded viewers might feel uncomfortable with Beyond TV's system, which forwards viewing data to SnapStream's servers. (You can easily turn the feature off, however.)

Both apps store and catalog recorded programs for easy playback, as well. Shows are usually stored as MPEG-2 files for easy DVD burning, editing, or watching on your favorite media player. Beyond TV can record standard TV in Windows Media or DivX formats, and its ShowSqueeze can further compress to save space. (Note: At press time,

SnapStream released Beyond TV 4.3, which allows ShowSqueeze to convert HD recordings to Windows Media and DivX formats as well.)

Beyond TV has an optional \$30 software component that extends DVR programming and playback functionality to any computer on the same local network. SageTV's Place-shifter software—another \$30 option—offers these features, too, but takes things a step further: Comparable to Sling Media's \$200 Slingbox hardware, it lets you watch recordings from anywhere using an Internet-connected PC.

Beyond TV and SageTV Media Center are both powerful DVR programs, but SageTV's extra flexibility is more than worth its slightly higher cost.

—Emru Townsend

TECH TREND

Latest Security Services

COMPUTER SECURITY COMPANIES are now not only selling you software to protect your valuable data, but have begun to add extra services like data-loss insurance and—believe it or not—counseling.

For example, T3 US, maker of the T3 Full Security Suite, offers its \$100 T3 Travel Smart data encryption package; the software permits access to user-defined folders on a laptop only when you insert the right USB key. T3 also insures the system against theft for \$1500, which it pays out when you provide the USB key and proof of purchase.

Meanwhile, the new version 6.5 of Zone Labs' ZoneAlarm Pro firewall will include credit card monitoring, fee-based credit protection services, and counseling services for identity theft victims. The program's pricing and release date were not available as of press time. —Narasu Rebbapragada



Beyond TV 4.2

SnapStream Media

PCW Rating **80** Very Good

Full-featured DVR application works well, but its privacy issues might be a deal-breaker.

List: \$70

find.pcworld.com/53776

SageTV Media Center 5.0

SageTV

PCW Rating **86** Very Good

TV fanatics will appreciate this DVR software's wealth of options and flexible controls.

List: \$80

find.pcworld.com/53778



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ADVANCED CAMERA		PCW Rating	Performance
1	Canon PowerShot G6 Best BUY \$579 find.pcworld.com/44872	86 Very Good	<ul style="list-style-type: none"> Image quality: Very Good Battery life: Super Overall design: Super
Bottom line: The chunky G6 won best in show by performing well in our image-quality test.			
2	Olympus C-7070 Wide Zoom Best BUY \$450 find.pcworld.com/48091	86 Very Good	<ul style="list-style-type: none"> Image quality: Super Battery life: Super Overall design: Good
Bottom line: The C-7070 has been around a while, but it has winning image quality and a			
3	Canon PowerShot Pro1 Best BUY \$699 find.pcworld.com/43164	81 Very Good	<ul style="list-style-type: none"> Image quality: Very Good Battery life: Good Overall design: Good
Bottom line: The Pro1's compact case makes it a pleasant camera to tote. Its battery life			
4	Canon PowerShot S2IS Best BUY \$499 find.pcworld.com/48088	79 Good	<ul style="list-style-type: none"> Image quality: Very Good Battery life: Fair Overall design: Good
Bottom line: This is Canon's only model with an optical image stabilizer—rare on a still ca			

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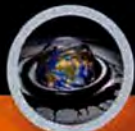
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TOP 10 HARD DRIVES

Internal 750GB Drive From Seagate Is Big, Fast

TEST Center THE NEW NUMBER one drive on our internal hard drives chart is Seagate's Barracuda 7200.10 750GB. The first 3.5-inch drive to employ perpendicular magnetic recording technology, the 7200.10 offers the most storage you can get in a single drive and posted top-flight performance numbers. Also new this month: Maxtor's 500GB DiamondMax 11 (in fifth place on our internals



SEAGATE'S 750GB DRIVE uses perpendicular recording.

chart), and Apricorn's well-designed EZ Bus DTS SATA (in second place among the externals). Notably missing: A 500GB internal unit from Seagate (it ranked sixth) and 500GB external drives from Western Digital (in tenth) and WiebeTech (in seventh).

—Melissa J. Perenson

ONLINE

FOR MORE INFORMATION about the hard drives reviewed in this month's chart, including details on how we tested them, visit find.pcworld.com/53852.

	INTERNAL HARD DRIVE	PCW Rating	Performance	Features and specifications
1	Seagate Barracuda 7200.10 750GB Best BUY \$590 NEW find.pcworld.com/53202 ► Bottom line: Gargantuan drive offers record-high storage capacity thanks to perpendicular recording, plus top-notch write performance.	87 Very Good	<ul style="list-style-type: none"> Overall performance: Superior Copy files: 136 seconds File search: 135 seconds 	<ul style="list-style-type: none"> 750GB 7200 rpm SATA-300 Cost per gigabyte: \$0.79
2	Seagate Barracuda 7200.8 ST3400832AS \$230 find.pcworld.com/46340 ► Bottom line: Midrange-capacity hard drive shone on our copy files test. Includes CMS's useful BounceBack Express backup software.	84 Very Good	<ul style="list-style-type: none"> Overall performance: Very Good Copy files: 156 seconds File search: 133 seconds 	<ul style="list-style-type: none"> 400GB 7200 rpm SATA-150 Cost per gigabyte: \$0.58
3	Western Digital Caviar SE16 WD4000KS \$220 find.pcworld.com/50060 ► Bottom line: Drive offers high storage capacity and excellent performance, and does so at a reasonable price.	83 Very Good	<ul style="list-style-type: none"> Overall performance: Superior Copy files: 161 seconds File search: 124 seconds 	<ul style="list-style-type: none"> 400GB 7200 rpm SATA-150 Cost per gigabyte: \$0.55
4	Western Digital Raptor X Hard Drive \$300 NEW find.pcworld.com/51956 ► Bottom line: Expensive 150GB drive offers ultrafast 10,000-rpm speeds and comes with a see-through case.	80 Very Good	<ul style="list-style-type: none"> Overall performance: Superior Copy files: 134 seconds File search: 118 seconds 	<ul style="list-style-type: none"> 150GB 10,000 rpm SATA-150 Cost per gigabyte: \$2
5	Maxtor DiamondMax 11 6H500F0 \$320 NEW find.pcworld.com/53528 ► Bottom line: High-capacity drive is a solid all-around performer, but its one-year warranty is shorter than its competitors'.	80 Very Good	<ul style="list-style-type: none"> Overall performance: Very Good Copy files: 172 seconds File search: 133 seconds 	<ul style="list-style-type: none"> 500GB 7200 rpm SATA-300 Cost per gigabyte: \$0.64
	EXTERNAL HARD DRIVE			
1	Maxtor OneTouch III Turbo Best BUY \$825 NEW find.pcworld.com/52069 ► Bottom line: This model's performance and backup software are a cut above the rest, but its drives are not readily accessible.	83 Very Good	<ul style="list-style-type: none"> Overall performance: Good Copy files: 139 seconds File search: 87 seconds 	<ul style="list-style-type: none"> 1000GB 7200 rpm USB 2.0, FireWire 800/400 Cost per gigabyte: \$0.83
2	Apricorn EZ Bus DTS SATA \$199 NEW find.pcworld.com/53526 ► Bottom line: Versatile drive comes in user-upgradable chassis; includes software for data backup, disaster recovery, and file syncing.	82 Very Good	<ul style="list-style-type: none"> Overall performance: Superior Copy files: 84 seconds File search: 80 seconds 	<ul style="list-style-type: none"> 250GB 7200 rpm External SATA-150 Cost per gigabyte: \$0.8
3	CMS 400GB Velocity Automatic Backup System \$299 find.pcworld.com/50056 ► Bottom line: A low price on this top-performing external SATA drive makes it an excellent value.	82 Very Good	<ul style="list-style-type: none"> Overall performance: Superior Copy files: 74 seconds File search: 80 seconds 	<ul style="list-style-type: none"> 400GB 7200 rpm External SATA-150 Cost per gigabyte: \$0.75
4	WiebeTech SilverSATA II \$1336 NEW find.pcworld.com/52066 ► Bottom line: Blazing performance, quick-swap drives, and front-panel access to RAID 0 and RAID 1 are pluses of this pricey eSATA unit.	81 Very Good	<ul style="list-style-type: none"> Overall performance: Superior Copy files: 80 seconds File search: 79 seconds 	<ul style="list-style-type: none"> 1000GB 7200 rpm External SATA-300, USB 2.0 Cost per gigabyte: \$1.34
5	Iomega 400GB Triple Interface \$350 find.pcworld.com/48642 ► Bottom line: Unit has a spiffy black case and comes with a robust bundle that includes backup, music-jukebox, and photo-sharing software.	79 Good	<ul style="list-style-type: none"> Overall performance: Very Good Copy files: 115 seconds File search: 82 seconds 	<ul style="list-style-type: none"> 400GB 7200 rpm USB 2.0, FireWire 800/400 Cost per gigabyte: \$0.88

CHART NOTES: Ratings are as of 5/11/2006. Features listings are not exhaustive. See find.pcworld.com/49974 for more testing information.

Budget Projectors Deliver Big, Bright Images

PROJECTORS

TEST IF YOU'RE LOOKING for a low-priced projector that's suitable for both office and home use, the new Dell 2400MP and InFocus Work Big IN26 are viable choices. Each weighs less than 6 pounds, offers native 1024-by-768 (XGA) resolution, and uses Texas Instruments' Digital Light Processing (DLP) display technology. Although both models are designed for XGA notebook users who deliver business presentations, they're also very well suited for displaying DVD movies in your living room.

IMPRESSIVE IMAGES

AT \$1099, DELL'S 2400MP boasts an impressive brightness rating of 3000 ANSI lumens (an industry-standard metric for light intensity), which should provide enough display power to handle large conference rooms, even those with a fair amount of ambient light. The projector's lamp life is 2000 hours, and replacement bulbs cost \$399 (typical for other, similarly rated bulbs). The unit also uses TI's BrilliantColor chip, an image-enhancement feature.

The 2400MP comes with a carrying case and a variety of cables for connecting the projector to computer or video sources, including a compo-

nent video connection for displaying progressive DVD or HDTV sources. The bundled remote control has buttons for slide advance (or page up/page down) and for selecting preset picture modes (such as PC, movie, and game), but it lacks a laser pointer.

InFocus's \$999 IN26 projector costs less than Dell's, as does its replacement bulb (a 2000-hour bulb is \$249), but the IN26 also carries a lower brightness rating of 1700 ANSI lumens and comes without a carrying case or additional video cables (all except the standard VGA computer cable cost extra).

Although the IN26 is bright enough to serve well in small rooms, it requires lower ambient light than the Dell model for acceptable performance. The bundled remote includes a few handy controls but lacks slide advance and preset picture mode buttons, and it has no pointer. However, InFocus does offer a full-featured re-

mote (including mouse control) as an add-on option.

We evaluated shipping versions of both projectors using a battery of tests—conducted using the projectors' default settings—that involved viewing Microsoft Word, Excel, and PowerPoint document test screens, as well as an assortment of still graphics and moving images. In tests comparing the projectors' image quality with that of our baseline unit (an NEC LT35), the Dell 2400MP generally received higher scores, displaying images that were much brighter, sharper, and more colorful than those produced by the InFocus IN26.

HOME THEATER

I USED BOTH projectors to display video input from cable TV and a DVD player. The Dell model displayed excellent video quality when reset from its PC mode to its movie or its sRGB mode. The Dell's high brightness made it possible to show a viewable pic-

ture in my living room even during daylight hours.

THE DELL 2400MP (below) costs more than the InFocus IN26 (left), but delivers superior brightness and more impressive image quality.



2400MP

Dell

PCW Rating **81** Very Good

Superior brightness and excellent image quality make this a top choice for business and home use. Street price: \$1099

find.pcworld.com/53826

Work Big IN26

InFocus

PCW Rating **78** Good

This easy-to-use projector offers fairly good image quality and brightness at a bargain price. Street price: \$999

find.pcworld.com/53828

All in all, the InFocus IN26 is an easy-to-use projector that offers reasonably good image quality and brightness at a bargain price. However, despite its slightly higher cost, the Dell 2400MP's superior brightness and image quality make it the better choice.

—Richard Jantz

Slick Apple MacBook Does Windows Too

L A P T O P

TEST Center WITH THE RELEASE of its new **MacBook**, Apple has filled out its Intel-based portable line with an entry-level model. But this Mac offers so many features that using it never feels like a compromise. In fact, the \$1499 matte-black version I tried is one of the best-looking, best-designed laptops I've ever used, regardless of cost.

MacBook

Apple Computer

PC World Rating **88** Very Good

Apple's entry-level laptop is a well-designed winner.

Street: \$1499

find.pcworld.com/53750

The MacBook's in-between size makes sense: At 12.8 inches wide by 8.9 inches deep by 1.1 inches tall, the 5.2-pound system is travel-friendly, yet still packs a 13.3-inch wide-screen display.

A startlingly high percentage of the pricier MacBook Pro line's features have trickled down here. Even the basic \$1099 MacBook sports an Intel Core Duo CPU, an integrated iSight Webcam, Front Row media software and a tiny remote to control it, optical audio input and output, and 802.11g and gigabit ethernet networking. In addition, it runs the slick and functional OS X 10.4 operating system



THE MACBOOK'S SPACIOUS wide-screen display is Apple's first with a glossy surface, and it's a definite plus for watching movies.

and includes the powerful iLife digital media suite.

What's missing? Not much, but the MacBook does lack ExpressCard, PC Card, and memory-card slots, and a dial-up modem. It also comes with integrated graphics.

Designwise, the MacBook shines. As I used it, I often asked, "Why can't Windows notebooks do that?"

Wait a minute—the MacBook can be a Windows PC, once you've installed Apple's Boot Camp utility and a full copy of Windows XP SP2. I did, and the 2-GHz Core Duo MacBook scored a respectable 88 in our WorldBench 5 speed tests. All in all, the MacBook is a terrific piece of hardware that is a good value, too.

—Harry McCracken

Alpine's Pricey Blackbird GPS Also Plays Tunes

G P S D E V I C E

ALPINE'S REPUTATION FOR high-quality automotive products is evident in the company's first portable GPS device, the **Blackbird PMD-B100**. Not only can you set the Blackbird to give turn-by-turn directions over your car's FM radio, the device's Secure Digital/MultiMediaCard memory card slot lets you play MP3 and WMA music files the same way.

The Blackbird measures a compact 6.1 inches wide by 2.9 inches tall by 1.2 inches deep, and it weighs just 8 ounces. It suffers from a few design flaws, however. Chief among them: a large control wheel on the

right side of the device for selecting options. Since I was able to use the 3.6-inch touch screen to enter all addresses and to select options, the control wheel becomes an unnecessary waste of space.

The Blackbird may be portable, but attaching it to the windshield cradle and later

THE BLACKBIRD'S 3.6-INCH screen makes for easy viewing.



removing it is an arduous process that just about sprained both my wrists. At least the cradle keeps the Blackbird firmly in place as you drive.

The spoken directions—and your audio files—come in loud and clear through your car's stereo once you have set the Blackbird to an unused FM frequency. You'll want to make use of this option because the unit's small, built-in speaker is difficult to hear, even when set at maximum volume.

The on-screen map and other driving information is easy to see, and, in general, the directions the Blackbird provided were accurate; it did try to direct

me over a road in my neighborhood that has been blocked off for several years, but it also found a shortcut in my hometown that saved me time.

A \$700 street price makes the Blackbird \$100 to \$200 more expensive than the competition. However, its ability to play audio files and broadcast driving directions via a car's FM radio could make the extra cost worthwhile.

—Dennis O'Reilly

Blackbird PMD-B100

Alpine Electronics

PCW Rating **73** Good

Portable GPS includes handy FM transmitter, but its price leaves something to be desired.

Street: \$700

find.pcworld.com/53758

Windows Media Player 11: Impressive Upgrade

DIGITAL AUDIO

MICROSOFT IS PUTTING a new face on **Windows Media Player**, with the application's biggest overhaul in years. I tested a beta version of the player, which features a cleaner, Vista-style interface and integration with a digital music store from MTV.

Instant Search is the star of

Windows Media Player 11

Microsoft

PCW Rating **90 Superior**

A sleek interface, superfast search, and integration with MTV's music store take Windows Media Player to the next level.

Street: Free

find.pcworld.com/53766

WMP 11. Even when dealing with large libraries, the search feature is amazingly fast, updating as you type each letter of your search query.

The collapsing and expanding artist/album view is gone from the left pane, in favor of a navigation approach that focuses on search and on the center of the player window.

Each of the main menu buttons in WMP 11 displays only the most critical menu choices, in a touch similar to the interface design for Vista.

A couple of other nice additions: WMP 11 features a universal back button that lets you retrace your steps whether you're browsing a subscrip-



ALBUM ART ASSUMES a greater significance in WMP 11; the software displays images of CD covers to help you navigate your collection.

tion service or your own library; and a handy drop-down menu enables you to manage other types of media.

Once you get past the interface overhaul, you'll find some improvements to the syncing and burning features. You can choose what to sync or burn by dragging albums, artists, playlists, or tracks to the player's hideable right

pane, where an icon and a meter show you which device you're transferring songs to and how much space you'll have left when you're done. WMP 11 will automatically spread tracks over multiple discs if you're trying to burn more tracks than will fit.

All in all, Microsoft's Media Player upgrade is a winner.

—Eric Dahl

Google Mini Is a Mighty Search Tool

SEARCH

WHEN GOOGLE'S SEARCH engine finds the exact Web page you're looking for, it's tempting to think, "If only I could have this experience searching my company's network." For \$1995—and some moderate setup hassles—you can, with the Google **Mini**.

I tested the latest version of the Mini (the first one was introduced in January 2005), a thin, server-size search appliance, on our network here at *PC World*, and found its indexing speedy and its searches nearly instantaneous. Its relevance was just what I would expect from a Google search tool—spot-on in most cases.

Google recommends that you seek help from your IS



THE MINI IS a slim, server-size appliance that brings the speed and relevance of Google's search engine to your company's network.

department when installing the Mini; I needed that, plus help from Google itself, to get the Mini to index both our Web site and an internal file server. Google employs an unusual format for referring to network servers that had even our IS experts scratching their heads. Eventually I had to call Google's tech support.

Once you've installed the Mini on your network, you

access it through a series of administrative pages using your Web browser. You tell it what parts of your network or Web site you want it to crawl, and you can specify what paths you don't want it to follow. The \$1995 version of the Mini will index 50,000 files; a \$2995 version will index 100,000 files. You can also include a search box on your Web site for visitors to use

when searching your site.

The default layout of the search page looks exactly like a Google search page, but you can customize its appearance as much as you like. You can narrow your search to a certain kind of file (the Mini will index 220 different file types, but it doesn't tackle even common e-mail formats).

The Google Mini can be a hassle to set up, but if you know a bit about networking, it will let you do much more sophisticated searching.

—Edward N. Albro

Mini

Google

PCW Rating **80 Very Good**

Powerful search appliance has some setup hassles, but delivers fast, relevant results.

List: \$1995

find.pcworld.com/53812

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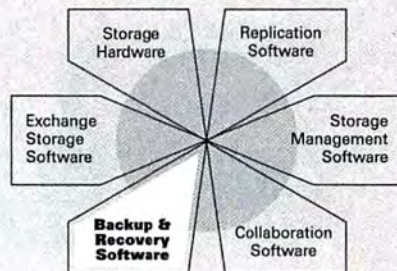
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HP's Robust Tablet Doesn't Come Cheap

T A B L E T

TEST A CONVERTIBLE Center tablet PC with a thoughtful design and long battery life, the HP Compaq tc4400 should please tablet users in the market for a robust system. Its steep price may deter some folks, however.

In tablet mode, using the

tc4400

HP Compaq

PCW Rating **7.5 Good**

Slightly bulky yet easy-to-use tablet has long battery life, but its performance was so-so.

List: \$2379

find.pcworld.com/53760

included stylus to make handwritten notes on the 12.1-inch screen was easy; and thanks to conveniently placed buttons on the right side, switching the screen to tabletoid view was a cinch.

To further assist tablet lovers, HP has situated the fingerprint reader on the top of the screen when it's in tablet mode. And a dedicated key for the <Ctrl>-<Alt>-<Delete> function helps users make a quick restart without having to switch to notebook mode.

As a notebook, the tc4400 works well. Its keyboard was easy to type on, and the sys-



HP COMPAQ'S TC4400 was designed for tablet lovers.

tem comes with plenty of ports, including two for USB 2.0 and one for S-Video.

In our performance tests, the tc4400 turned in mixed results. It aced the battery-life test, running more than 4 hours on a single charge. However, with its 2-GHz Core Duo T2500 processor and 512 MB of RAM, the tc4400 mustered a score of only 88 in our WorldBench 5 test suite, marking it as mere-

ly a fair performer compared with similar systems.

Weighing 4.6 pounds, the tc4400 is a bit bulky. It also lacks a built-in optical drive—my test unit came with a \$169 external CD-RW drive. Add that cost to the \$2379 base price, and it is expensive.

Still, for a well-designed notebook with seamless tablet functionality, some users may find that cost acceptable.

—Kalpana Etenson



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A Satellite Radio for iPod Lovers

A U D I O

TEST THE TINY PIONEER Center Inno squeezes a radio receiver and an MP3 player into a package that looks like a mobile phone—but it lets you listen to and record live XM Satellite Radio on the go. By letting you mix radio content with your music collection, this device could change

Pioneer Inno

Pioneer Electronics

PCW Rating **B5** Very Good

Despite so-so audio quality, the Inno offers a clever way to mix satellite radio with your music. Street: \$400, plus \$13 monthly fee and \$10 online activation.

find.pcworld.com/53774

the way you listen to music.

The 1.7-inch color screen displays the artist, song title, and channel to which you're listening. To record the current song, you just hold down the XM button at the center of the Inno's control panel.

Using the intuitive menus, you can also continuously record from one channel, or schedule a time to record. You press the Mode button to switch from live radio to your recordings. The menus let you organize your music into playlists; you also can mix recorded radio with uploaded music in one playlist.

When you run the included Napster software on your PC,

WEIGHING JUST 4.5 ounces, the Inno is easy to tote around.

it shows you the songs stored on the player and lets you upload your own tracks. In addition, you can buy tracks from Napster for 99 cents each, or buy a monthly subscription for unlimited downloads (which disappears should your subscription expire).

Audiophiles, however, may have some complaints with the Inno. In our lab tests, its audio quality was not as impressive as that of the best small MP3 players we've reviewed recently, such as the iPod Nano and the Creative Zen Nano Plus. In particular,



you are likely to hear a lot of distortion at high volume.

At \$400, the Inno doesn't come cheap. But this innovative device might just offer a look at the future of radio.

—Paul Jasper

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ADVANCED CAMERA		PCW Rating	Performance
1	Canon PowerShot S60 \$499 Find find.pcworld.com/46872	86 Very Good	• Image quality: Very Good • Battery life: Superior • Overall design: Superior
Bottom line: The chunky S60 was best in show for performing well in our image quality tests and proved			
2	Sony Cyber-shot DCR-WC700 \$499 Find find.pcworld.com/46891	86 Very Good	• Image quality: Superior • Battery life: Superior • Overall design: Good
Bottom line: The D-WC700 has been around a while, but it has winning image quality and a bargain price			
3	Canon PowerShot Pro \$499 Find find.pcworld.com/47364	81 Very Good	• Image quality: Very Good • Battery life: Good • Overall design: Good
Bottom line: Pro's compact case makes it a pleasant camera to take. Its battery life could be bet			
4	Canon PowerShot S215 \$499	79	• Image quality: Very Good • Battery life: Fair

Advertising Supplement

Data Recovery Made Easier

R-Studio 3.0 from R-Tools raises the bar on information restoration.

Proving that a good thing can get even better, R-Tools Technology Inc. has released version 3.0 of R-Studio, its family of robust and economical undelete and data recovery software.

Already renowned for its ability to recover mission-critical data lost to viruses, malicious attacks, hardware failures, or operating system crashes, R-Studio 3.0 has a new file recovery algorithm allowing users to increase the quality of file recovery and recover files not recognized in file system metadata. In addition, R-Studio 3.0 now supports UFS1 and UFS2 file systems as well as enhanced remote host scanning

procedures that analyze data on the remote host rather than the local host, speeding up data recovery time. R-Studio 3.0 also includes R-Studio Emergency version free of charge, allowing users to recover data on a computer on which Windows cannot be booted due to system file corruption or deletion. And to make things even more user-friendly, R-Studio and R-Studio Emergency demo versions can be registered on-the-fly.

R-Studio 3.0 joins the growing list of business continuity solutions from R-Tools that includes R-Drive Image 3.0, a powerful utility that effortlessly creates disk image files for backup and duplication. These files are exact copies of a drive partition and are created without interrupting normal business operations.

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R-Tools Technology Inc.
www.r-tt.com

R-Drive Image 3.0 can also be utilized for mass system deployments when

configuring multiple computers identically.

In addition, R-Tools offers R-Word to recover damaged Microsoft Word files; R-Excel to reconstruct precious Excel files that have been corrupted or attacked; R-Mail to reconstitute email messages accidentally deleted or damaged .dbx files; and R-Wipe & Clean that automatically keeps disks free and clear of data clutter.

For information on the exciting new features in R-Studio 3.0 or to learn more about how the family of R-Tools solutions can keep your business up and running, visit www.r-tt.com.



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THE 10 BIGGEST SECURITY RISKS

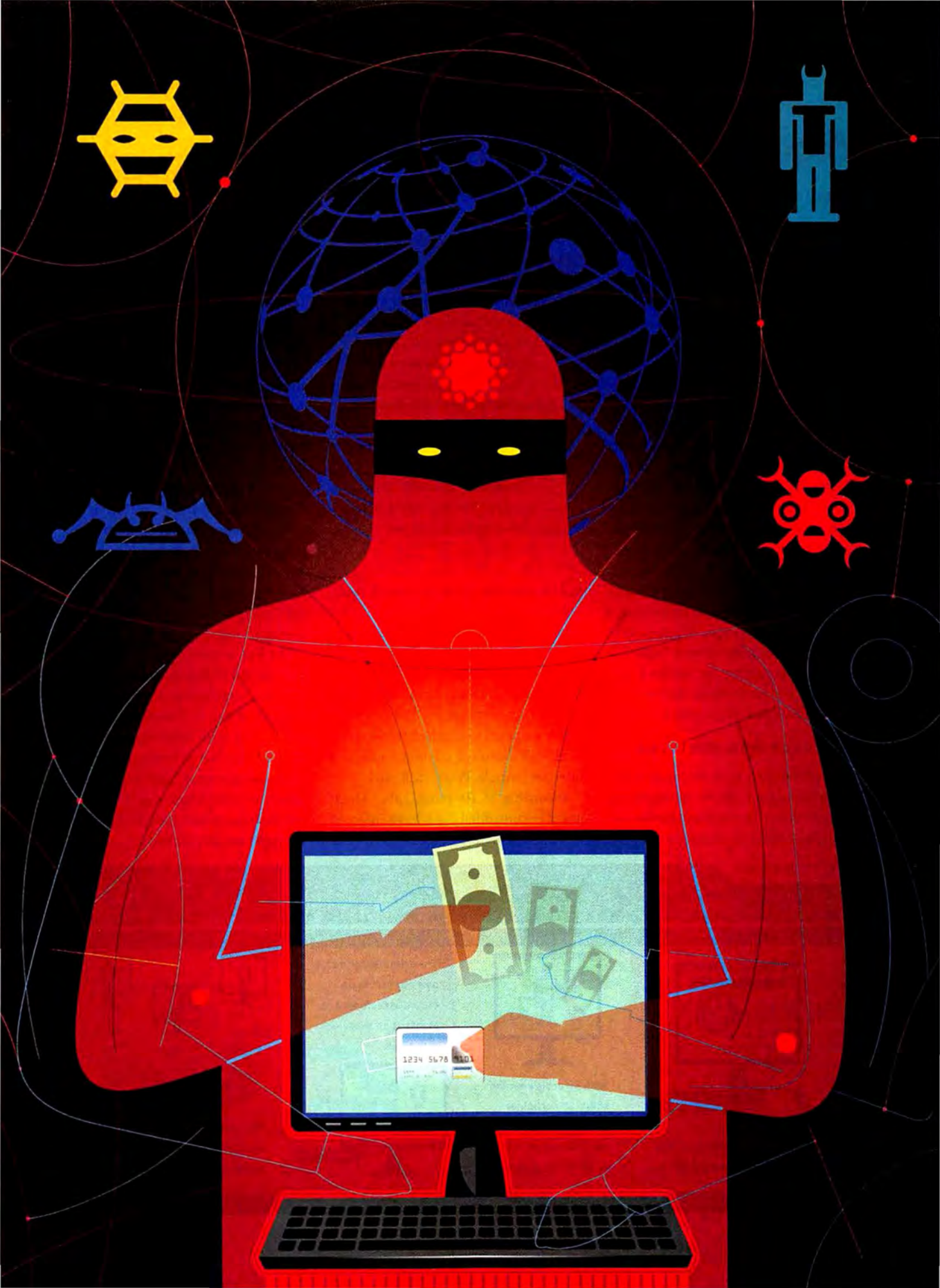
You Don't Know About

Hackers, scammers, and identity thieves are constantly coming up with new ways to attack your PC and your privacy. Here are the newest perils—and how to foil them.

BY ANDREW BRANDT

I ALWAYS PATCH my system and run regular scans with updated antivirus and antispyware scanners. But while researching this story, I got hit by a Trojan horse (Trojan.Winloginhook.Delf.A) that was too new for my antivirus program to catch. Whether it's a new variant on a familiar foe, like a Trojan horse, or a completely new type of attack, today's threats can leave even the most security conscious among us vulnerable.

There are ways we can minimize our risk, however. The first step in mounting a good defense is to know what's coming at you, so I've compiled a list of ten serious security problems that you need to be aware of. To protect yourself, you should of course know how to keep your PC patched and your antimalware tools current. In addition, I'll provide tips to help you avoid these new dangers, and to contain the damage if you do get hit. ►



Zombie PC Armies Set to Attack

DANGER LEVEL: HIGH **LIKELIHOOD:** HIGH **TARGET:** WINDOWS USERS

BOTNETS WERE ONCE the province of technically adept criminals who used these remote-controlled armies of infected PCs to send spam, launch Internet attacks, or spread spyware. But now even unsophisticated cyberthugs can generate their own botnet and target your PC, thanks to savvy miscreants who create and sell simple tools for that purpose.

Many people have made a business out of building and selling self-contained bot development kits that let potential herders (as individuals who run a botnet are called) direct their own scam. The kits, which cost anywhere from \$20 to \$3000, permit aspiring criminals to create full-featured botnets and other malicious software, ranging from customizable worms to keyloggers—no techie chops required. “There are tons of [kits]—fifty, sixty, a hundred different ones,” says Eric Sites, vice president for research and development at Sunbelt Software, a maker of antispyware programs.

CLEVER WEB CONTROLS

IT GETS WORSE. After building a new bot and sending it out to unsuspecting computer users, the wannabe hacker can use sophisticated command-and-control

DEFENSES

1 Avoid unknown sites and don't click links in unsolicited e-mail.

Like most malware, bots tend to be distributed in these ways.

2 Remain suspicious of e-mail attachments, even when a message seems to come from somebody you know. Crooks love to use genuine e-mail addresses in “spoofed” virus-laden e-mail missives.

3 Consider an alternate browser such as Firefox or Opera. IE has been a favorite hacker target.

tools to direct the resulting network easily.

Sites's team at Sunbelt, along with the Rapid Response Team at security firm iDefense Labs, has found a new Web-based botnet control they've dubbed Metaphisher. Instead of issuing text commands, herders can use the control's highly graphical user interface, complete with well-designed custom icons and intuitive controls. Point, click, hack.

According to iDefense Labs, Metaphisher-controlled bots have infected more than a million PCs worldwide. The

command suite even encrypts communications between itself and the bot herder, and relays information about virtually every aspect of infected PCs to the botmaster—including their geographic location, the Windows security patches installed, and the browsers other than Internet Explorer loaded on each PC.

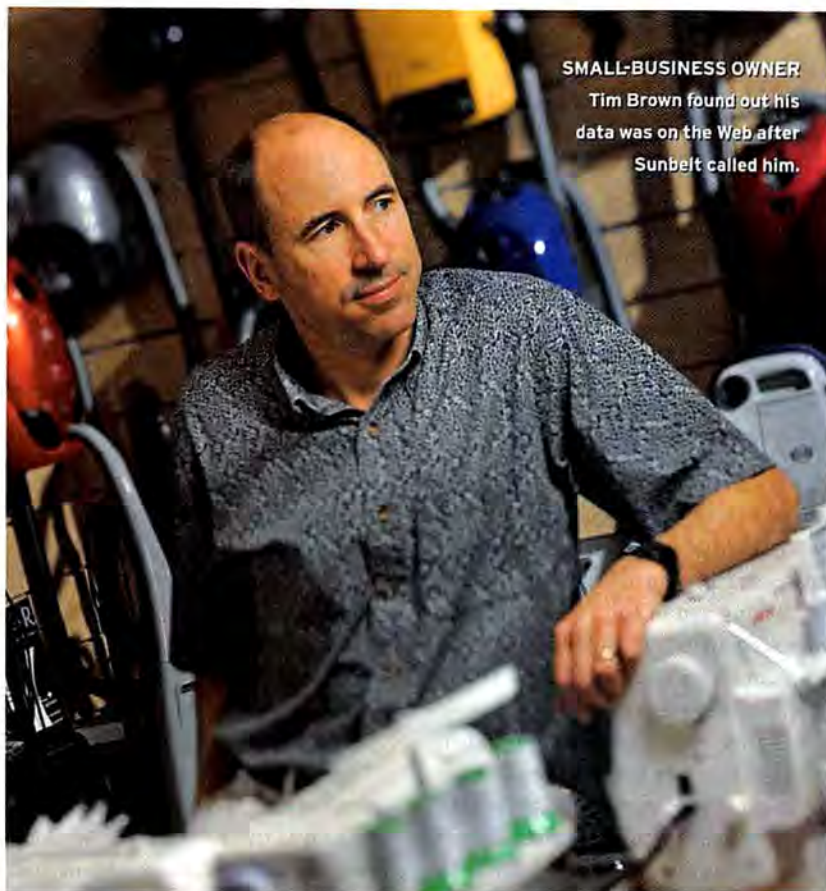
All these easy-to-use kits and controls undoubtedly contribute to the huge numbers of bot-infected PCs that law enforcement officials have uncovered during recent criminal investigations. For example, Jeanson James Ancheta, a 21-year-old California man, was recently sentenced to 57 months in prison after pleading guilty to violating the federal Computer Fraud and Abuse Act. He had been running a lucrative criminal enterprise based on a botnet with as many as 400,000 infected systems. And three bot herders arrested in the Netherlands last fall are thought to have controlled a staggering 1.5 million zombie PCs.

The low barrier to entry means that even as law enforcement catches some herders, eager newcomers join their ranks every day. “It's amazing how many people get into running botnets just because they see someone else doing it and making money,” says Joe Stewart, a senior security researcher at the South Carolina-based firm Lurhq, a provider of managed security services.

HOW IT WORKS

QUICK BOT DEPLOYMENT WITH SIMPLE TOOLS





SMALL-BUSINESS OWNER

Tim Brown found out his data was on the Web after Sunbelt called him.

Your Stolen Data Free on the Web

DANGER LEVEL: HIGH **LIKELIHOOD:** MEDIUM **TARGET:** WINDOWS USERS

IT'S BAD ENOUGH when one crook uses a keylogger to steal your bank log-in and passwords. It's much, much worse to have all of your sensitive information sitting in an unprotected FTP site, open to anyone who happens across it.

Unfortunately, that is exactly what security researchers have started seeing over the past year.

Alex Eckelberry of antispyware firm Sunbelt Software showed me one such FTP server that his company had found while investigating a keylogger that wasn't even particularly widespread. The server, based in Washington, D.C., was packed with nearly a gigabyte of credentials stolen during the month of April.

Not only do keyloggers capture anything you type, they can take screen shots of your PC's display, and they can glean data from the Windows Protected Stor-

age area, which is the place where Internet Explorer stores its saved passwords.

One of the log files on the FTP server held pilfered passwords for a number of U.S. banks and for Buy.com, along with Yahoo, Hotmail, and other e-mail account user names and passwords, plus account

DEFENSES

1 Use a firewall that can block unknown programs from communicating with the Net to keep keyloggers from phoning home. The free ZoneAlarm firewall can do this; the built-in Windows XP firewall can't.

2 Cycle passwords, and don't use the same name and password at multiple sites. For more password tips, see find.pcworld.com/54020.

details for online casinos and a host of other sites. The danger is international: The log records were in myriad languages—German, Spanish, Hungarian, Turkish, and Japanese, among others—and it held IP addresses that pointed to infected computers scattered around the world.

When his company discovered the first cache of keylogger data more than a year ago, Eckelberry says he alerted the banks and companies whose credentials had been scavenged by the logger.

Tim Brown, owner of Kingdom Sewing & Vacuum in Northridge, California, was one recipient of such a call from Sunbelt. He figures that his bank log-in was lifted by a keylogger when he was on a trip to Costa Rica and used a hotel computer to check his account. But his home computers weren't safe, either: "I didn't have any antivirus or spam blockers on my computers," he says. "I do now."

Brown was relatively lucky: He was notified before anyone had used his stolen data, and he immediately changed his account information to protect himself.

Thousands of other potential victims may not be that fortunate. And these days, Sunbelt is uncovering so many data vaults that it can't handle the sheer volume of stolen credentials, so it has stopped contacting individuals and simply reports what it finds to the FBI.

With this much data available, there has been no rush to create new keyloggers, says Sunbelt's Eric Sites. According to the Anti-Phishing Working Group, a business and law enforcement association, there were 180 unique keylogger programs in April, far more than the 77 found in April of last year but a slight drop from the three months prior.

Sites concludes that the maturing malware business is focusing its attention on efficiently processing its cornucopia of stolen information. "The collection and sorting and manipulation of keylogger data [are] getting dropped into SQL databases," he says. "Then [the criminals] can churn through the data to find what they're looking for. Those back-end systems are incredibly complex." ▶

Phishers Co-Opt Legitimate Sites

DANGER LEVEL: HIGH **LIKELIHOOD:** HIGH **TARGET:** ALL INTERNET USERS

PHISHING IS ONE of the most lucrative computer crimes, and it continues to grow rapidly. In April 2006 the number of unique new phishing sites spiked to a record 11,121, almost four times the 2854 sites found in April 2005, according to the most recent report from the Anti-Phishing Working Group.

You might expect phishers' fake sites to be easy to recognize by their amateurish spelling mistakes or broken Web graphics. But these days few phishers try to recreate entire bank-site pages by hand. Instead, modern scammers operate sophisticated server-side software that pulls all of the text, graphics, and links directly from the target bank's live site. All of the queries you input go to the real site—except your log-in data. That choice information goes straight to the bad guys.

Some phishing sites have become so smooth that they can even trap cautious and experienced Web surfers. In their "Why Phishing Works" study published in April, experts at UC Berkeley and Harvard presented test subjects with Web sites and had them look for the fakes. As it turned out, "even in the best-case scenario, when users expect spoofs to be present and are motivated to discover

them, many users cannot distinguish a legitimate Web site from a spoofed Web site," the report states. "In our study, the best phishing site was able to fool more than 90 percent of participants."

BROWSER REDIRECTS BELOW THE RADAR

THE KEY FOR the phisher is to inveigle you into visiting the bogus site. You may be well conditioned not to trust an e-missive purporting to be from your bank and asking you to click a link to check your account details. But phishers today are adopting more forceful means to push your browser to their sites.

A malware-enabled technique called *smart redirection* secretly sends your browser to the scammer's Web site even if you manually type your bank's correct Web address into the browser. Malware on your machine monitors the availability of dozens or hundreds of duplicate fake bank sites, hosted on computers around the world, and redirects your browser to an available fake site whenever you attempt to reach your bank. And if authorities subsequently close down one site, the smart redirection software on an infected system simply sends the victim to a desti-

DEFENSES

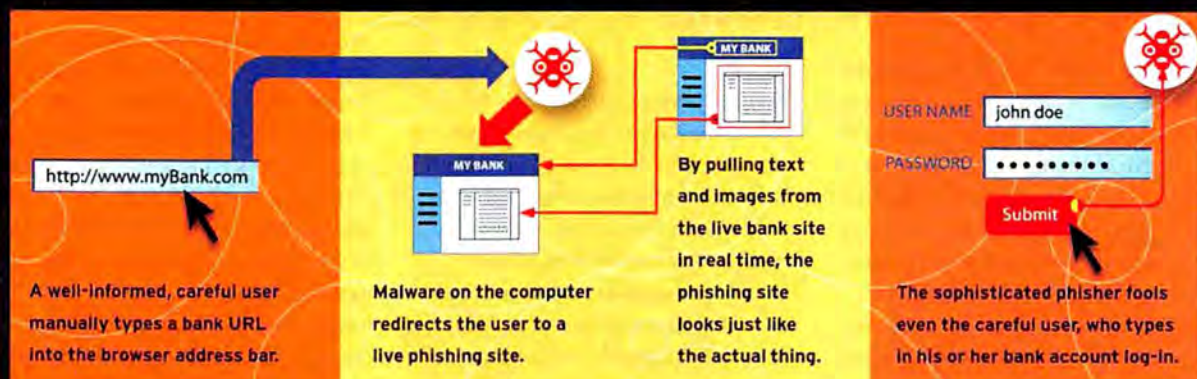
- 1 Don't trust an unsolicited e-mail message from any company, no matter how good it looks. The best phishing sites and scam e-mail messages lack obvious flaws.
- 2 Type in your bank's URL yourself or use a bookmark; avoid clicking an e-mail link.
- 3 Look for a padlock icon, which indicates a secure site, in the browser's toolbar, not the Web page.
- 4 Use one of the many available antiphishing toolbars that can warn you when you encounter a known phishing site. Netcraft (find.pcworld.com/53700) offers one popular free toolbar; we look at others at find.pcworld.com/53738.

nation site that has eluded shutdown.

As long as there's money to be made, criminals will continue to hone their phishing skills and to develop new techniques. And there's plenty of money to be made. "Good, credentialed credit card information sells for \$70 a card," says Michael Rothschild of security hardware maker CounterStorm. The phishers can even sell your data twice: "They can sell the credit that's left on the card, and they can sell the identity," he says.

HOW IT WORKS

ULTRASLICK LURES SET OUT TO CATCH THE WARY



The Human Security Hole

DANGER LEVEL: HIGH **LIKELIHOOD:** HIGH **TARGET:** ALL

YOU CAN UPDATE Windows and each of your applications, and you can use security software to protect your PC, but one constantly exploited weakness can never be patched: human fallibility.

Online villains use an ever-changing array of tricks and traps to lure you in, and they're getting sneakier.

A recent eBay auction trap highlights the effectiveness of good social engineering. According to reports from US-CERT and Internet security companies, clever phishers were using a vulnerability in the eBay site to add auction links to eBay's

pages. Those links brought unsuspecting users to a new site that would ask them for their eBay log-ins. You're no doubt suspicious of random e-mail messages that prompt you to click a link and enter your account information. But if you are prompted after clicking a link on a verifiable eBay page, you just might get caught with your guard down.

Your e-mail gets equal attention. Clever crooks steal or buy e-mail addresses, not



to pelt you with spam, but to send out virus-laden messages that appear to originate from a genuine address—without ever infecting the supposed sender. Combined with a list of known e-mail addresses at a particular company, these spoofed e-mail messages allow for carefully crafted and targeted attacks that are far more successful than the net-cast-wide approach used to distribute most malware today. You're likelier to click on a Word document or an e-mail link that appears in a well-worded note from somebody@yourcompany.com.

Spoofed e-mail addresses are also useful in conjunction with such attacks as the recent one that took advantage of a new, zero-day exploit in Microsoft Word. To get hit, all you'd have to do is open a .doc attachment—and why wouldn't you open an e-mail from Bob down the hall?

Criminals know that if they can fool you with an e-mail or top-notch phishing site, they're well on their way to owning your computer. But there's a positive flip side: A well-informed user constitutes the best defense against any Internet attack. Stay educated, and stay safe. ►

DEFENSES

1 Subscribe to security-focused RSS feeds to keep abreast of the latest Internet threats. We recommend the feeds at F-Secure (www.f-secure.com/weblog), Kaspersky (www.viruslist.com/en/feeds), and Sophos (www.sophos.com).

2 Obtain a wealth of security advice, product reviews, and tips at PCWorld.com's Spyware Info Center (find.pcworld.com/53748).

Crooks Redirect Your Browser to Their Scam Web Sites

DANGER LEVEL: HIGH **LIKELIHOOD:** HIGH **TARGET:** BUSINESSES

ODDS ARE, YOU use Domain Name System servers every day. They translate human-friendly names like "www.pcworld.com" into the numerical IP addresses that computers use to find each other on the Internet. Your ISP has its own DNS server, as do most companies. The Internet can't get by without them.

But more than a million DNS servers around the world—up to 75 percent of all servers, according to networking firm The Measurement Factory—run old or misconfigured DNS software. Such systems are subject to a wide enough range of serious attacks that the SANS Institute, a computer security research and education organization, lists DNS software as one of the top 20 Internet vulnerabilities. For example, it was widely reported that cybercrooks used misconfigured DNS servers in lethal denial-of-service attacks that forced antispam firm Blue Security to shut its doors permanently in May.

Attacks work in several ways. One tactic is "cache poisoning," where an offender can simultaneously target everyone who uses the DNS server. A successful attack tricks a company's or ISP's server into sending everyone who uses it to a phishing or other malicious site. You might type 'www.americanexpress.com' or 'www.yahoo.com', but you will end up at a Web site that installs an arsenal of malware on your computer.

Another lethal ploy: When bad guys send spoofed requests to DNS servers that are recursive, the servers respond by sending answer messages to the intended victim. The responses contain more data than the original requests, which thus magnifies the attack beyond what the crooks could send themselves. The hapless victim is completely overwhelmed by garbage data and can't respond to genuine requests from regular users.

DEFENSE

1 Ask your company's IT group to make sure your DNS server is not recursive and its software is up-to-date. For more, see the US-CERT report at find.pcworld.com/53972.

Rootkits and Viruses Partner Up

DANGER LEVEL: HIGH **LIKELIHOOD:** MEDIUM **TARGET:** WINDOWS USERS

ROOTKITS ARE A malware inventor's dream: They allow worms, bots, and other malevolent software to hide in plain sight. The files don't show up in Windows Explorer, the running processes don't display in the Task Manager, and many current antivirus programs can't find rootkit-hidden malware—which is precisely why malware writers increasingly use them to hide malicious apps.

When news broke last November that some Sony music CDs installed rootkit software to hide copy-protection files, gleeful online crooks were quick to follow with malware that exploited Sony's creation to hide their own programs. Sony's software masked any files or running processes that began with "\$sys\$", so the opportunistic malware writers changed their file names accordingly.

In March, Spain-based antivirus maker Panda Software reported finding variants of the virulent Bagle worm equipped with rootkit functionality. Worse, like producers of botnet programs, rootkit software makers sell tools or give away free ones, so it's even easier for malware authors to build rootkit functionality directly into long-standing software strains like Bagle, or into brand-new malicious creations.

Even as opportunistic criminals use existing rootkits, chilling new possibili-

DEFENSES

1 Look for antivirus software that provides rootkit scanning and removal. Kaspersky's and F-Secure's latest applications have it now; others will likely add it soon.

2 Use a rootkit detector such as Sysinternals' RootkitRevealer (find.pcworld.com/53734) and F-Secure's Blacklight (find.pcworld.com/53736), both free downloads. Other scanners are becoming available; see this month's *Privacy Watch* on page 36 for more information.

ties for the software are emerging. For example, security firm eEye discovered it was possible for crooks to hide files in the boot sector of the hard drive. And in January, John Heasman, security consultant for Next-Generation Security Software, announced that rootkits could hide malicious code within a PC's BIOS by using functions in the BIOS's Advanced Configuration and Power Interface feature.

A project run by Microsoft and University of Michigan researchers really blew the lid off rootkit research, devising a method to virtually "jack up" the operating system and then use software called

SubVirt to run it from below. As far as the operating system knew, it was running normally, but the "virtual machine" completely controlled everything the OS saw and could easily hide itself.

Fortunately the technique can't be implemented easily, and it tends to offer the user clues, causing a slower-running system and producing certain tell-tale modified files. For now, this extreme kind of rootkit exists only as a proof-of-concept; it should be a long time before malware authors can launch such attacks.

HIGH-STAKES HIDE-AND-SEEK

SIMPLY FINDING TODAY'S relatively less dangerous rootkits is a serious challenge for security software. The art of detection and removal is part engineering, part voodoo, and always difficult.

Detecting a rootkit on a Windows PC is not unlike shining a flashlight at objects in a darkened room, and then trying to identify each object by the shadow it casts on the wall. Specialized software, such as F-Secure's BlackLight and Sysinternals' RootkitRevealer, scans the Windows file system and memory for characteristic irregularities that rootkits leave behind.

But those tools may not work in every case. Recently, the adware program Look2Me effectively broke BlackLight by disabling a key system call. The discovery was accidental, but rootkit makers will undoubtedly pay attention to it in their next round of malware. ▶

HOW IT WORKS

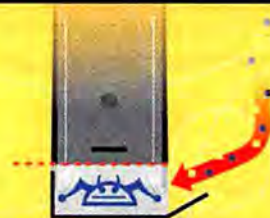
CLOAKED MALWARE SETS UP CAMP ON YOUR PC



A Trojan horse with rootkit software invades a PC as a drive-by download.



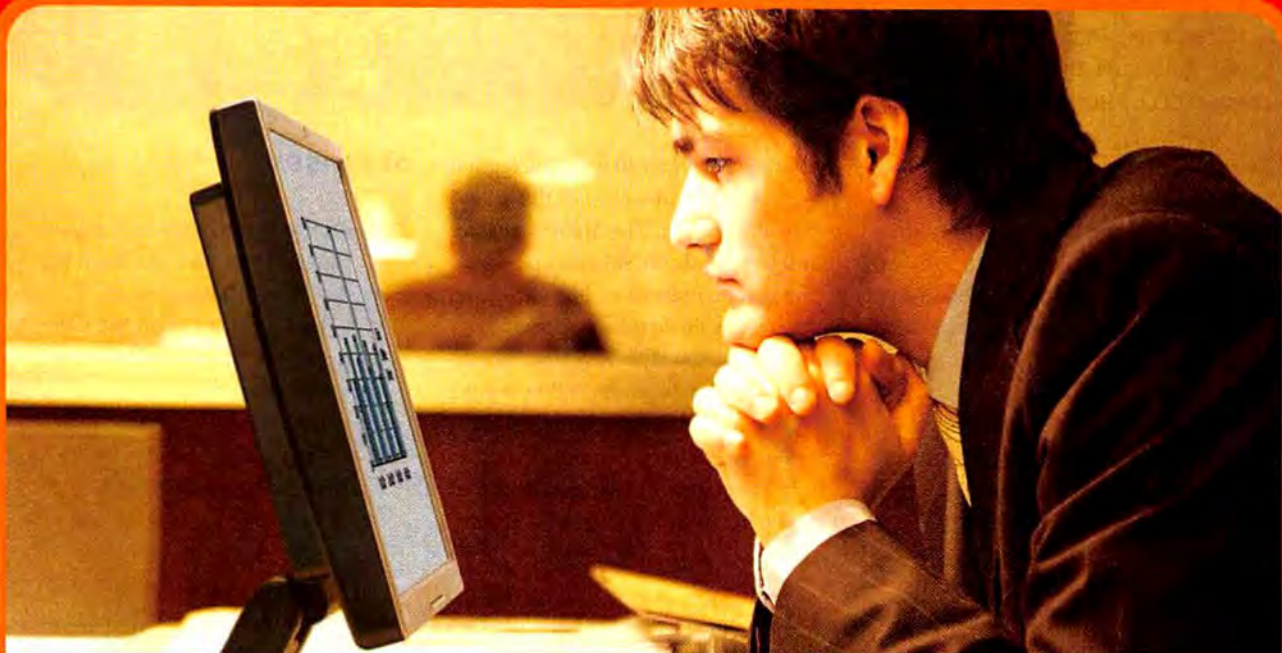
The malware makes deep system changes to hide from antivirus apps.



The camouflaged Trojan horse pulls keyloggers and spyware onto your PC.

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Viruses Call Up Your Cell Phone

DANGER LEVEL: MEDIUM

LIKELIHOOD: LOW (USA), MEDIUM (EUROPE AND ASIA)

TARGET: CELL PHONE AND SMARTPHONE USERS

AS IF VIRUSES on your PC weren't bad enough, these nasty programs now target your cell phone. Like their computer-based cousins, some mobile viruses wreak havoc by crashing the phone and wrecking its operating system. Others are mere nuisances that change icons and make the device more difficult to use.

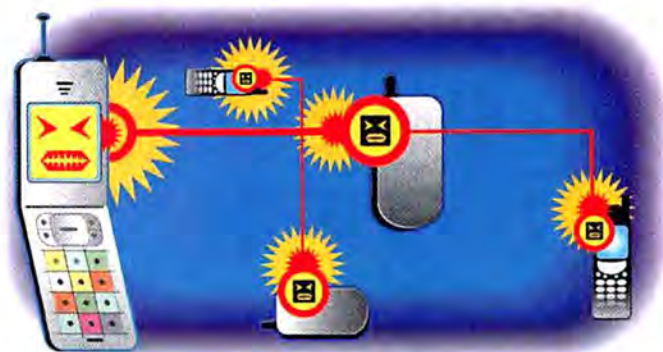
And of course, some are strictly money-minded. A Trojan horse currently infecting Russian phones sends text messages to services that charge the sender a fee.

So far these pests aren't a major problem in the United States, but they are significant threats in Europe and Asia. And a lot of experts think it's just a matter of time before the money-grubbing aggravations arrive on American phones.

Like many real-world biological agents, a cell phone virus typically needs to be physically close to another susceptible phone to make the leap. Computer security experts like Mikko Hyppönen, chief research officer for Finnish antivirus firm F-Secure, often use unsecured phones as bait to see what slithers in. On one London trip, Hyppönen's phone got hit four times via Bluetooth, which has a maxi-

mum range of about 30 feet. Bluetooth is the most common—but not the only—vector of infection. The Mabr virus, for example, spreads via SMS messages.

The vast majority of mobile viruses hit phones using the Symbian operating system, but a few go after Windows Mobile- and Java-based phones. Following the discovery of Cabir.A in June 2004, the number of viruses has continued to climb. There were 211 variants as of May 15, 2006, up from 156 at the end of 2005.



DEFENSES

- 1 Disable "open" Bluetooth on your phone or PDA to close down the most common infection route.
- 2 Keep a close eye on the itemized part of your cell phone bill for unexpected charges.
- 3 Use a mobile antivirus program. F-Secure, Kaspersky, McAfee, and Trend Micro all offer them.

Malware on Your Passport?

DANGER LEVEL: MEDIUM **LIKELIHOOD:** LOW **TARGET:** MOST CONSUMERS

COULD YOUR PASSPORT, a pack of razor blades, or even your pet cat carry a computer virus? It may seem farfetched, but recent findings from a trio of Dutch researchers serve to demonstrate the possibility.

RFID (Radio-Frequency Identification) chips are small, inexpensive devices that can be embedded in stickers and in pet ID tags, and soon they'll show up in driver's licenses and U.S. passports. They're used for electronically transmitting information—say, inventory data for shipping pallets, or your passport number—over short distances.

Though highly useful, some implementations of the RFID technology have security weaknesses. For example, the information on some tags can be rewritten, and other tags can be read from an unusually great distance.

In an attempt to exploit some of these weaknesses, the Dutch university researchers conducted a controversial proof-of-concept study using modified RFID tags and a viruslike command to "infect" the back-end database that stored the tag's records. Theoretically, an RFID system could thus be made to crash or run malicious code—a scary prospect for a critical business or government technology.

Numerous computer security experts have pointed out that a reasonably well-built system with effective "middleware" between the RFID reader and the database proba-

bly wouldn't be vulnerable to such an assault. And sensitive RFID chips can use encryption and shielding covers to protect against acquiring an unasked-for malicious payload. The planned U.S. passports will use both measures.

Still, the study illustrates a basic point: Nearly every system has exploitable flaws. Keep an eye on your cat. ▶

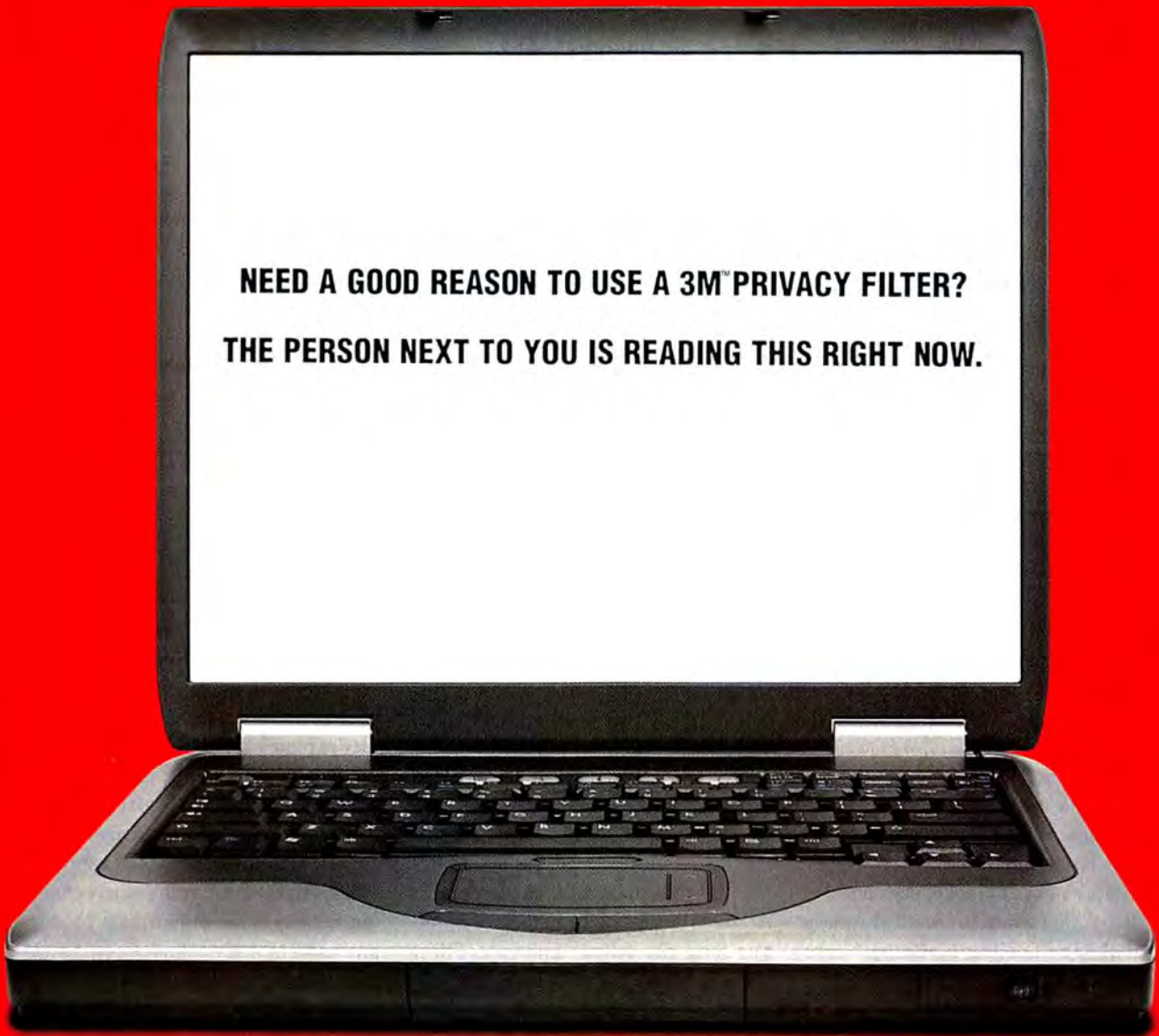
DEFENSES

- 1 RFID signals can't pass through metal or foil-lined cases. If you carry an RFID security pass, keep it in a metal business-card holder or similar enclosure.



RUSSIAN MALWARE MASQUERADES as a cell phone browser but runs up SMS fees.

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Your Data Held for Ransom

DANGER LEVEL: MEDIUM **LIKELIHOOD:** LOW **TARGET:** WINDOWS USERS

IT SOUNDS LIKE a plot concocted by Austin Powers' nemesis, Dr. Evil: Get onto your victims' computers, kidnap their files, and hold the data hostage until they pay up. But such attacks, though rare, have occurred all over the world.

Cryzip, one early example of ransomware, searches for 44 different file types (such as Microsoft Word or Excel files) on a hard drive, and compresses them into a password-protected zip file. It then tells the victim to deposit \$300 in one of 99 randomly selected e-gold accounts. Once paid off, the criminals provide the victim with the necessary password.

In May, another ransomware application, named Arhiveus (find.pcworld.com/53740), came to light. Rather than of directing payment to a potentially traceable e-gold account, it instructed victims to buy prescription drugs from a specific online pharmacy and then send the order ID to the malware author as proof of payment.

"It looks like a Russian-based pharmacy that they're hosting in China," says Lurhq's Joe Stewart. "Appended to [the

URL] is what looks like an affiliate ID—they probably get a cut." In his examination of both Cryzip and Arhiveus, Stewart found the necessary passwords to "free" the data embedded within the malware code itself, unencrypted.

Savvy users sometimes get lucky, too. Richmond Mathewson, a software developer from Plovdiv, Bulgaria, managed to rescue most of a friend's data after she found the entire contents of her 'My Documents' folder had vanished, taking with it all her work files, which she hadn't backed up. When he looked at the computer, Mathewson found the simple but chilling Arhiveus ransom note. He saved the day with his networked Mac Mini, a free undelete tool, and about 4 hours' labor. But he says the recovery wasn't complete: "To

date, 5 percent of the files are still unrecovered."

Currently, ransomware isn't very sophisticated, and its scope is limited. Besides includ-

ing the password with the program, Arhiveus dumps all the victim's files into one long file called "EncryptedFiles.als"—but doesn't actually encrypt it.



ARHIVEUS'S CURT EXTORTION message.

DEFENSES

- 1 If you're a victim, go to the police. Don't pay the ransom, and don't visit any links in the ransom note.
- 2 Write down the details from any ransom notes or messages, and turn off the infected PC. From an uninfected PC, run a Web search using details from the ransom note. You may be able to find the password online.
- 3 Try using an undelete program (see find.pcworld.com/53976 for some free options) to recover your files. However, some files may not be recoverable at all.

"The threat is very small to the average user at the moment," says Stewart. "I'd estimate [the number of ransomware infections] to be in the low thousands worldwide.... It doesn't serve these guys' interests to become widespread. If they keep it low-key, and target people who are powerless to do something about it, they're more likely to get paid."

But "this seems to be just the initial phase of the threat," Stewart adds. Like every type of attack, ransomware will evolve as criminals hone their approach. "With Arhiveus testing the waters of mixing ransomware with affiliate product purchases in shady online stores, it could be the start of something bigger." ▶

HOW IT WORKS

EXTORTION, MALWARE-STYLE



An unsuspecting user accidentally visits a rigged Web site, and the ransomware Trojan horse slithers into the PC.



The ransomware zips up the entire contents of the My Documents folder into a password-protected file.



The user gets a ransom note demanding money, or a purchase at a particular online store, in return for the password.



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No Safe Haven: Threats Plague All Platforms

DANGER LEVEL: HIGH **LIKELIHOOD:** LOW **TARGET:** WINDOWS, MAC, AND LINUX USERS

MAC AND LINUX users have been understandably complacent as Windows users suffer a seemingly endless series of attacks that exploit hole after hole in Microsoft's operating system. But these alternative OSes—once considered safe computing havens—increasingly must cope with their own problems.

The Mac is under attack as evildoers aim at the 70-odd reported security holes in OS X. One of these vulnerabilities was exploited in February by the first piece of malware to hit OS X Tiger: the so-called Oompa-loompa instant-messaging worm. And while Internet Explorer users are probably well accustomed to hearing reports of new browser bugs that could allow "remote code execution" (read: giving an attacker control of your PC), Mac users now need to beware as well—the most recent of Apple's three major security patches this year closed one such hole in the Safari browser.

Linux has a case of worms, too; the number of malicious programs targeting

that OS doubled between 2004 and 2005. Rootkits, the looming threat for Windows PCs, actually trace back to attacks meant to take surreptitious control of the administrative "root" user on Unix OSes. Also, while being able to run your own personal Web server is part of the open-source draw, doing so can allow crooks to hijack your site or take control of your PC.

The latest twist is cross-platform malware: single programs that can assault two or more types of systems.

A proof-of-concept virus that attacks both Windows and Linux appeared in April. The virus, created by antivirus firm Kaspersky, contains no payload and does no damage. Known variously as Virus.Linux.Bi.a and

also Virus.Win32.Bi.a, it infects just a single type of Linux file format (ELF) and a single type of Windows file format (PE). And it's based on old Linux elements that aren't part of newer systems. Still, it was enough of a wake-up call to prompt Linux creator Linus Torvalds to write a fix.

Windows' ubiquitousness means that malware targeting its many security holes has the greatest chance to infect the most PCs. But as alternative operating systems grow in popularity, they become more attractive targets, too.

Andrew Brandt, contributing editor for PC World, writes the Privacy Watch column.

DEFENSES

1 Consider using a Mac or Linux antivirus program, such as Panda Antivirus for Linux and Mac products from vendors such as McAfee and Symantec. If nothing else, you'll be a good neighbor and help stem the flow of Windows viruses.

2 Whatever your OS, keep it fully up-to-date and patched.



THREAT TALLY

OS HOLES ABOUND

THE NUMBER OF security advisories issued for the OSes below show Microsoft is not alone when it comes to vulnerabilities, but Apple seems to patch more promptly.

OPERATING SYSTEM	2004	2005	2006 ¹
Windows XP Home	28	37	6
(and remain unfixed) ²	5	8	1
Windows XP Pro	29	45	10
(and remain unfixed) ²	5	9	1
Windows 2000 Pro	24	37	5
(and remain unfixed) ²	2	5	1
Linux (2.6.x kernel)	30	33	23
(and remain unfixed) ²	9	4	2
Mac OS X ³	15	22	7

SOURCE: Secunia.com ¹ Through May 22, 2006. ² Problems for which no partial fix or complete patch was available as of May 22, 2006. ³ All reported vulnerabilities have been fixed or patched.

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One PC, Two Brains

Think that dual-core PCs are too pricey?
We lab-tested six economical desktops that deliver plenty of power.

~~~~~ **BY DAN SOMMER • TESTING PERFORMED BY THOMAS LUONG** ~~~~~

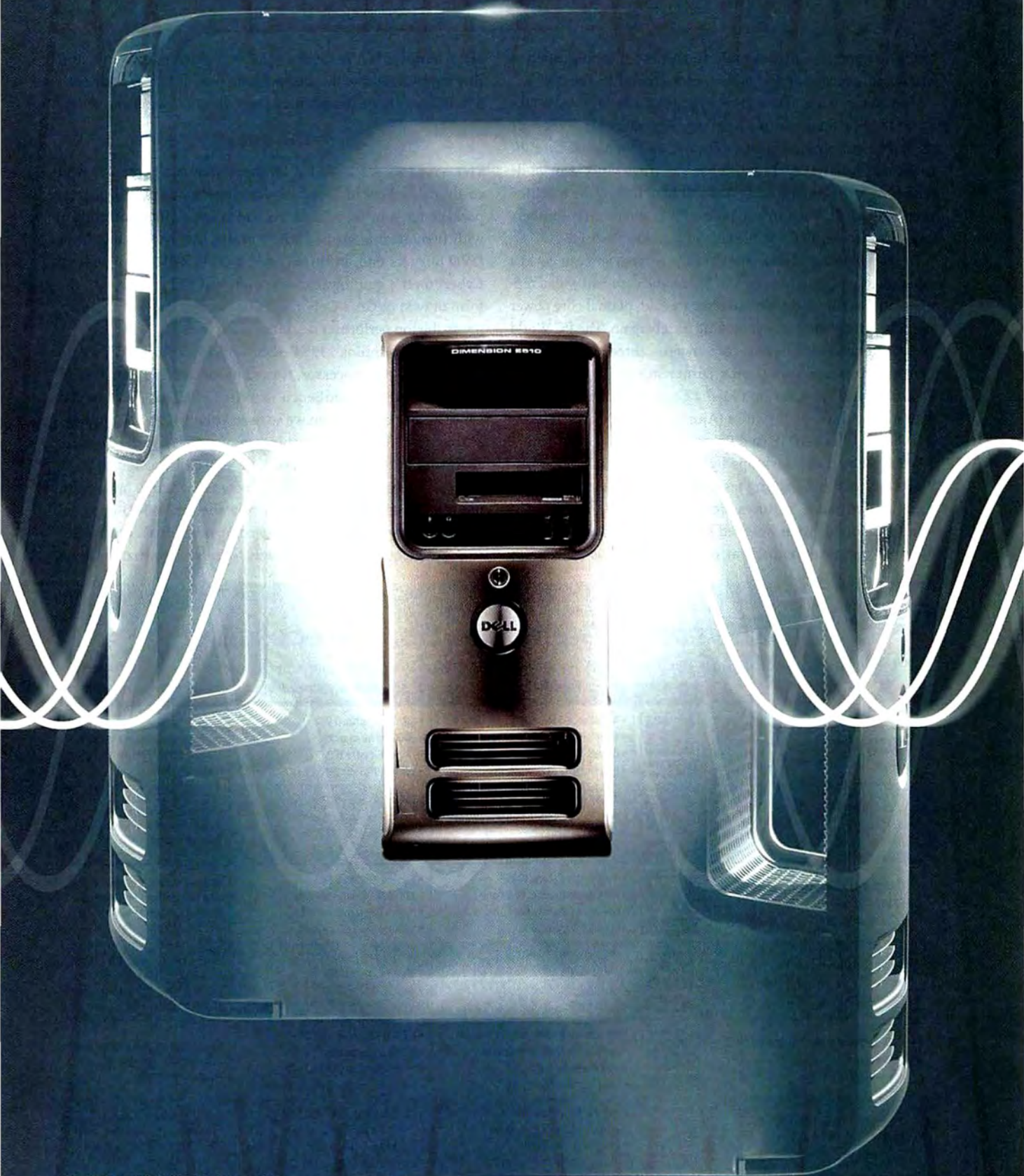
IF YOU'VE YEARNED for a dual-core desktop system but have held off buying one because you were deterred by high prices, now is the time to take the plunge. The cost of dual-core processors from AMD and Intel has dropped significantly since they debuted last year, and a good selection of affordable dual-core PCs is currently available. You can shell out less than \$1500 and walk away with a robust and powerful system—including a monitor—that's ready to take on both multitasking and multithreaded applications.

With the advent of dual-core CPUs, PCs have gained more processing

power than ever before. A dual-core machine has two computing cores in one processor package, which allows the system to efficiently work on more than one task at a time. Our WorldBench 5 benchmark's multitasking test has shown us that dual-core processors prove especially useful when the computer is running two taxing programs. Dual-core processors also boost the performance of multithreaded software, though relatively few applications are written this way. (WorldBench 5 includes the multithreaded Roxio VideoWave Movie Creator and Windows Media Encoder.) ►

P H O T O G R A P H   B Y   G E O F F   S P E A R





PRICED AT \$1064, Dell's Dimension E510 offers a great value.



You can expect to see more multithreaded applications, such as multimedia programs and games, in the months to come.

However, you don't have to be a gamer or a power user to take advantage of dual-core technology. For example, everyone should be running antivirus software, and on a dual-core PC using well-behaved applications you can run a virus scan while rendering a video at the same time, without having the machine screech to a halt. You can also burn a DVD and crunch numbers in a spreadsheet, all the while enjoying plenty of speed.

To see what kind of dual-core desktop systems you can get at a value price, we picked a ceiling of \$1500 and came up with a representative set of machines that offer a wealth of dual-core power and features to satisfy buyers looking for a bargain. The PC World Test Center assessed six dual-core systems, three based on Intel Pentium D processors (Dell's Dimension E510, Gateway's FX510XL, and HP's Pavilion Media Center m7490n) and three with AMD Athlon 64 X2 CPUs (Ajump's NBP1005, CyberPower's Gamer Ultra 8500SE, and Polywell's MiniBox 939NP-4200).

We evaluated the desktops by running them through our WorldBench 5 and gaming tests, and by appraising each system's performance, features, design, and price. As these are value machines, price weighed heavily in our consideration. After our complete comparison, one PC emerged as the winner:

HP's Pavilion Media Center m7490n, which earned our Best Buy award thanks to its good performance on our WorldBench 5 tests, loads of media-oriented features, and reasonable price.

## GOOD DEALS

THE SYSTEMS WE looked at for this review can't compete with costly, decked-out high-end models, but they do provide a great package for your money. All six had at least 250GB of storage, with two offering striped RAID arrays. All had double-layer DVD burners and, in three cases, a DVD-ROM drive as well. CyberPower's gaming machine even had SLI graphics, in the form of twin eVGA e-GeForce 7600 GT cards. Not surprisingly, it was the top performer on our gaming tests.

Polywell's MiniBox 939NP-4200, which used a 2.2-GHz Athlon 64 X2 4200+ processor, turned in the best performance of the group, with a WorldBench 5 score of 110. That's fast, but far from the speediest system we've tested (the \$4199 Xi Computer MTower 64 AGL-SLI, a machine on our *Top 10 Power Desktops* chart with a 2.6-GHz Athlon 64 X2 FX-60 CPU, scored 142).

In reviewing the test results, we noted that at this price point the Intel-based machines closely matched the AMD-powered systems in performance. The two companies' dual-core processors are still quite different, though; for more information about

## DESKTOP PCs

**TEST  
Center**

## Value Systems Gain Dual-Core Processors

HP's PAVILION MEDIA Center m7490n may be tops, but Polywell's MiniBox 939NP-4200 packs the biggest performance punch.

|   | VALUE DUAL-CORE SYSTEM                                                                                                                 | PCW Rating             | Performance <sup>1</sup>                                                                                                                                                          | Features and specifications                                                                                                                                                                | Bottom line                                                                                                                    |
|---|----------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| 1 | <b>HP Pavilion Media Center m7490n</b><br><b>Best Buy</b> \$1300<br><a href="http://find.pcworld.com/53804">find.pcworld.com/53804</a> | <b>81</b><br>Very Good | <ul style="list-style-type: none"> <li>WorldBench 5 score: 100</li> <li>WorldBench 5 rating: Very Good</li> <li>Overall design: Very Good</li> <li>Graphics: Fair</li> </ul>      | <ul style="list-style-type: none"> <li>3.2-GHz Pentium D 940</li> <li>500GB drive capacity</li> <li>17-inch HP vs17e LCD</li> <li>256MB HP nVidia GeForce 7300LE</li> </ul>                | With lots of thoughtful extras that would appeal to photo and music mavens, the m7490n makes a great media machine.            |
| 2 | <b>Dell Dimension E510</b><br>\$1064<br><a href="http://find.pcworld.com/53676">find.pcworld.com/53676</a>                             | <b>81</b><br>Very Good | <ul style="list-style-type: none"> <li>WorldBench 5 score: 88</li> <li>WorldBench 5 rating: Good</li> <li>Overall design: Good</li> <li>Graphics: Good</li> </ul>                 | <ul style="list-style-type: none"> <li>2.8-GHz Pentium D 820</li> <li>250GB drive capacity</li> <li>17-inch Dell E1776FP LCD</li> <li>256MB ATI Radeon X600</li> </ul>                     | A low price and elegant design distinguish this bargain media-oriented system.                                                 |
| 3 | <b>Gateway FX510XL</b><br>\$1500<br><a href="http://find.pcworld.com/53800">find.pcworld.com/53800</a>                                 | <b>77</b><br>Good      | <ul style="list-style-type: none"> <li>WorldBench 5 score: 104</li> <li>WorldBench 5 rating: Very Good</li> <li>Overall design: Very Good</li> <li>Graphics: Very Good</li> </ul> | <ul style="list-style-type: none"> <li>3.2-GHz Pentium D 940</li> <li>320GB (RAID) drive capacity</li> <li>19-inch Gateway FPD1965 LCD</li> <li>128MB nVidia GeForce 6600</li> </ul>       | Gateway's model is expensive relative to some of the others, but it provides first-rate speed and a well-thought-out design.   |
| 4 | <b>Ajump NBP1005</b><br>\$1350<br><a href="http://find.pcworld.com/53668">find.pcworld.com/53668</a>                                   | <b>77</b><br>Good      | <ul style="list-style-type: none"> <li>WorldBench 5 score: 97</li> <li>WorldBench 5 rating: Very Good</li> <li>Overall design: Good</li> <li>Graphics: Very Good</li> </ul>       | <ul style="list-style-type: none"> <li>2.2-GHz Athlon 64 X2 4200+</li> <li>250GB drive capacity</li> <li>19-inch AG Neovo F-419 LCD</li> <li>128MB Asus nVidia GeForce 7300GS</li> </ul>   | This decently priced system offers solid performance and features, including plenty of expansion room, but its design is dull. |
| 5 | <b>CyberPower Gamer Ultra 8500SE</b><br>\$1499<br><a href="http://find.pcworld.com/53666">find.pcworld.com/53666</a>                   | <b>77</b><br>Good      | <ul style="list-style-type: none"> <li>WorldBench 5 score: 105</li> <li>WorldBench 5 rating: Very Good</li> <li>Overall design: Good</li> <li>Graphics: Superior</li> </ul>       | <ul style="list-style-type: none"> <li>2.2-GHz Athlon 64 X2 4200+</li> <li>250GB drive capacity</li> <li>19-inch ViewSonic VA902b LCD</li> <li>Two 256MB eVGA e-GeForce 7600 GT</li> </ul> | Strong graphics performance and a flashy design increase this PC's appeal to gamers.                                           |
| 6 | <b>Polywell MiniBox 939NP-4200</b><br>\$1499<br><a href="http://find.pcworld.com/53802">find.pcworld.com/53802</a>                     | <b>74</b><br>Good      | <ul style="list-style-type: none"> <li>WorldBench 5 score: 110</li> <li>WorldBench 5 rating: Superior</li> <li>Overall design: Fair</li> <li>Graphics: Superior</li> </ul>        | <ul style="list-style-type: none"> <li>2.2-GHz Athlon 64 X2 4200+</li> <li>320GB (RAID) drive capacity</li> <li>19-inch Avidav M1931 LCD</li> <li>256MB eVGA e-GeForce 7600GS</li> </ul>   | Compact box-shaped model turned in great performance but offers little expansion room in its cramped interior.                 |

CHART NOTES: Prices and ratings are as of 6/2/2006. For more information about the desktops here, including testing details, go to [find.pcworld.com/53806](http://find.pcworld.com/53806).



the varying architecture, see "Dueling Dual-Core CPU Architectures" on page 96. For this story we also examined a dual-core iMac, and we report our findings in "Core Duo-Based iMac Packs Lots of Power" on page 102. Finally, to find out how the technology is affecting mobile PCs, we looked at a dual-core laptop; turn to "Notebooks Get a Boost From Dual-Core Processors" on page 104 for more on how portables are changing.

## HP Pavilion Media Center m7490n

**Best Buy** THANKS TO ITS affordable \$1300 price, scads of features, and strong performance on WorldBench 5, HP's Pavilion Media Center m7490n earned our Best Buy award. A terrific system for multimedia, the m7490n includes lots of extras that will appeal to photo and music mavens, and its well-labeled ports simplify the process of hooking up all the peripherals you will need. The only fly in the ointment is that we found its gaming performance to be far from superb.

The m7490n, which uses a 3.2-GHz Pentium D 940 CPU and 2GB of RAM, earned a score of 100 in our WorldBench 5 tests, making it a very strong performer in comparison with the other PCs here. But its gaming performance was by far the slowest of the systems in this group. At 1280 by 1024 resolution and 32-bit color, it produced just 29 frames per second in our Return to Castle Wolfenstein test—a mark 78 percent slower than that of the leader here, CyberPower's Gamer Ultra 8500SE. The m7490n's gaming speed is barely fast enough to keep jerky images to a minimum.

This Windows XP Media Center-based PC contains just about everything you could want in a multimedia machine: TV and FM tuners, 500GB of storage, twin optical drives including a DVD±R DL burner, lots of well-labeled and color-coded ports on the front and the rear, a front-panel bay for HP's optional Personal Media Drive (not included at this price), and a top-of-case position to store discs or add a dock for an HP camera. The front ports sit behind a door that neatly slides into the case when opened. HP's five-in-one media-card reader is conveniently integrated on the top front of the case.

We encountered a few drawbacks. The case isn't expandable—granted, it already contains most of what you need, but if you want to add another drive, for instance, you'll find no bays or

slots available. The system also lacks a DVI monitor adapter.

The m7490n was the only model in this group to come with a wireless keyboard and mouse, and it also included a remote control and USB remote receiver. We found the HP vs17e LCD monitor a bit dark, even after adjustment. One welcome touch: HP includes an extensive guide (with troubleshooting assistance) to the Media Center OS, the remote, the system, and the monitor.

The m7490n is a great basic media machine. Though it isn't a high-level performer, it's chock-full of thoughtful features and details that will help you build and maintain a multimedia library.

## Dell Dimension E510

THE DELL DIMENSION E510 stands out from this collection of value machines with a low price tag of \$1064. Using a 2.8-GHz Pentium D 820 with 1GB of RAM, the E510 earned a WorldBench 5 score of 88, a result that ranked the lowest among this

group but just about matched the speed of other systems we've tested carrying a 3-GHz Pentium D 830 CPU. If you're simply running typical office applications and browsing the Web—and you aren't interested in more demanding activities, such as video editing—its performance should be quite acceptable.

The Dimension E510 employs an ATI Radeon X600 graphics card with 256MB of RAM, and in our Return to Castle Wolfenstein gaming

test it notched 67 frames per second at 1280 by 1024 resolution and 32-bit color. Although that score makes it 49 percent slower than this roundup's gaming leader, the CyberPower Gamer Ultra 8500SE, it should suffice for basic gaming.

The system's elegant case has a stylish air vent in front to help keep its components cool. A double-layer DVD burner and a multcard reader that can accept 11 media formats reside at the top of the front panel. The case's ports are well positioned and cover most of what you need. The front offers two USB 2.0 ports and headphone and microphone jacks. In back are five more USB 2.0 ports, along with a FireWire port and an optical digital-out connection; also here are a few color-coded ports—one microphone, one audio-in, and three audio-out. The graphics card has VGA analog, DVI, and S-Video connectors.

The E510 runs Windows XP Media Center and includes features for media-minded users; the TV tuner has connectors ►



HP'S PAVILION MEDIA Center m7490n (left) and Gateway's FX510XL.



for cable, and two sets of video- and audio-in ports. The system also contains a Creative Sound Blaster Audigy 2 ZS card.

After moving one lever on top, opening the case is easy. Inside we found quick access to the drive bays, slots, and RAM. A PCI Express x1 slot is the only one open, and it's a bit hard to reach, sandwiched between the graphics and sound cards. Installing a component in the one available externally accessible drive bay requires no tools.

Dell's 17-inch E176FP LCD monitor delivers nice text and graphics, but most of the other systems in this roundup come with 19-inch models (and higher prices). Dell supplies a good setup guide for the monitor, but no printed system manual. The included 146-page PDF manual looks thorough, however, with sections on installation of all parts and on troubleshooting.

The E510 makes a fine value-priced machine. It isn't a powerhouse, but as an inexpensive general-use computer that has some media-oriented extras, it presents a very nice package.



THE AJUMP NBP1005.

## Gateway FX510XL

WE WERE VERY impressed with Gateway's FX510XL. It has the best design of any machine here, and it was the quickest Intel-powered PC of the group. With a 3.2-GHz Pentium D 940 CPU and 2GB of RAM, the Gateway earned a WorldBench 5 score of 104, the highest mark we've ever noted for a Pentium D-based system.

The \$1500 FX510XL included an nVidia GeForce 6600 graphics card with 128MB of memory, and it performed decently enough in our gaming tests to serve reasonably well as a value gaming system. The FX510XL consistently held second place, behind CyberPower's Gamer Ultra 8500SE (which

includes SLI graphics), in our Return to Castle Wolfenstein test, notching 100 frames per second at 1280 by 1024 resolution and 32-bit color. It was also the best of the Intel-based machines in our Unreal Tournament test, producing 144 fps at the same resolution and color depth.

This midsize tower model has two 160GB hard drives con- ▶

## UNDER THE HOOD

### Dueling Dual-Core CPU Architectures

OUR CURRENT CROP of value desktops contain dual-core processors from AMD and Intel. However, while they share the dual-core moniker, the two companies' desktop CPUs are very different.

From the ground up, AMD designed its Athlon 64 X2 and FX-60 desktop processors to include two cores. Intel created its Pentium Extreme Edition and Pentium D desktop CPUs by putting two single-core chips in one package.

Intel beat AMD to the dual-core desktop punch in April 2005 by assembling the first two-core X86 processor—the Pentium Processor Extreme Edition 840—out of existing parts. Engineers put two 3.2-GHz Pentium 4 cores on the same die (each with its own 1MB Level 2 cache), and then connected them with an external 800-MHz frontside bus.

To boost performance, Intel left in the Pentium 4's hyperthreading technology, which makes the operating system see each chip as two. To create the subse-

quent, lower-priced Pentium D processor (launched in May 2005), the company employed cores running at slower speeds and turned off the hyperthreading. In January 2006 Intel introduced updated dual-core Pentium D chips based on smaller, faster cores.

AMD rolled out its first dual-core CPUs

Evaluating the performance of CPUs that use different chip sets is an imperfect science. But in the vast majority of our tests of PCs using comparable processors, AMD's dual-core architecture has proved to be the superior performer.

Both companies have new CPUs on the way. AMD recently launched ver-

### AMD'S DUAL-CORE HAS PROVED THE SUPERIOR PERFORMER.

in April 2005 under the Opteron name for servers and workstations, and then launched its Athlon 64 X2 desktop chip a month later. One of the clearest advantages of AMD's design is the ability of the two cores to communicate with each other within the die so that data doesn't have to travel over a slow external system bus as in Intel's arrangement. Each core gets a 512KB or 1MB L2 cache.

sions of its X2 and FX processors based on its new AM2 socket, which supports faster DDR2 memory. And Intel is poised to debut its next-generation CPU, called the Core Duo 2, later this year (the first Core Duo was a mobile processor). Based on a new architecture, the desktop Core Duo 2 has exhibited strong performance in early public tests.

—Tom Mainelli



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figured in a striped RAID array, a multcard reader that accepts eight media formats, and one double-layer DVD burner. The front of the case provides three USB 2.0 and two FireWire ports, as well as headphone and microphone jacks. In back, the system includes an abundance of additional connections: four USB 2.0, one FireWire, two audio-in, two audio-out, one microphone, one digital audio-out, one coaxial audio, and one serial.

After you undo a big latch and remove a thumbscrew, the case opens easily. The FX510XL provides well-arranged cables and good access to the slots and bays, though reaching the memory sockets is a bit tight. This is the only machine of the group to offer an available and accessible PCI Express x16 slot; it also has one PCI slot, an internal drive bay, and an externally accessible drive bay open. This Windows XP Media Center–based system provides an FM antenna (but no TV tuner) and integrated 7.1-channel sound, as well. (An ATI Theater 550 Pro TV tuner with wireless remote control costs an additional \$100.)

The basic, black, 19-inch Gateway FPD1965 LCD monitor has both VGA analog and DVI connections. We liked the FX510XL's keyboard and mouse best among the group: The keyboard has a padded wrist rest, and the mouse is well sized, with a nice tacky material that is easy to grip.

Gateway's FX510XL combines strong performance with top design. The PC's main drawback is its relatively high price, but with its overall attention to detail, this system is a joy.

## Ajump NBP1005

AJUMP'S NBP1005 IS a solid machine that performed well in both our WorldBench 5 and graphics tests, but otherwise it doesn't stand out from the crowd. Powered by a 2.2-GHz Athlon 64 X2 4200+ CPU with 1GB of RAM, it earned a WorldBench 5 score of 97, 12 percent lower than the mark of 110 set by Polywell's MiniBox 939NP-4200, which has the same CPU and amount of system memory. With a graphics card based on nVidia's GeForce 7300GS GPU, the Ajump's gaming performance was good, logging 82 frames per second at 1280 by 1024 resolution and 32-bit color in our Return to Castle Wolfenstein test.

The NBP1005's nondescript black case has a reasonably quiet fan that vents on the left side. A seven-format media-card reader, two USB 2.0 ports, and headphone and microphone jacks adorn the front of the system.

This is one of three PCs in the group to offer two optical drives: a double-layer DVD burner and a 16X DVD-ROM reader. The two drives allow you to rapidly copy directly from disc to disc or to view a movie while burning files. The back has typical

connections, including a Wi-Fi card and four more USB 2.0 ports, but the system lacks a FireWire port, which is a fairly common feature found on most other value systems.

Although we needed to use a screwdriver to remove the machine's side panel, the NBP1005's roomy case offers easy access to all the interior components. Two slots—one PCI Express x1 and one PCI—plus two internal bays and two externally accessible bays remain available for expansion.

The accompanying 19-inch AG Neovo F-419 LCD monitor,



with VGA analog and DVI connections, looked good and had clearly labeled controls positioned on the front right. Ajump includes a printed monitor setup manual as well as on-screen guides for the monitor, the wireless LAN, and the motherboard, but doesn't provide an integrated system guide.

Overall the NBP1005 is reasonably priced and relatively fast, but in other respects it's an undistinguished value desktop.

## CyberPower Gamer Ultra 8500SE

IF YOU'RE LOOKING for affordable dual-core gaming and you like vivid, distinctive styling, take a look at CyberPower's Gamer Ultra 8500SE. This \$1499 system was tops in our gaming tests.

The 8500SE used a 2.2-GHz Athlon 64 X2 4200+ and 1GB of RAM to achieve a WorldBench 5 score of 105, just 5 percent lower than the mark of 110 from the best performer of the group, Polywell's MiniBox 939NP-4200. The 8500SE's multitasking test results were impressive too, as it finished in first place.

The system's dual EVGA e-GeForce 7600 GT graphics cards helped it take the number one spot in our gaming tests, hitting 131 frames per second at 1280 by 1024 resolution and 32-bit color in our Return to Castle Wolfenstein test.

CyberPower has wrapped the 8500SE in an unusual, flashy case that's loaded with youth appeal. The machine's red plastic front panel has blue lights, and its silver case has a clear left- ▶





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side panel, with a blue bar of light shining up from the inside.

A rather large door on the front of the tall tower swings to the right to reveal two optical drives—a double-layer DVD burner and a 16X DVD-ROM reader—along with three available externally accessible bays, a six-format media-card reader, two USB 2.0 ports, and microphone and headphone jacks. In back is a typical array of connectors, including S/PDIF, FireWire, and six audiovisual ports to support the integrated 7.1-channel sound.

The 8500SE offers a neat and roomy interior with space for two more internal drives. However, the dual graphics cards block one free PCI slot, leaving only one available. Typical of

CyberPower, you'll find no user guide, printed or on-screen.

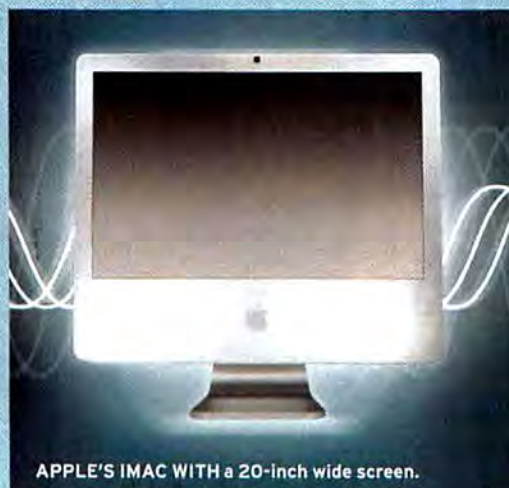
Of the vendors here, CyberPower did the worst in our annual Reliability and Service survey of *PC World* readers, earning worse-than-average marks for its systems' reliability. Regardless, for gaming and flash, this is a top value PC, though the lack of user-friendly documentation will add difficulty for novices.

## Polywell MiniBox 939NP-4200

POLYWELL'S MINIBOX 939NP-4200, a compact system that measures just 11 inches wide by 14 inches deep by 9 inches tall, turned out to be our top WorldBench 5 performer of the ►

### WHAT ABOUT APPLE?

## TEST Center Core Duo-Based iMac Packs Lots of Power



APPLE'S IMAC WITH a 20-inch wide screen.

\$1799, somewhat above our ceiling, but Apple also offers a 15-inch unit that starts at \$1299.

The iMac uses a 2-GHz Core Duo T2500 processor, Intel's mobile dual-core CPU, which enables this thin system to run cool. It earned a score of 96 in our WorldBench 5 tests, making it plenty fast for a value system. The iMac also completed our multitasking tests quickly, ahead of the value PCs

appear as icons, and you can take your pick. At first Windows looks slightly different because the standard icons, such as My Computer and Recycle Bin, are absent. Once you're working with it, however, Windows behaves normally, with none of the noticeable delays of the bad old days of emulation.

### LOADS OF FEATURES

THE IMAC COMES with a slot-fed double-layer DVD burner located on the right of the LCD, as well as a 250GB hard drive. On the right rear are most of the ports you'll want: two FireWire, three USB 2.0 (plus two more USB 1.1 ports on the keyboard), mini-DVI, DVI, VGA, S-Video, and composite video. Good-sounding stereo speakers are built in, as is a microphone, optical digital audio (for headphones), and an audio line-in port.

One of the iMac's advantages is the software it includes, such as iLife, Apple's media-focused set of applications. Another nifty feature is iSight, the built-in Web camera with its iChatAV software already installed.

This system has some limitations—unlike the PCs we looked at for this review, the iMac does not allow you to access its interior to upgrade and add components. However, it does put most of what you need from a computer into one extremely elegant package.

—Dan Sommer

DUAL-CORE TECHNOLOGY ISN'T exclusive to PCs—Apple has gotten in on the action, too. The company introduced dual-core technology on the iMac last February. And with the addition of Intel processors and Boot Camp for running Windows, it's now possible for us to see how Macs compare with Windows-based PCs. To determine what kind of power an iMac can provide, we examined the 20-inch wide-screen model, an all-in-one system that's among the most elegant computers you can buy.

When you gaze at the iMac's gorgeous screen, all the other hardware seems like an afterthought, because all the components are neatly tucked away behind the LCD. The list price for the model we tested, with 1GB of RAM, is

that we reviewed for this roundup.

The system offers solid 3D graphics, thanks to its ATI Radeon X1600 card with 128MB of RAM, but one drawback is that Macs running Boot Camp conflict with the 3DS Max portion of our WorldBench 5 tests, and as a result the iMac was unable to complete the gaming portion of our testing. The wide-aspect display looks terrific at its native 1680 by 1050 resolution, and the system can support external monitors at up to 1920 by 1200 (digital) or 2045 by 1536 (analog).

Using Apple's Boot Camp, we added a second partition to the iMac to house Windows XP. (For details on that installation, see [find.pcworld.com/53980](http://find.pcworld.com/53980).) To run Windows you just hold the <Option> key while booting. The two partitions





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group. A 2.2-GHz Athlon 64 X2 4200+ and 1GB of RAM helped the Polywell earn a WorldBench 5 score of 110, a great score for a value model. The system was also quick in gaming tests, achieving 99 frames per second at 1280 by 1024 resolution and 32-bit color in our Return to Castle Wolfenstein test.

The \$1499 939NP-4200 is one of two machines in our roundup to offer two 160GB hard drives configured in a striped RAID array. The front of the case has one double-layer DVD burner, a media-card reader that accepts six formats, two USB 2.0 ports, one FireWire port, and even a floppy drive. Two blue-colored gauges that record the CPU and hard-drive temperature also reside on the front. In back are other typical connectors, including VGA analog, DVI, and S-Video display ports.

Though the system has a carrying handle, which would be

convenient for toting it, say, to a LAN party, it's rather heavy. The window in the left side of the PC affords a view into the cramped but neat interior; and if you need to get inside, the top of the case comes off easily after you remove a couple of thumbscrews. Once the case is open, however, your work gets harder: One otherwise-available PCI slot is blocked, and the RAM sockets and the open externally accessible bay are hard to reach.

If you're in the market for a compact value computer with strong performance, the 939NP-4200 is a worthy machine—just don't expect much expansion room. ■

*Dan Sommer has covered consumer and enterprise technology products and services for more than 20 years. Kalpana Ettenson and Tom Mainelli are senior editors for PC World.*

## MOBILE TECHNOLOGY

TEST  
Center

## Notebooks Get a Boost From Dual-Core Processors

INTEL RELEASED THE Core Duo mobile dual-core processor late last year, and notebooks have taken a performance leap ever since. With Core Duo CPUs, small and large portables alike are inching closer to their desktop PC brethren in providing more processing muscle.

Though AMD and Intel continue to duke it out in the desktop PC arena, that same battle has not been waged among notebook systems—until now. AMD's plans for a mobile dual-core processor center around the Turion 64 X2, which was not available as of this writing, but should be appearing in notebooks this summer.

Intel offers mobile dual-core CPUs in two separate lines: Core Duo T processors for mainstream notebooks, and Core Duo L low-voltage CPUs for ultraportables. Core Duo CPUs include a 667-MHz frontside bus, support for faster memory matching the bus speed, a new 945 GM/PM chip set, and a 2MB Level 2 cache.

As with desktop CPUs, doing a perfectly fair comparison between single- and dual-core notebooks is almost impossible. But our tests of notebooks

using Core Duo CPUs have suggested significant improvements in performance over laptops that rely on single-core processors. For instance, we ran our WorldBench 5 test suite on a Dell

cated gamer could dream of (and comes with a price tag to match: \$3860).

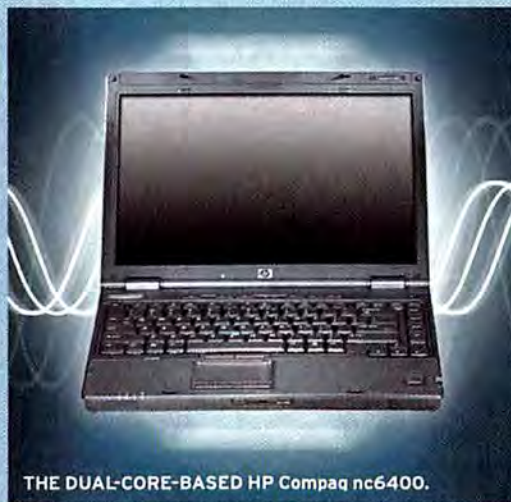
Is it possible to find dual-core horsepower in a value notebook? The answer is yes, though certainly not as much power as a desktop PC or a high-end notebook provides. I looked at an HP Compaq nc6400 portable with a 1.83-GHz Core Duo T2400 and 512MB of RAM. It earned a WorldBench 5 score of 84, placing below the value desktops in this review but still ranking on a par with similarly configured notebooks.

At \$1549, the nc6400 costs a bit more than the value desktops we saw—and its midrange features lag behind theirs, as well. It uses integrated Intel 950 graphics and has only a 60GB hard drive and a DVD-ROM/CD-RW optical drive. But this business model differentiates itself

in other ways, providing a fingerprint reader, a nice 14.1-inch wide screen, and a manageable 5.1-pound weight.

Truly value-priced notebooks—those that cost \$1000 or less—using Core Duo processors are not yet available. For the time being, if you want a bargain notebook, you'll have to settle for a model carrying a single-core processor.

—Kalpana Ettenson



Inspiron XPS M1710 using a 2.16-GHz Core Duo T2600 processor and 1GB of RAM, and it notched a score of 106, placing a solid 7 percent above the 99 score of a single-core 2.13-GHz Pentium M 770-equipped Micro Express Z3300 notebook using 1GB of RAM.

Granted, the Dell unit is a performance-oriented desktop replacement fitted with all the bells and whistles a dedi-



Acer recommends Windows® XP Professional.

# Ferrari 4000

## TECHNOLOGY DRIVER

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July/August 2006



The philosophy of Acer, as Ferrari, is to drive the technology of tomorrow. Both produce desirable, eye-catching and devastatingly fast products that embody the passion, spirit and years of experience leading the competition. The magnificent carbon fiber casing of the **Ferrari 4000** conceals the very latest 64Bit technology, full wireless connectivity and widescreen monitor. Powerful, dark and purposeful, the **Ferrari 4000** has the presence of a true champion.

- AMD Turion™ 64 Mobile Technology ML-40
  - AMD PowerNow!™ Technology
  - HyperTransport™ Technology
  - Enhanced Virus Protection Technology¹
- Genuine Windows® XP Professional x64 Edition
- 1GB DDR333 SDRAM
- 120GB² hard drive
- Integrated Super-Multi drive (DVD+R, DVD-R, DVD-RAM)
- 5-in-1 card reader for optional MultiMediaCard™, Secure Digital card, Memory Stick™, Memory Stick PRO™ or xD-Picture Card™
- 15.4" WSXGA+ (1680 x 1050) TFT display
- ATI® MOBILITY™ RADEON® X700 graphics, 128MB DDR
- 802.11b/g WLAN, Bluetooth®, gigabit LAN, V.92 modem
- One-year limited warranty³

**Ferrari 4006WLMi**

**\$1,999**

S(LX.FR40M.027)

**Ferrari**

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## Acer F-20"

- 20" wide-screen TFT LCD, Acer CrystalBrite Technology
- 1680 x 1050 native resolution
- 800:1 contrast ratio
- 176° horizontal viewing angle
- 176° vertical viewing angle
- Two 5.0W integrated speakers
- VGA, DVI-D signal connectors
- 300 cd/m<sup>2</sup> brightness
- 8ms gray-to-gray response time
- External power adapter
- Gloss black/red color

**\$449**

(ET.L380B.063)

**Ferrari**

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## Acer® Flat Panels: Displaying Quality & Value



**24" WIDE-SCREEN**

### Acer AL2416Wd

- 24" wide-screen TFT LCD
- 1920 x 1200 native resolution
- 1000:1 contrast ratio
- 178° horizontal viewing angle
- 178° vertical viewing angle
- VGA, DVI-D signal connectors
- 500 cd/m<sup>2</sup> brightness
- 6ms gray-to-gray response time
- Internal power adapter
- Silver color

Acer AL2416Wd

**\$759**

(ET.L6102.018)



Pictures are intended simply to illustrate the product.



## Acer® TravelMate™ 4400

### Powerful Business Asset



The Acer TravelMate 4400 features everything you need to perform at your best in today's business environment, including advanced graphics capabilities, wide-screen display and wireless connectivity. Moreover, because this notebook is powered by AMD Turion™ 64 Mobile Technology, you'll experience leading-edge 32-bit performance and seamless 32- to 64-bit migration. For added convenience get the ezDock Docking Station, your one-step connection to desktop peripherals.

**15.4" WIDE-SCREEN**



**Acer TravelMate 4404WLMi**

**\$1,199**

AMD Turion™ 64 Mobile Technology ML-34  
Genuine Windows® XP Professional  
(LX.T7806.091)

- AMD Turion™ 64 Mobile Technology ML-34
  - AMD PowerNow!™ Technology
  - HyperTransport™ Technology
  - Enhanced Virus Protection Technology¹
- Genuine Windows® XP Professional
- 1GB DDR333 SDRAM
- 120GB² hard drive
- Integrated Super-Multi drive (DVD+R, DVD-R, DVD-RAM)
- 6-in-1 card reader for optional SmartMedia™ card, MultiMediaCard™, Secure Digital card, Memory Stick®, Memory Stick PRO™ or xD Picture Card™
- 15.4" WXGA (1280 x 800) TFT display
- ATI® MOBILITY™ RADEON® X700 graphics, 64MB DDR
- 802.11b/g WLAN, gigabit LAN, V.92 modem
- One-year limited warranty³



Prices shown are estimated street prices and do not include tax or shipping. Retailer or reseller prices may vary.

## Acer® ezDock

Manage and organize peripheral connections with ease. Add or remove devices instantly, without turning off your notebook. The one-plug Acer ezDock features 21 interface ports and two card slots for desktop-like expansion possibilities, as well as PCI Express™ technology and a Kensington® lock slot.



**Acer ezDock Docking Station**

**\$299**

(LC.D0103.004)

Compatible with the TravelMate 8200, 8100,  
4670, 4650, 4400, 3010, 3000, C310, C200;  
Ferrari 4000



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# acer

## Compare LCD Prices/Features & You'll Choose Acer®



Acer AL2051 W  
**\$369**  
(ET.L7008.006)

### Acer AL2051 W

- 20" wide-screen TFT LCD, Acer CrystalBrite Technology
- 1680 x 1050 native resolution
- 800:1 contrast ratio
- 176° horizontal viewing angle
- 176° vertical viewing angle
- Two 1.5W integrated speakers
- VGA, DVI-D signal connectors
- 300 cd/m² brightness
- 8ms gray-to-gray response time
- External power adapter
- Silver/black color

**\$40 PRICE CUT!**



Acer AL1916 Cbd  
**\$249**  
(ET.1916B.0DC)

### Acer AL1916 Cbd

- 19" TFT LCD
- 1280 x 1024 native resolution
- 700:1 contrast ratio
- 150° horizontal viewing angle
- 135° vertical viewing angle
- VGA, DVI-D signal connectors
- 300 cd/m² brightness
- 5ms response time
- Internal power adapter
- Black color

**NEW MODEL**



Acer AL1916WAb  
**\$229**  
(ET.1916B.00A)

### Acer AL1916WAb

- 19" wide-screen TFT LCD
- 1440 x 900 native resolution
- 700:1 contrast ratio
- 150° horizontal viewing angle
- 130° vertical viewing angle
- VGA signal connector
- 300 cd/m² brightness
- 5ms response time
- Internal power adapter
- Black color

**NEW MODEL**



Acer AL1916 Ab  
**\$229**  
(ET.1916B.008)

### Acer AL1916 Ab

- 19" TFT LCD
- 1280 x 1024 native resolution
- 700:1 contrast ratio
- 140° horizontal viewing angle
- 140° vertical viewing angle
- VGA signal connector
- 300 cd/m² brightness
- 8ms response time
- Internal power adapter
- Black color

**8MS RESPONSE TIME**



Acer AL1717 Bbmd  
**\$205**  
(ET.1717B.MD8)

### Acer AL1717 Bbmd

- 17" TFT LCD
- 1280 x 1024 native resolution
- 700:1 contrast ratio
- 150° horizontal viewing angle
- 135° vertical viewing angle
- Two 1.0W integrated speakers
- VGA, DVI-D signal connectors
- 300 cd/m² brightness
- 8ms response time
- Internal power adapter
- Black color

**BUILT-IN SPEAKERS**



Acer AL1716 Bb  
**\$195**  
(ET.1716B.00B)

### Acer AL1716 Bb

- 17" TFT LCD
- 1280 x 1024 native resolution
- 700:1 contrast ratio
- 150° horizontal viewing angle
- 135° vertical viewing angle
- VGA signal connector
- 300 cd/m² brightness
- 8ms response time
- Internal power adapter
- Black color

**8MS RESPONSE TIME**



Acer recommends Windows® XP Professional.



## Acer® Aspire™ T135

Exceptional Desktop Value



- AMD Sempron™ 3100+ Processor
  - AMD PowerNow!™ Technology
  - HyperTransport™ Technology
  - Enhanced Virus Protection¹
- Genuine Windows® XP Home Edition
- 512MB DDR SDRAM
- 160GB² SATA hard drive
- DVD-Dual drive (DVD+/-RW)
- 9-in-1 card reader for optional MultiMediaCard™, Secure Digital card, SmartMedia™ card, Memory Stick®, Memory Stick PRO™, CompactFlash® I/II card, Microdrive® or xD-Picture Card™
- Integrated UniChrome™ Pro graphics
- 10/100 LAN, V.92 modem
- One-year limited warranty³

Value takes on a whole new meaning with the Acer Aspire T135 minitower desktop. That's because it provides savvy consumers with a complete desktop solution, packed with performance, expandability and functionality. Whether managing personal finances, surfing the net, playing games or working on school projects, your entire family will reap the benefits—including the fun—of owning this versatile performer engineered around the solid dependability of an AMD Sempron™ Processor.

**9-IN-1 CARD READER**

**Acer Aspire T135-U-S3104**

**\$399**

AMD Sempron™ 3100+ Processor  
Genuine Windows® XP Home Edition

Monitor sold separately.



Prices shown are estimated street prices and do not include tax or shipping. Retailer or reseller prices may vary.

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## Acer® Projectors with DLP™ Technology

Digital Light Processing™ from Texas Instruments is an all-digital display technology for projectors and other products that delivers the best picture in terms of clarity, brilliance and color.



- 2000 ANSI lumens
- XGA (1024 x 768) native resolution
- 2000:1 contrast ratio
- 16.7 million displayable colors
- PC and Mac compatible

### Acer PD120D

# \$899

(EYJ2201.012)

### PD120D



- 2000 ANSI lumens
- SVGA (800 x 600) native resolution
- 2000:1 contrast ratio
- 16.7 million displayable colors
- PC and Mac compatible

### Acer PD100

# \$669

(EYJ2101.006)

### PD100



## Projector Accessories

Acer 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 on hand for your Acer projector.

### Replacement Lamp

# \$199

(ECJ2101.001)

- Expected life in hours: 2,000 standard mode, 3,000 economy mode
- Designed for Acer PD120D and PD100

### Ceiling Mount

# \$79

(EZ.PCM03.007)

- 6.6 pounds
- Designed for Acer PD525, PD120D, PD116P and PD100



cer recommends Windows® XP Professional.



# Acer® Aspire™ 5000

## Power for Productivity

Made for mobility with  
AMD64 performance



- AMD Turion™ 64 Mobile Technology
  - AMD PowerNow!™ Technology
  - HyperTransport™ Technology
  - Enhanced Virus Protection Technology¹
- Genuine Windows® XP Professional
- 512MB DDR333 SDRAM
- 80GB² hard drive
- Integrated DVD-Dual drive (DVD+/-RW)
- 15.4" WXGA (1280 x 800) TFT display, Acer CrystalBrite Technology
- SiSM760GX chipset with integrated Mirage™ 2 graphics
- 802.11b/g WLAN, 10/100 LAN, V.92 modem
- One-year limited warranty³

Acer Aspire 5003WLMi

**\$849**

AMD Turion™ 64 Mobile Technology ML-32  
Genuine Windows® XP Professional  
(LX.A5106.020)

**15.4" WIDE-SCREEN**



## Acer Notebook Service Upgrades Protect Your Valuable Investment

Quality is built into every notebook Acer makes, and each comes with a one-year standard limited warranty.³ It includes hardware technical support via toll-free phone plus a concurrent International Traveler's Warranty for travel outside the U.S. and Canada. Extra protection is available with one of these upgrades:

2-Year Extension of Limited Warranty (146.AB820.EX2)

**\$99**

Prepays freight to and from Acer repair depot.  
Excludes extension of International Traveler's Warranty.

It's a tough world out there, and accidents do happen—sticky spills, dangerous drops, nasty knocks—which is why you should consider the Total Protection Upgrade. It runs concurrently with the limited warranty¹ and limited warranty extension and covers the cost of a replacement unit if your covered notebook cannot be repaired.

2-Year Extension of Limited Warranty + 3-Year Total Protection Upgrade (146.AD077.002)

**\$199**

Prepays freight to and from Acer repair depot.  
Excludes extension of International Traveler's Warranty.

Prices shown are estimated street prices and do not include tax or shipping.  
Retailer or reseller prices may vary.

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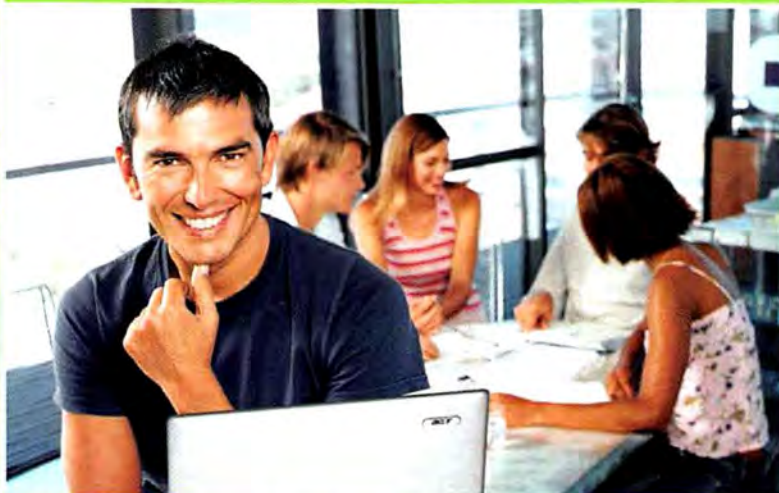
AMD

Mobile

Sempron™

# Acer® Aspire™ 3000

## Entertainment Starts Here



The Acer Aspire 3000 Series of notebooks is based on the latest Mobile AMD Sempron™ processors with AMD PowerNow!™ Technology and designed for home users and professionals from small businesses in search of excellent mobile performance and high entertainment value. These slim, space-saving systems come with multimedia capabilities and full industry-standard connectivity. Energize your work and leisure time with the Acer Aspire 3000.

**15.4" WIDE-SCREEN**

- Mobile AMD Sempron™ Processor 3300+
  - AMD PowerNow!™ Technology
  - HyperTransport™ Technology
  - Enhanced Virus Protection Technology<sup>1</sup>
- Genuine Windows® XP Professional
- 512MB DDR333 SDRAM
- 80GB<sup>2</sup> hard drive
- Integrated CD-RW/DVD-ROM combo drive
- 15.4" WXGA (1280 x 800) TFT display, Acer CrystalBrite Technology
- SiSM760GX chipset with integrated Mirage™ 2 graphics
- 802.11b/g WLAN, 10/100 LAN, V.92 modem
- One-year limited warranty<sup>3</sup>

**Acer Aspire 3005WLCi**
**\$749**

Mobile AMD Sempron™ Processor 3300+  
Genuine Windows® XP Professional  
(LX.A5506.028)

**Wi-Fi**  
CERTIFIED


Prices shown are estimated street prices and do not include tax or shipping. Retailer or reseller prices may vary.

<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> 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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# Web News Wranglers

So much news on the Web, so little time to read it all. These tools and sites can help make you an incredibly well-informed person—in a hurry.

ILLUSTRATIONS BY PJ LOUGHRAN

BY RYAN SINGEL

**So much news on the Web, so little time to read it all. These tools and sites can help make you an incredibly well-informed person—in a hurry.**

BY RYAN SINGEL

TECHNOLOGY advances quickly, but information grows at an even faster clip. The torrents of blog posts and news feeds on today's Internet hold way too much data to keep up with if you just browse the Web normally. Fortunately, help is here in the form of sites that filter the news for you with ever-increasing efficiency, and improved news readers that let you subscribe to news feeds and sort through them like e-mail.

For example, sites such as Digg rely on Web 2.0 techniques to turn users into editors. Other approaches include sites that mine the linking structures of top blogs to provide a front-page-news ►





view of the Internet's conversations, and personalized news-recommendation engines that monitor your reading habits to bring you more-focused news.

What is the best news-management approach for you? We'll examine a number of sites, Web apps, and programs that can help you sort through the best news and commentary on the Net.

First, though, a little background: Almost all of these tools depend on RSS (for Really Simple Syndication) feeds—specially formatted XML files that sites use to quickly publish and exchange bare-bones information about new articles, blog posts, or other updates.

They're often identified on a Web site by a small, orange 'XML' button. (You can right-click the button or link, and then

copy the link location.) Once you add that feed into a news reader, the software will periodically check it for new stories. Good news readers let you read through sites in half the time that you would take using a browser. Plus, if you're getting spam on one feed, you can just unsubscribe.

Of course, while feed readers can help you plow through stories quickly, they create a new temptation: Once you realize you've read your news in half the time, it's easy to subscribe to more and more feeds until you're spending as much time reading news as you did before.

### FILTERING THE FEEDS

THAT'S WHERE TODAY'S crop of news filtering sites come in. By taking into account the structure of Internet conversa-

tions, your own reading habits, and the browsing habits of like-minded readers, a good news filter can help you zero in on the news you care about. And while a lot of these tools are still in their infancy, many are plenty good enough to merit addition to your list of critical news sites.

Techmeme ([techmeme.com](http://techmeme.com)) is among the best of these services. The site (formerly [tech.memeorandum.com](http://tech.memeorandum.com)) bills itself as "Page A1" of the tech blogosphere and displays the most talked-about stories of the day. Techmeme repeatedly crawls the feeds of the top tech news sites and blogs, and identifies the most-linked-to stories. It then points you to discussions of those stories, as well as to nested related items.

Simply put, it's a condensed guide to the latest technology news on the Net—and incidentally, a fantastic place to find blogs whose feeds you might want to subscribe to. Gabe Rivera, the site's sole proprietor, harnesses the same algorithms to power an ever-growing list of news filters devoted to politics ([Memeorandum.com](http://Memeorandum.com)), baseball ([Ballbug.com](http://Ballbug.com)), and celebrity gossip ([WeSmirch.com](http://WeSmirch.com)), and he intends to continue adding new topics.

A similar Web site called TailRank ([tailrank.com](http://tailrank.com)) tries to create a top-level "newspaper" tailored specifically to your interests, based on the feeds you tell it to monitor. It then counts the number of sites that link to stories in your feeds and

presents the articles in order of popularity. TailRank also produces a personalized version of Amazon.com's "people who like item X also like item Y" feature, based on a comparison of your feeds to those of others.

While TailRank doesn't have quite the sophistication of Techmeme in weeding out duplicates and making sure that related links are actually related, it does possess one mysterious, somewhat creepy, yet very useful feature: At the click of a button, TailRank can check your browser's history, cache, or cookies and figure out which blogs and news sites you've recently visited so you can add them to your list of feeds.

### LINK POPULARITY

## Techmeme vs. TailRank



TECHMEME SHOWCASES THE top tech stories of the day, which the service identifies by monitoring A-list blogs and news sources. It provides a conversational view, rich with links to online discussions. The site skews heavily toward Web 2.0 news, and it often links

to the same group of top-echelon blogs. While Techmeme could use some customization options, the site presents a handy overview of the tech-blog world.

Like Techmeme, TailRank relies on the conversational model of the Web, but it lets you create your own news filter that looks at the most-linked-to items in the feeds you tell it to monitor. It's rougher around the edges than Techmeme and prone to duplication, but TailRank captures a richer array of voices. Eventually, TailRank's personalization options may pull it ahead.

#### ■ Edge: Techmeme

**Techmeme**  
Tech Web, Page A1

**TOP ITEMS:**

James 'Skype' Blogs:  
**Free calls to all landlines and mobile phones within the US and Canada** — We just announced that SkypeOut is now free within the US and Canada to all landlines and mobiles, until at least the end of 2006. — How does this work?  
— If you're in the US or Canada, you can use SkypeOut.

Discussion: VoIP Watch, EBAY, Valerius, E Democracy, Connecting the Dots, theory, sthewman, O'Reilly Mac, DineCartier Blog, michael.parekh on IT, inside eWEEK Labs, Alec Saunders, LOG, JoOnTheRun, Newswr.net, Lifesacker, RealtimeVoIP, The Unofficial Apple Weblog, Skype Journal, Geek News Central, and gaimreleas.org

RELATED ITEMS:  
Om Malik - gajurab:  
**SkypeOut... Is It Really Free?** — At first blush, the big Skype announcement

General Technology Politics My News Filter

**TailRank** Filter for with 2 links

**Some See a 'Pyramid' to Hone Bosnia's Image. Others See a Big Hill.**  
nytimes.com Found 2 hours ago

They have dug away four feet of roots and clay to expose slanted slabs of sedimentary stone. Osmanagic said eagerly, pointing to one of the roughly rectangular-shaped stones. Osmanagic, an amateur archaeologist, is convinced that he has discovered a huge ancient pyramid that will rewrite the history ...

4 links edit Add tag

TECHMEME (LEFT) AND TailRank (above) both use blogs and links to help pick out important stories.

Techmeme's overall polish gives it a slight edge over the more tweakable approach of the up-and-coming TailRank.



# Digg vs. Reddit



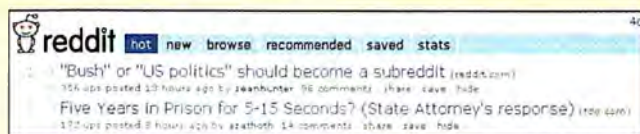
THANKS TO DIGG, the Web's most frequented news-ranking site, we now know: Geeks like gaming gossip, incendiary technology policy stories, and NASA photos.

Diggers vote early and often, and can get breaking news to the front page surprisingly quickly. Unfortunately the comment threads are less informative than Slashdot's, and Digg's indefatigable promotion of the latest Apple rumor shows that sometimes democracy produces uninteresting results.

Reddit is beginning to catch up to Digg in popularity. Voters at this social news collaboration site generally prefer essays, advice for start-ups, and nongaming tech news. The comment threads are more interesting than Digg's, but Reddit's main advantage is its recommendation engine: Though rudimentary at present, its ever-improving filter will eventually turn Reddit into a combination of a social news system and a personalized recommender.

■ **Edge:** Reddit

**INTERESTING NEWS BUBBLES** up to the front page of the uber-popular Digg, but Reddit allows for more personalization.



## WATCHING YOUR EVERY READ

THREE OTHER SITES take a more subtle approach to tuning news to your preferences by watching the stories you read. Google News ([news.google.com](http://news.google.com)) may be the best known of these. After you log in with your Google ID, the site will monitor your news habits and Web searches, and tweak the articles it displays on its algorithmically generated Google News page. The personalized changes are slow to come and aren't explicitly marked, but the site does a remarkable job of highlighting the latest, most important news

stories without human editors. Click the 'Standard News' link to see the difference between personalized and default pages.

Findory ([findory.com](http://findory.com)) uses a similar tactic but allows you to add a list of sites you subscribe to. In surprisingly little time the site replaces its default, very scattershot array of stories with a lineup tailored to your interests. Findory gets better as you continue to use it, adding little symbols next to recommended stories. Clicking one of those icons takes you to a page that shows which story you previously read prompted the site to suggest the new article. Unfortunately, currently there's no way to let the site know which stories don't interest you.

You can do that, however, with Spotback ([spotback.com](http://spotback.com)), a site that debuted in May and offers several ways for you to adjust which stories you see. A slider bar lets you indicate how much you like each story on a scale of -5 to +5. Also, drop-down 'Less' and 'More' menus let you block a news source, category, or subcategory, or request more stories from it.

Spotback's excellent user interface puts a yellow background behind the stories you've read, and when you rate a story

you get instant feedback: The site uses Ajax (a popular Web programming technique that employs behind-the-scenes browser requests to make Web sites feel more like desktop apps) to magically slot in a related story directly below the one you've just rated. Regrettably, Spotback falters on the matter of timeliness. The 'Computers and Internet' section sometimes features six- and seven-day-old stories—an eon in online news time.

## WISDOM OF CROWDS

READER VOTING DRIVES the immense popularity of social news sites, which eschew algorithms in favor of the collective intelligence of its readers. The year-old Digg ([digg.com](http://digg.com)) has used the technique to become a more popular tech news site than the venerable Slashdot ([slashdot.org](http://slashdot.org)).

Digg's central technology is disarmingly simple: Users submit links, and then other users comment and vote up or down on them. In theory, the most interesting content will rise to the front page. In reality, stories that make the front page can range from trivialities such as an item on a light gun for Nintendo's Wii gaming system to serious political news.



**SPOTBACK MAKES IT** easy to call out which topics you want to read more or less about.



## NEWS ALGORITHMS

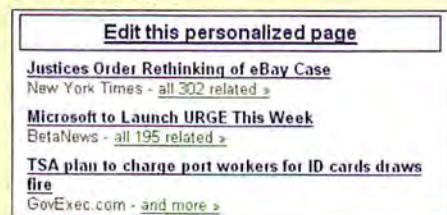
## Findory vs. Google News



THE ALGORITHMICALLY EDITED Google News is ultra-fast and comprehensive, with options to tailor your news sources by established categories or by keyword searches. Its recommendation engine seems less intelligent and transparent than Findory's. Also, you have no way to vote a story down and no easy way to know which articles are recommendations (as opposed to standard Google News selections). But Google can use both your logged-in Web searches and your news reading habits to train its filters, so theoretically it has a lot of—if not too much—information about your preferences.

Findory's recommendation system works rather nicely, but it counts your click on a story as a recommendation before you get to read it—a more primitive approach than Digg's, for example. Still, Findory does tell you which stories are recommended and why. In addition, Findory includes many more blogs as sources than Google News does, and it lets you import or add feeds that you want it to monitor closely. Its lack of news photos, standing keyword searches, and the ability to move categories around the screen should be easy for Findory's developers to fix.

#### ■ Edge: Findory



**BOTH GOOGLE NEWS (left) and Findory (above) focus on personalization by tracking which stories you click on and using that information to collect new stories likely to interest you into a customized news destination.**

Digg plans to extend the model so that it eventually covers other kinds of news. Its success has spawned some interesting clone sites. Fantacular ([fantacular.com](http://fantacular.com)) is a fairly straightforward clone that, like Digg, focuses solely on technology news. Gather.com, a social blogging site, has an eclectic list of top-rated posts, with entries that include everything from poems to an introduction to a person's cat.

CrispyNews ([crispynews.com](http://crispynews.com)) and Reddit ([reddit.com](http://reddit.com)) may represent the future of community news filters. CrispyNews enables users to create their own mini-community filters that cover narrow topics, such as *American Idol* or UCLA. Reddit, a Digg-like startup focusing on what's

new and popular on the Web, complements its main pages with a recommendation service that learns your preferences and highlights stories that users with similar reading habits have voted for. Eventually, Reddit hopes to analyze the content of the stories themselves, as well as relevant metadata and keywords.

#### TAKE CONTROL OF YOUR NEWS

HERE'S THE GREAT thing about all news filtering sites: Once you're accustomed to using them, you can easily capture their output as an RSS feed and drop it into a stand-alone news reader to exercise even more control over the news you receive.

In fact, that's the most powerful way to

customize your news intake. Start by picking an online or downloadable RSS reader as a base of operations, and use it to create a nice, stable list of your favorite feeds. You'll have plenty of choices, including customizable home pages (see "Netvibes vs. My Yahoo," on page 117), Web-based news readers, dedicated software that gives you granular control over each feed and story, and even built-in RSS support in the e-mail clients and Web browsers you may already be using.

Trying out different readers may be easier than you think. Once you compile a list of feeds in one reader, it should let you export those favorites as a text file with the extension .opml. If you're careful to override Windows' sometimes-annoying tendency to save these files in .txt or .html form, you can try your list of feeds in almost any other reader by importing that OPML file.

Radio Userland ([radio.userland.com](http://radio.userland.com)) helped jump-start RSS in that format's early days, and it still warrants a look today. Though it requires a download, Radio Userland works as an online reader, listing all feed items in one column, in reverse chronological order. This format, which has come to be called the "river of news" look, is akin to the inbox interface of most e-mail apps.

Plenty of other programs, including Google Reader ([reader.google.com](http://reader.google.com)), have played off this elegantly simple approach. In many ways, Google Reader is the news reader equivalent of Gmail. It completely forgoes folders, runs incredibly quickly, and is full of sweet Ajax-driven programming, such as a scrolling list of stories to the right of the main display. But as is the case with Gmail, Google Reader's customization options are limited. For example, you can sort stories only by date or by Google's relevance algorithm.

News reader beginners should test the waters with Bloglines ([bloglines.com](http://bloglines.com)), a rich online-only service that Ask.com purchased in 2005. Signup requires a valid e-mail address, but the site offers convenient starter packages of feeds named for the kind of person you are (for example,



Bookworm, Conservative Politico, Parental Unit), and a two-pane reader displaying easily configurable folders on the left and news items shown in full on the right.

Bloglines' best feature is an unlimited number of specialized e-mail addresses that you can use to sign up for mailing lists so you can read them alongside an RSS feed. Items can easily be e-mailed, saved, or blogged. The site isn't terribly fast and needs more display options, but Bloglines rounds out its offerings with a mobile version, a really great blog recommender based on your existing subscriptions, and a downloadable news notifier.

A competing online reader called Rojo ([rojo.com](http://rojo.com)) features similar preset subscriber categories and accepts OPML files, permitting you to upload your own subscriptions. Rojo defaults to a two-pane "river of news" view of relevant stories, as determined by the number of users who give "mojo" to an item by clicking a voting button. Other helpful options include time- and category-based views.

Rojo recently added a Today tab that enables you to see which stories are popular



**A CAPABLE ONLINE news reader, Bloglines offers helpful feed collections for new users.**

with all users, though its value is limited because few Rojo users vote. A browser "bookmarklet" lets you quickly subscribe to sites as you surf the Web. However, while Rojo is a solid online news reader, it doesn't let you re-sort items into different folders, and it doesn't have a notifier.

### ONLINE READERS GO AJAX

THOUGH BOTH BLOGLINES and Rojo are useful, other sites offer more sophistication by heavily using popular Web programming techniques like Ajax.

Alesti ([alesti.org](http://alesti.org)), for instance, uses Ajax to create an Outlook-style three-pane online reader that smoothly guides you through folders of feeds. It's an impres-

sive effort, but it needs polish: For example, clicking your browser's back button during a reading session takes you out of the site, rather than back to the last item you read. Alesti also lacks some basic features like the ability to e-mail an item.

Bloxor ([bloxor.com](http://bloxor.com)) is an Ajax-driven, open-source online reader. It works only with Gecko-based browsers such as Firefox and Mozilla and seems geared toward the young hacker crowd (in fact, the site's official name is "t3h Bloxor"). The basic three-pane reader differentiates itself from others by effortlessly transforming into a three-column reader and, more notably, by loading items straight from the originating Web sites rather than just loading the article text in the XML feed. While this approach isn't always optimal, reading items in their normal environment is refreshing. The site lacks some basic features such as e-mail and blogging add-ons, but if you want the speed of a news reader while still seeing sites in their native HTML, this is a great choice.

Gritwire's SpeedFeed Reader ([gritwire.com](http://gritwire.com)) chose Flash to power its three-

## CONFIGURABLE HOME PAGES

### Netvibes vs. My Yahoo



**WANT A CUSTOMIZED starting point for your news reading?** Netvibes ([www.netvibes.com](http://www.netvibes.com)) lets you drag and drop modules to build a flexible home page that combines

RSS feeds, Web mail, weather reports, and Flickr photo streams. No log-in is required, and Netvibes will remember the setup for future visits from the same computer.

My Yahoo ([my.yahoo.com](http://my.yahoo.com)) is also an excellent home page with simple ways to add, move, and remove preconfigured modules, but it gives no way to add non-Yahoo Web mail, and its banner ads are distracting. While its default news photos are nice, adding photos from Flickr (a Yahoo property) to My Yahoo is more difficult than doing so with Netvibes.



**YOU CAN ADD plenty of interesting modules to a My Yahoo page (left) but the Ajax underpinnings of Netvibes (above) make tweaking your home page much easier.**

■ **Edge:** Netvibes



pane reader, which makes for an exceptionally pretty interface. Unfortunately, it's short on configuration options, and in one instance the reader choked while importing an RSS 1.0 feed. It also suffers from the limitations of Flash, so an inadvertent back click takes you out of the program and loses your location in your feeds.

## GET YOUR NEWS EVERYWHERE

IF YOU WOULD prefer a more portable approach to news reading, give NewsGator Online ([newsgator.com](http://newsgator.com)) a try. The NewsGator site features a built-in news reader, and it can work in conjunction with either NewsGator's Outlook plug-in or a stand-alone client such as FeedDemon (which NewsGator acquired last fall). It has solid e-mail and bookmarking functions, as well as a clean "river of news" or folder-based look. The NewsGator site doesn't try to look like a client app, and unfortunately it's very slow to change from feed to feed. Unlike many online readers, it allows you to create folders and move items between them, and it syncs your changes to its client software.

Nonsubscribers receive one free e-mail account (premium users get five) for subscribing to or creating a public RSS feed for a mailing list. NewsGator users can translate one Web-wide keyword search into a feed (premium users get 20). The service also has a mobile client, POP3 access, and solid tools for bloggers and for users who want to sync podcasts and videos with a PC or mobile device.

Despite the service's rich feature set, the site's sluggish performance and lack of a search engine make it unwieldy; I'd recommend it only as an addition to NewsGator's serviceable Outlook plug-in or the outstanding FeedDemon (for more on this client, see the next section).

## SERIOUS SOFTWARE

FOR BASIC RSS reading, you may not need much more than your trusty Web browser. See "Built-In RSS: IE 7 Beta 2 vs. Firefox (With Sage) vs. Opera," on page 120. For serious news reading, however, neither browsers nor online services are as fast or

as configurable as downloadable clients.

Even a beta release like SharpReader ([sharpreader.net](http://sharpreader.net)) is far more efficient at quickly navigating lots of feeds than the best online reader. Although it can be a memory hog, SharpReader has excellent notification windows and threaded category support, and it can show which feed items are linked to other feed items—a good indicator of a story's importance. The software also does a fine job of identifying the location of RSS feeds when you type in the URL of a site's home page.

Awasu ([www.awasu.com](http://www.awasu.com)) is yet another step up. Its free version consists of a sleek but feature-rich three-pane news reader with a full-on browser in the third pane, including tabbed browsing that makes jumping back to a previous feed simple.

## FAVORITE READERS

# Find the Best News Reader for You

DOWNLOADABLE CLIENTS LIKE FeedDemon are ultraconfigurable, while online readers like Bloglines help you get started easily. The best part: Most are free.

| NEWS READER                                                                                                                     | Type of news reader      | Recommended for                                                                                              | Best feature                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| <b>Awasu Personal Edition</b><br><b>Free</b><br><a href="http://find.pcworld.com/54006">find.pcworld.com/54006</a>              | Downloadable news reader | RSS power users, podcast listeners, and subscribers to other feeds that carry attachments.                   | Awasu lets you monitor static Web pages for changes and integrates tabbed browsing.            |
| ► Plug-ins make this powerful reader a good choice; a \$29 paid version removes its 100-feed limit. PCW Rating: 83 (Very Good). |                          |                                                                                                              |                                                                                                |
| <b>Bloglines</b><br><b>Free</b><br><a href="http://find.pcworld.com/54008">find.pcworld.com/54008</a>                           | Online news reader       | Someone who is new to RSS readers and is looking for an easy way to start building a list of favorite feeds. | You can use an unlimited number of free e-mail accounts to sign up for mailing lists as feeds. |
| ► Bloglines is simple enough for beginners, yet packs some features that appeal to power users. PCW Rating: 78 (Good).          |                          |                                                                                                              |                                                                                                |
| <b>NewsGator FeedDemon 2.0</b><br><b>\$30</b><br><a href="http://find.pcworld.com/53814">find.pcworld.com/53814</a>             | Downloadable news reader | Anyone who blogs or who takes news reading very seriously.                                                   | The browser pane has an address bar and lets you keep multiple items open in tabs.             |
| ► Tabbed browsing and other advanced features make this reader essential for serious news readers. PCW Rating: 91 (Superior).   |                          |                                                                                                              |                                                                                                |
| <b>Rojo</b><br><b>Free</b><br><a href="http://find.pcworld.com/54010">find.pcworld.com/54010</a>                                | Online news reader       | Budding news junkies. Like Bloglines, Rojo provides categories to subscribe to for those new to RSS.         | Rojo intelligently sorts feed items based on your reading behavior.                            |
| ► This reader lacks some of Bloglines' handy features, but it's well designed and a bit faster. PCW Rating: 82 (Very Good).     |                          |                                                                                                              |                                                                                                |
| <b>SharpReader</b><br><b>Free</b><br><a href="http://find.pcworld.com/54012">find.pcworld.com/54012</a>                         | Downloadable news reader | News-reading veterans who are looking for a customizable and free news reader.                               | Extensive organization options let you rearrange and group feeds into folders and subfolders.  |
| ► This fast, free reader lacks a full-featured browser, but it has many configuration options. PCW Rating: 84 (Very Good).      |                          |                                                                                                              |                                                                                                |



ROJO WORKS MUCH like Bloglines, but adds some community filtering to help sort items.

Awasu also allows you to search your feeds quickly, and among its plethora of customization options are plug-ins that enable you to establish standing Google searches, save multimedia files to a designated directory, and subscribe to Yahoo groups. Awasu's only real drawbacks are its lack of clear keyboard commands, ►





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## BROWSER SUPPORT

## Built-In RSS: IE 7 Beta 2 vs. Firefox (With Sage) vs. Opera

AMONG WEB BROWSERS, Opera has long been ahead of the curve in supporting RSS feeds natively: It easily adds new feeds and notifies you of new items. But Opera's horizontally divided two-pane display looks a bit bland and lacks inline image support.

Firefox's Sage plug-in is a little rough around the edges. Adding a FeedBurner subscription requires cutting and pasting a URL, for example, and while Sage can treat a favorites folder as if it were a set of feeds, that works only with one folder. But once your feeds are setup, pressing <Alt>-S displays the sidebar and an attractive two-column view showing each story and images in its own box.

It's been a long time coming, but the native support in IE 7 Beta 2 works quite well. Feeds are integrated with favorites, and though the feed-by-feed, single column look may not be the most efficient, it's more eye pleasing than Sage's or Opera's. You can search each feed and reorder stories by date, title, or author. If its feed detection improves, IE 7 could win over newsies and newbies alike.

■ **Edge:** Internet Explorer 7 Beta 2



**FEEDS ARE INTEGRATED** with your favorites in the IE 7 beta (above). The Sage plug-in for Firefox (left) also organizes feeds in a sidebar, while Opera's built-in RSS support (below) feels more like an e-mail client.



its tendency to consume lots of system resources, and its overly strict handling of RSS feeds, which causes it to choke on feeds that other readers handle. The paid version (\$29) removes limits on the number of plug-ins and feeds, and lets users subscribe to password-protected feeds.

NewsGator's FeedDemon 2.0 ([find.pcworld.com/53814](http://find.pcworld.com/53814)) costs \$30, but it's worth every penny. It is remarkably fast, doesn't hog memory, and combines multiple intuitive layout options with a bevy of options to suit your reading style.

The send-to tool permits you to easily post an item to social bookmarking site Del.icio.us, copy it to the clipboard, or e-mail or blog about the item. The second pane supports multiple tabs, which can load feeds or display a selected item in a browser view. You can then add an item to your IE favorites or browse to a new site. The program's only noticeable flaws are its unchangeable alphabetical feed sort and its rigidly icon-based method of opening an item in a new tab.

But that's just nitpicking. FeedDemon's fantastic design and generous feature set, paired with NewsGator Online's ability to sync multiple computers and mobile readers, makes FeedDemon the best all-around news-reading application.

## NEWS AS MAIL

A NUMBER OF programs, such as NewsGator Inbox 2.6 ([find.pcworld.com/53816](http://find.pcworld.com/53816)), integrate RSS feeds with your e-mail. The NewsGator Inbox installation process is simple and informative, with a handy option to add preselected categories of feeds. Importing more than a few feeds is an intensely long and memory-hogging process, however.

Another interesting application, Omea Reader ([www.jetbrains.com/omea](http://www.jetbrains.com/omea)), is part of an ultra-ambitious productivity suite whose all-encompassing approach you will either love or hate. Though it can function as a free-standing reader, it integrates with the \$49 Omea Pro, which aims to be an e-mail client, an RSS read-

er, a browser, a calendar, an instant messenger, and a desktop search application.

Omea Pro has some great features, such as a tab that lets you read your feeds by byline, multiple workspaces to segregate projects, and an automated e-mail contact manager. It takes some time to get used to, but Omea is an impressive effort, and some people may find that it's just the organizational aid they need.

Though news-management software overall is still in its infancy, such tools continue to improve. While you're waiting for the perfect approach, your best bet is to mix and match. Place the RSS feeds from social sites like Digg into a news recommender like TailRank or Findory, and then grab the personalized feed and throw the results at a news reader you like; you'll soon discover the sweet spot where you get most of the news you want without spending all day trying to keep up. ■

*Ryan Singel is a freelance writer based in San Francisco.*



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# HERE'S HOW

EDITED BY ERIC DAHL AND DENNIS O'REILLY



## HARDWARE TIPS

KIRK STEERS

### Cheap Notebook Tweaks: Maximize Your Laptop

IF PINK IS the new black, and 50 is the new 40 (and I really hope it is), are laptops the new desktops? I'd have to say yes. With the right upgrades, enhancements, and accessories, many notebook PCs match their desk-bound counterparts all the way down the line. These tips will help you get more use out of your laptop, no matter how new or old.

**Upgrade with care:** Support techs report that the most troublesome laptop components are the hard drive, screen, and

keyboard. While you probably won't want to replace an expensive laptop screen, anyone with the right tools and even a slight mechanical inclination can replace the hard drive, keyboard, and other components, with some patient tinkering.

Opening your laptop case may void the warranty, so if your system is still under warranty, let the manufacturer deal with repairs. Notebooks are delicate, so never force anything. Vince Dougherty, who has repaired countless laptops for Wine

Country Computers in Healdsburg, California, says the most common mistake is using the wrong-size screwdriver. One slip and your motherboard is ruined.

Before doing anything else, remove the notebook's battery and disconnect its power cord. Remember to ground yourself before you open the case, either with a grounding strap (the safest way), or by touching a piece of grounded metal (a lamp or water pipe will do), while touching a metal part on the case's exterior.

**Replace your hard drive:** Adding a new hard drive to a laptop is usually easier than doing the same thing on a desktop PC: You just remove a few screws from the bottom of the case, slide or lift the hard drive assembly out of the system, and swap a new drive into the assembly (always handle drives by the edges).

Most notebook PCs use a standard 2.5-inch hard drive, but ultralights and other diminutive systems may use a smaller 1.8-inch drive. Drives also come in different heights; the most common are 12.5 millimeters and 9.5 millimeters. Check your laptop's documentation, or visit the vendor's Web site to determine the drive size compatible with your machine.

A 2.5-inch, 100GB drive costs less than \$200. Third-party vendors such as Drive Solutions ([www.drivesolutions.com](http://www.drivesolutions.com)) and NewEgg.com often charge less than laptop manufacturers. Check with your notebook vendor to find out whether you need a SATA or parallel ATA model. Buy only from vendors that offer a money-back guarantee—any reliable seller will provide one lasting at least 30 days.

**Boost your RAM:** Most laptops come with only one or two memory sockets, which may leave no open slots for upgrades. Adding memory may require that you



## 122 HARDWARE TIPS

Get more mileage out of your notebook, for little or no money; precautions to keep your laptop purring.

## 126 WINDOWS TIPS

Remedy common Windows woes by reloading system files; a free tool maximizes your shutdown options.

## 128 INTERNET TIPS

Firefox's 'about:' configuration options; the Mozilla Foundation's Lightning calendar on the horizon.

## 130 ANSWER LINE

Keep Windows XP updates on your hard drive; schedule hibernations; copy folders without interruption.

## 132 DIGITAL PHOTO TIPS

Pros and cons of the popular JPEG, TIFF, and RAW image file formats, and the PNG format alternative.



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FIGURE 1: PROTECT YOUR laptop PC on the road with APC's \$20 SurgeArrest Notebook.

discard at least one existing memory module. The RAM on most laptops resides behind a removable panel. The modules slip into a slot and are secured at the ends by clips or retainers. Crucial offers an excellent tutorial on installing laptop RAM; you can view it at [find.pcworld.com/50378](http://find.pcworld.com/50378).

Crucial and Kingston ([www.kingston.com](http://www.kingston.com)) will tell you the type of RAM your laptop needs. The high-quality modules they sell are well worth the small, additional expense over no-name RAM.

**Change your keyboard:** Installing a new keyboard usually requires disassembling the laptop's case, but in other respects it is straightforward: First snap the old keyboard out, and then snap the replacement keyboard in. You can expect to pay \$50 to \$100 for a new notebook keyboard. Appropriate replacement keyboards may be available only from the notebook's vendor.

## GADGETS TO GO

FOR EVERY DESKTOP peripheral, a miniaturized laptop version is available from Belkin ([www.belkin.com](http://www.belkin.com)), Kensington ([www.kensington.com](http://www.kensington.com)), Targus ([www.targus.com](http://www.targus.com)), or a similar vendor. Here is

my list of on-the-road laptop essentials.

**Lose your touchpad:** When I'm in serious work mode, my laptop's touch pad just isn't as easy for me to use as a mouse. A miniature USB travel mouse with retractable cord costs less than \$30 from these and other vendors, and a wireless version (Bluetooth or infrared) costs a bit more. I recommend a wired mouse for busy travelers; there are no batteries to worry about, and no tiny Bluetooth or RF transmitter to lose.

**Get more ports:** If your laptop has only one or two USB ports, a small four-port USB hub is essential for connecting more devices. Portable printers, scanners, and other power-hungry USB peripherals may need a self-powered hub like APC's \$35 4-Port Travel Hub ([find.pcworld.com/53086](http://find.pcworld.com/53086)), which comes with its own power adapter. To connect a mouse, keyboard, or thumb drive, a nonpowered USB hub will suffice. And for power protection on the road, try APC's \$20 SurgeArrest Notebook device ([find.pcworld.com/53818](http://find.pcworld.com/53818); see FIGURE 1).

**Unleash your router:** A small wireless router lets you move around a hotel room, an office, or anywhere else with a fixed, high-speed Internet connection. The \$60 AirPlus G DWL-G730AP Wireless Pocket Router from D-Link ([find.pcworld.com/53088](http://find.pcworld.com/53088)) fits in a tiny carrying case.

**Close the gate:** Anyone hopping from one hotel room or wireless hotspot to another needs firewall protection, and the firewall built into Windows XP Service Pack 2 just won't do. If your IT department forbids you to install firewall software on your company laptop, Kensington's \$40 Personal Firewall device ([find.pcworld.com/53090](http://find.pcworld.com/53090)) can keep your system safe from intruders while you're on the road.

Just insert the thumb drive into an open USB port, perform a quick configuration, and your shields are up.

**Turn on your night light:** Using a notebook computer in a darkened airliner or other light-challenged space can be difficult because you can't see the keyboard (unless it is backlit). Instead of squinting by the light of the laptop's LCD, try Kensington's \$25 Flylight 3 ([find.pcworld.com/50392](http://find.pcworld.com/50392)). The device has an LED light at one end of its bendable neck, and a USB connector at the other. The Flylight is small and light enough to take anywhere, and it can illuminate a laptop work area without bothering others.

**Block roving eyes:** On lengthy, boring flights, few seatmates can resist sneaking a glance or two at your laptop screen. 3M's Notebook Privacy Computer Filter ([find.pcworld.com/53094](http://find.pcworld.com/53094)) slides over your notebook's screen, and easy-to-attach clips hold it in place to prevent the snoop sitting next to you from kibitz- ▶



FIGURE 2: WINDOWS XP'S dual view joins your laptop's LCD with an external monitor.



ing your game of Solitaire. The screen is pricey, starting at \$45 for a 12.1-inch model, but it will keep your affairs private.

**Toss your power bricks:** If you're tired of hauling a pile of power bricks everywhere you go, why not trade 'em in for one that will power all your devices? APC ([www.apc.com](http://www.apc.com)), Belkin, Kensington, and Targus make mobile universal power adapt-



**FIGURE 3: TRIPLE YOUR** screen space with Maxtor's TripleHead2Go three-display switch.

ers with connector tips for laptops, cell phones, PDAs, and other devices. Their prices range from \$70 to \$130, depending on wattage and accessories. Tip selection varies from vendor to vendor, so check the compatibility list on the company's Web site for each of your electronic devices before you lay down your green.

### OFF-ROAD COMPUTING

**Dock and cover:** A docking station lets you connect a monitor, keyboard, mouse, speakers, USB devices, and network link to your laptop in just seconds. Most notebook vendors offer custom docking stations for some models, but these tend to cost hundreds of dollars. Targus's \$130 Universal Notebook Docking Station With Video ([find.pcworld.com/53096](http://find.pcworld.com/53096)) links to any laptop via USB 2.0. The only catch: A USB 2.0 link can't match the speed of a direct VGA monitor connection, so it may create a bandwidth bottleneck when running fast-moving games or other graphics-intensive applications.

**Share your peripherals:** If you constantly switch between your desktop and laptop PCs, use a keyboard-video-mouse switch to run either PC from one keyboard, monitor, and mouse. Many vendors sell KVM switches that require lots of cables

and connections, but Kavoom KVM ([www.kavoom.biz](http://www.kavoom.biz)) is a software "switch" that runs over a network link. A simple click lets you toggle between computers. The program costs \$30 for two PCs, and another \$10 for each additional PC.

**Double your viewing pleasure:** Windows XP's Dual View lets you combine an external monitor with the machine's own LCD to spread your open windows across both displays. To determine whether your laptop supports Dual View, connect a monitor to the system, right-click the desktop, select *Properties* to open the Display Properties dialog box, and choose *Settings*.

If Dual View is supported, the 'Extend my Windows desktop onto this monitor' option will be available (not grayed out), and two screens labeled '1' and '2' will appear above the checkbox (see **FIGURE 2**). Check the box, click OK, and drag screen 1 above, below, to the right, or to the left of screen 2. Visit [find.pcworld.com/53080](http://find.pcworld.com/53080) to read more about XP's Dual View.

**If two monitors are good...** You can expand your laptop's viewing area across three monitors with the \$299 TripleHead2Go from Matrox ([find.pcworld.com/53098](http://find.pcworld.com/53098); see **FIGURE 3**). The palm-size device connects your notebook's graphics port to expand the image across three monitors. The company's \$169 DualHead2Go ([find.pcworld.com/53100](http://find.pcworld.com/53100)) supports two monitors, but gamers in particular will appreciate having their center point in the middle of the middle monitor rather than between two displays. The devices work only with certain ATI and nVidia chip sets, so check the compatibility list at [find.pcworld.com/53102](http://find.pcworld.com/53102) before buying. Also, few notebooks ship with the graphics horsepower required to drive three monitors at full resolution (not many desktop PCs can do so either), so make sure your system can push images to three different displays. ■

Go to [find.pcworld.com/31511](http://find.pcworld.com/31511) for past Hardware Tips columns. Send your tips and questions to [kirk\\_steers@pcworld.com](mailto:kirk_steers@pcworld.com). We pay \$50 for published items. Kirk Steers is a PC World contributing editor and the author of *PC Upgrading and Troubleshooting QuickSteps* from McGraw-Hill/Osborne Press.

### NOTEBOOK TIPS

## Extend Your Laptop's Life

THESE TIPS AND products will keep your notebook going and going.

**Get a grip:** Keep your laptop in hand by placing strips of 3M Safety Walk tape on its case. A small roll costs about \$10 at your local hardware store.

**Come in from the cold:** When you bring your laptop in from the chilly outdoors, don't start it until it reaches room temperature. Otherwise, condensation could wreak havoc on its circuits.

**Beat the heat:** Placing your notebook on a blanket or other soft surface, or running it inside its carrying case stifles ventilation and makes it overheat faster. Instead, put a pencil or similar object under the back edge to elevate your laptop; even half an inch of space lets hot air flow away from the case. For serious overheating, pick up a laptop cooling pad such as Antec's \$30 Notebook Cooler ([find.pcworld.com/53082](http://find.pcworld.com/53082); shown below).

**Stay dry or fry:** To protect your notebook from liquid spills, use a \$15 plastic keyboard cover from Protect Keyboard Covers ([www.protectcovers.com](http://www.protectcovers.com)). It just might save you the cost of a new laptop.

**Save your screen:** Lowering the screen puts most notebooks into standby or hibernation mode when they're running on batteries, but doing so might not put



**COOL YOUR LAPTOP** and improve its circulation with Antec's Notebook Cooler.

them in power-saving mode when they're plugged into AC power. Check the Power Options settings in Windows' Display Properties to make sure that you're conserving power: Right-click the desktop, select *Properties*•*Screen Saver*•*Power*, and set a duration under 'System standby' and 'System hibernates.'



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CISCO SYSTEMS





# WINDOWS TIPS

SCOTT DUNN

## Fix Windows Glitches by Re-registering Your DLLs

WINDOWS XP AND 2000 store information about many of their functions in files known as dynamic link libraries, or DLLs. Information about the DLLs is stored in the Windows Registry. When a DLL file's Registry entry is corrupted, the OS may balk when opening files or Web pages, or otherwise misbehave. Fortunately, as tipster Dick Waller of Dayton, Ohio, points out, Windows' own `regsvr32.exe` tool lets you add DLL data back into the Registry.

Even if you aren't sure what DLL information is missing or corrupted, it doesn't hurt to re-register a DLL that was installed with Windows. Here are fixes for several common problems that are often caused by corrupt DLL Registry entries.

### WINDOWS TOOLBOX

#### ShutDownPro: More Than Just a Power-Off Toy

**Windows 2K XP 98 ME** MANY TOOLS LET you shut down, log off, hibernate, or reboot your PC with a single (or double) click. The free ShutDownPro, from Kurt Zimmerman, does all that and more. Right-click its tray icon to check system resources; change screen resolution; minimize, maximize, or close all windows; rebuild the icon cache; disconnect from or reboot the network; and access a range of system info. You can automate shutdowns at a specified time or date, or after Windows has run a set time. The program even lets you empty your Internet cache on shutdown. Browse to [find.pcworld.com/53048](http://find.pcworld.com/53048) for your copy.

**Put on a happy interface:** Many problems can be fixed simply by re-registering `Shell32.dll`, which stores information about Windows' interface and is used to

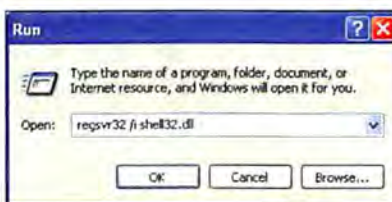


FIGURE 1: REPLACE or repair DLL Registry entries with a command line in the Run box.

open files and Web pages. For example, re-installing this DLL will restore JPEG or GIF image previews under the Desktop tab of the Display Properties dialog box (right-click the desktop and choose *Properties* to see this dialog). It can also repair the ability to launch the Create Shortcut Wizard (right-click the desktop and choose *New>Shortcut*), as well as the double-click behavior of folder icons, which is easily corrupted (see the August 2005 *Windows Tips* at [find.pcworld.com/53046](http://find.pcworld.com/53046) for more on this glitch).

To restore this DLL, choose *Start>Run*, type `regsvr32 /i shell32.dll`, and press **<Enter>** (see FIGURE 1). (The `/i` switch stands for "install.") A message tells you if the command worked. (You may need to restart Windows to see the effect.)

**Restore the Windows Picture and Fax Viewer (XP only):** If you can't view photos or faxes by double-clicking their file icons, re-register the viewer's DLL: Choose *Start>Run*, type `regsvr32 /i shimgvw.dll`, and press **<Enter>**. Again, a message will pop up indicating whether the DLL re-loading fixed the problem (see FIGURE 2).

**Resuscitate the Add Network Places Wizard (XP only):** Sometimes restoring a broken function requires that you run the `regsvr32 /i` command several times, once for each DLL whose data needs restoring. For example, if you click *Add a network place* in the left pane of the My Network Places folder window and nothing happens, you may be able to revive the Add Network Place Wizard by running three commands, one after the other, in Windows' Run box: Choose *Start>Run*, type `regsvr32 /i netplwiz.dll`, and press **<Enter>**. Now follow the same steps, but this time change the command line to `regsvr32 /i mshtml.dll`. Finally, run the command line `regsvr32 /i shell32.dll`.

**Restore Quick Launch:** If you right-click on your taskbar and choose *Toolbars>Quick Launch*, only to receive an error message telling you that the toolbar can't be created, you may be missing the Quick Launch folder, vital Registry entries, or some other important file. The Quick Launch folder should be in `C:\Documents and Settings\profile name\Application Data\Microsoft\Internet Explorer` (where *profile name* is the account you are logged into). If it's not there, you can either create it manually (click *File>New>Folder* inside the above-referenced folder and name it **Quick Launch**), or have Windows



FIGURE 2: A MESSAGE BOX tells you when you've successfully re-registered a DLL file.

do it for you. For the latter option, choose *Start>Run*, type `ie4uinit.exe`, and press **<Enter>**. Now try displaying the Quick Launch toolbar again.

If it's still a no-go, choose *Start>Run*, type `regsvr32 /i shell32.dll`, and press **<Enter>**. Next, click *Start>Run*, type `regsvr32 /i browseui.dll`, and press **<Enter>**. ■

Send Windows-related questions and tips to [scott\\_dunn@pcworld.com](mailto:scott_dunn@pcworld.com). We pay \$50 for published items. Visit [find.pcworld.com/31607](http://find.pcworld.com/31607) for more Windows Tips. Scott Dunn is a contributing editor for PC World.



# skyping (v)

'1. the act of making FREE Voice over Internet Protocol (VoIP) telephone calls using Skype™.  
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## INTERNET TIPS

SCOTT SPANBAUER

# Master Firefox's Hidden Configuration Tools

I OFTEN WRITE that the Mozilla Foundation's Firefox browser does thus and such, or doesn't do this or that other thing. What I mean is that the program has no menu command or preferences dialog box to give users control over its cache, performance, and other settings. In truth, there are other handy but hard-to-discover ways of configuring Firefox to behave according to your wishes.

Firefox inherits a number of hidden configuration interfaces from its Netscape ancestors, namely its 'about:' URIs (Uniform Resource Identifiers). For instance, in the online version of last April's *Internet Tips* column (under "Clear the Cache," [find.pcworld.com/53060](http://find.pcworld.com/53060)), I wrote that unlike Internet Explorer, Firefox doesn't allow you to view the contents of its cached Web pages and related files. While it is true that you won't find a menu command or setting in the program's inter-

## CALENDAR READY TO STRIKE

YOU CAN REPLACE Internet Explorer with Firefox, and you can trade in Microsoft Office for OpenOffice, but so far no Windows program replaces Microsoft's Outlook. The developers of Mozilla Foundation's Thunderbird e-mail program aim to change that with their Lightning project, which adds calendaring to Thunderbird. As of this writing the app is barely usable, according to Mozilla, but it installed like a charm on my system. Keeping the caveat in mind, forward-looking Thunderbird users can visit [find.pcworld.com/53070](http://find.pcworld.com/53070) to try the latest version of Lightning available.

face for that task, reader Fran Snyder, who contacted me via e-mail, notes that all you have to do is type **about:cache** into Firefox's address field and press **<Enter>** to view links to the contents of the browser's memory and disk caches.

So why would you ever want to peruse your Web browser's cache? The most obvious reason is that accessing the cache permits you to reopen the pages, images, and Flash animations you have viewed most recently, even when you aren't connected to the Internet. You can also save cached files to another spot on your hard disk or to removable storage.

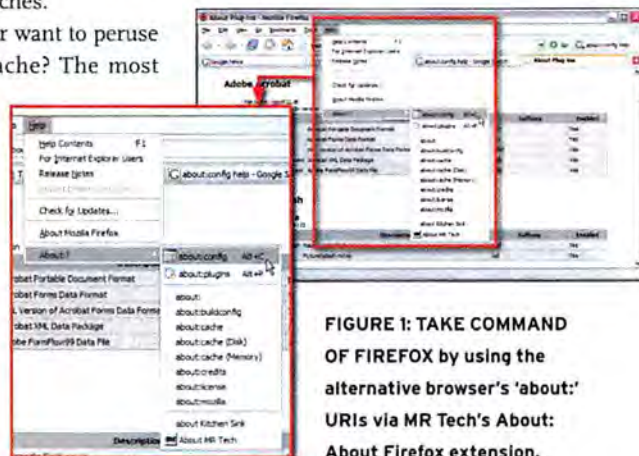
Firefox's voluminous about:cache display doesn't make it easy, however—your best chance of finding a cached file is to press **<Ctrl>-F** to open the Firefox search bar, type a portion of the Web site's domain name, the file name or extension, or some other part of the address into the find field, and press **<Enter>**. For example, if you're looking for flash files, enter **.swf**. Or for images you saw on the New York Times' site, enter **nytimes.com**.

About:cache is just one of Firefox's hidden resources (browse to [find.pcworld.com/53062](http://find.pcworld.com/53062) to see a complete list of these 'about:' URIs). Type **about:about** or just **about:** to see detailed information on your version of Firefox. Enter **about:credits** to view the names of the scores of developers who dedicated their free hours to creating and improving the browser, and

type **about:plugins** to list all of the plug-ins currently installed. If you're sure you'll forget all of the above, no problem—just install MR Tech's About:About Firefox extension, which adds the tools as links to the browser's Help menu ([find.pcworld.com/53064](http://find.pcworld.com/53064); see **FIGURE 1**).

## CONFIG-URING IT OUT

THE MOST USEFUL—and dangerous—of the built-in URIs is `about:config`. Similar to Windows' Registry, the `about:config` page serves as an interface to the many boolean, integer, and string variables that control every aspect of Firefox's behavior. The biggest problem with `about:config` is that, like the Registry, it is mostly indecipherable to the average user. And again



**FIGURE 1: TAKE COMMAND OF FIREFOX by using the alternative browser's 'about:' URIs via MR Tech's About: About Firefox extension.**

like the Registry, it lists only those settings that are currently set overtly—many other default settings don't appear simply because they don't need to.

Fortunately, an about:config FAQ page on the Mozilla Foundation's MozillaZine site lists everything you can do within about:config ([find.pcworld.com/530666](http://find.pcworld.com/530666)).

Lastly, if you use browsers other than Firefox, note that they offer similar hidden settings and tools. Wikipedia's handy "URI scheme" entry has tips not only for Firefox, but also for Internet Explorer and Opera ([find.pcworld.com/53068](http://find.pcworld.com/53068)). ■

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# ANSWER LINE

LINCOLN SPECTOR

## Save Windows Updates Locally for Faster Reinstalls



I REINSTALL WINDOWS about once a year. Is there a way to save Windows XP updates and patches so I don't have to download them again?

*William Davis, Gainesville, Florida*

YOU CAN DOWNLOAD XP updates as program files, save them on your hard drive, reload them when you need to, and even share them between computers.

administrator—look at the top of the browser window for a message asking permission to install an ActiveX control. You need to grant permission to download the control before you can proceed.

When you get to the catalog page, click *Find updates for Microsoft Windows operating systems*. Choose *Windows XP SP2*, and then click *Search•Critical Updates and Service Packs*.

This will display a list of updates. Click the *Add* button under the relevant ones to place them in your download basket (see **FIGURE 1**). When you're done, click *Go to Download Basket*, enter or select a download location, and click *Download Now*.

To begin patching, double-click the SP2 file, named *WindowsXP-KB835935-SP2-ENU.exe*, and step through the installation wizard.



**FIGURE 1: DOWNLOAD WINDOWS UPDATES** as files that can be reused via Microsoft's Windows Update Catalog.

First, download Windows XP Service Pack 2. Keeping a reinstallable version of SP2 handy will save you more download time than all the other XP updates put together. Go to [find.pcworld.com/53104](http://find.pcworld.com/53104) to download SP2, or go to [find.pcworld.com/53106](http://find.pcworld.com/53106) to order the update on CD (note that the first of these two links begins the download automatically).

You'll find other Windows XP updates at [find.pcworld.com/53108](http://find.pcworld.com/53108). The site requires Internet Explorer 5 or later; so forget about using Firefox, Opera, or any other alternative browser. If the page generates an error message telling you that you must have an administrator account—even if you are logged on as an

### HIBERNATE ON SCHEDULE



YOU PUBLISHED A tip last March on scheduling a system to start up automatically [[find.pcworld.com/53110](http://find.pcworld.com/53110)]. How do I schedule a system to hibernate at a preset time?

*David Galvez, Edmonton, Alberta*

A SMALL CONFESSION: Galvez wrote back with a solution to his own problem that uses a free program called Hibernate ([find.pcworld.com/53112](http://find.pcworld.com/53112)). Download and unzip the file, but don't install it.

This program requires a Scheduled Task. In Windows XP you must be logged in to a password-protected account (for more on this, read "Schedule Tasks in

XP" from my January 2003 column at [find.pcworld.com/53114](http://find.pcworld.com/53114)).

Click *Start•Programs (All Programs in XP)•Accessories•System Tools•Scheduled Tasks*. Double-click *Add Scheduled Task* to launch the Scheduled Task Wizard.

When you're asked to 'Click the program you want Windows to run', click *Browse*, navigate to the Hibernate program file, and select it. Then finish the wizard.

### FINISH INTERRUPTED COPIES



WHEN I'M COPYING a folder and Windows comes to a file it can't copy, it aborts the entire process. Can I skip that file and copy the rest?

*Dave Wickett, Toronto, Ontario*

I CREATED A batch file that copies a folder's contents to a temporary folder, skipping over any problem files. It then opens that folder so you can move the copied files to their destination. Go to [find.pcworld.com/50070](http://find.pcworld.com/50070) to download the file, select *Start•Run*, type *sendto*, and press **<Enter>** to open your SendTo folder. Move the batch file there. To use it, right-click the folder you wish to copy and select *Send To•pcwcopy*. ■

Send your questions to [answer@pcworld.com](mailto:answer@pcworld.com). Answer Line pays \$50 for published items. See [find.pcworld.com/31577](http://find.pcworld.com/31577) for more Answer Line columns. You'll find Contributing Editor Lincoln Spector's humorous and other writings at [www.thelinkspector.com](http://www.thelinkspector.com).

### ORGANIZE YOUR WORD DATA

IF YOU NEED to organize and sort data into hierarchies, Microsoft Word can help. Select *View•Outline* to turn any Word document into a note manager. Pressing the **<Tab>** key in Outline view lowers the current paragraph's status, making it a subparagraph to the one above it. Pressing **<Ctrl>-<Tab>** raises a paragraph's status. Double-click the plus sign (+) to the left of a paragraph to hide or unhide its subparagraphs, or drag the plus sign up or down to move them. These levels are actually styles (Heading 1, Heading 2, and so on), which means that the outline also helps you format your document.



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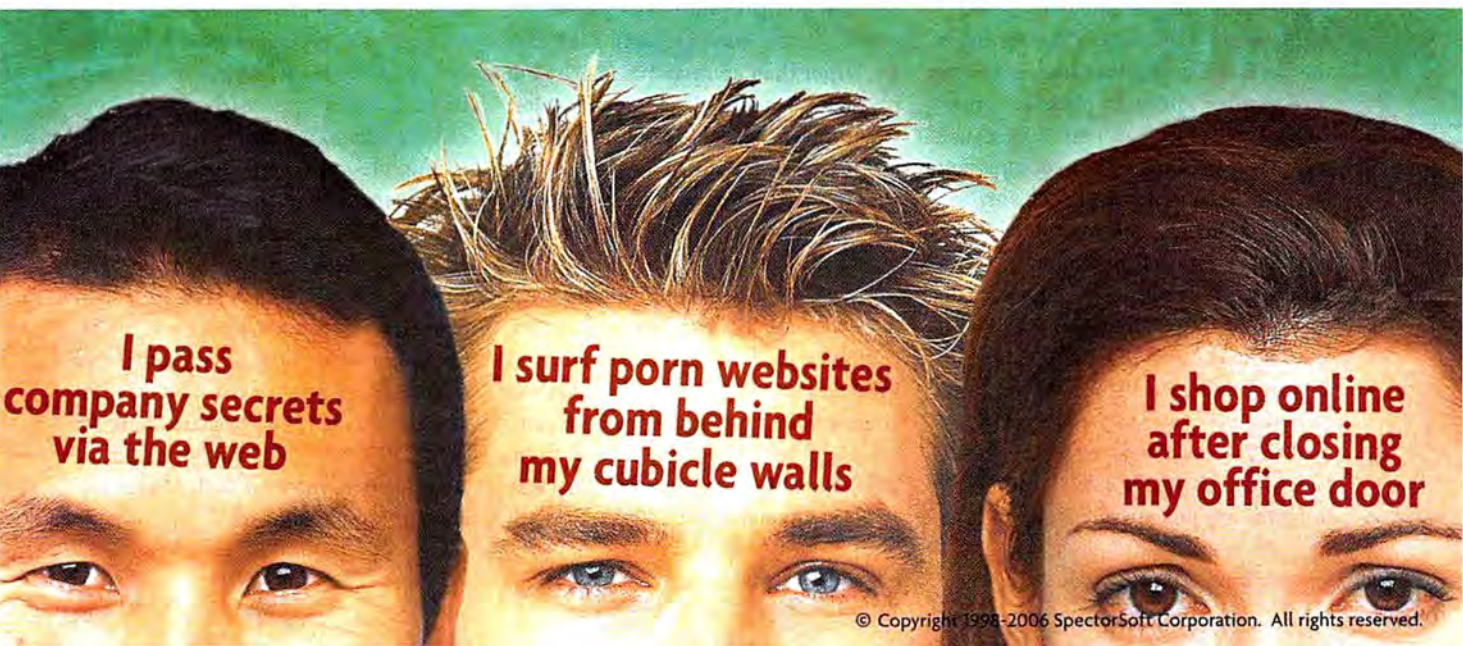
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# DIGITAL PHOTO TIPS

DAVE JOHNSON

## Determine the Perfect Format for Your Photo Files

THE NEXT TIME you start pining for the good old days of computing, keep this in mind: In 1995 we had to negotiate hundreds of image file formats, and no two imaging programs spoke the same language. These days, with just a handful of common file types for digital photos, we're living on easy street. Even so, it's rarely obvious which file format is best for a given image. Here's a look at the

JPEG does have a downside. Every time you make a change to a photo and save it, you're reducing the quality of the image. It's like making a photocopy of a photocopy: Eventually the loss of detail will become obvious (often painfully so), even if you always employ the highest quality setting available (see **FIGURE 1**).

**TIFF maintains quality:** The TIFF image-compression format is revered because

lose an almost imperceptible bit of quality with the first JPEG save, but once the file is a TIFF, the quality is locked in.

There is a drawback, however: TIFF files are much larger than JPEGs, and the TIFF format is not as universal as JPEG. You'll still need to save a copy of the TIFF image as a JPEG if you want to share it via e-mail or to place it on the Web.

**Photo fanatics love RAW:** To wring every last drop of quality out of your photos, use your camera's RAW mode (if it has one). RAW is lossless, and it offers more color depth—12 bits of color per pixel, compared with 8 bits per pixel for JPEG and TIFF. This lets you extract more detail from your photos in such editing programs as Adobe Photoshop and Photoshop Elements. Your camera saves RAW files before any white balance, sharpening, or other effects are applied. It's an unprocessed source file that offers you unlimited creative freedom. Unfortunately, every camera maker has its own flavor of RAW, and sometimes different models from the same camera vendor vary in their handling of RAW. For example, Nikon calls its RAW files 'NEF', while Canon uses both 'CRW' and 'CR2'. RAW files also require more work on your part. You'll have to apply white balance, tweak the colors, and perhaps add sharpening to the image. And since you can't save your changes to RAW files, you'll have to keep two copies of your photos—the original RAW version and the edited JPEG or TIFF file. Still, photo fanatics wouldn't have it any other way.

**Try an alternative format:** PNG is now the default image-file format for screens captured by Macs, and nearly all browsers can open them. In addition, every photo editing program offers its own proprietary format. Photoshop's PSD, for instance, is lossless, and it preserves layers, so you can return to an editing project right where you left off. However, such proprietary formats usually can't be opened outside of the program that created them, so you'll eventually need to save the files as JPEGs to share them. ■

Dave Johnson writes the Digital Focus column for PCWorld.com.



**FIGURE 1:** SAVING THE SAME JPEG image repeatedly lowers its quality dramatically.

strengths and weaknesses of the three most common digital-photo formats.

**Go mainstream with JPEG:** This format is the default that digital cameras use to save pictures, and every photo editing or viewing program can read it. Because you're able to adjust JPEG's compression level, you can make your files smaller, trading off image quality for portability.

If you're a casual photographer who shoots, prints, and shares without much serious editing in between, stick with JPEGs. Just be sure to set your camera to capture pictures at the lowest compression, which equates to the highest image quality. You can always reduce the quality later to shrink the file size, but you can't bring the lost image data back.

it's lossless—no information is lost during the compression (as opposed to JPEG's "lossy" compression). TIFF files are larger than comparable JPEGs, but nary a pixel or a shade of lavender is lost when you create, edit, or save a TIFF.

With TIFF, you'll neither have to deal with the extra baggage that accompanies the RAW format (which we'll get to in a moment) nor worry about JPEGs throwing away some color information every time you save a photo. For best quality, configure your camera to save shots as TIFF files, and keep saving them that way afterward. Or save pictures on your camera at the best JPEG quality and then, after you edit them on your PC, choose *File>Save As* and select *TIFF*. You might





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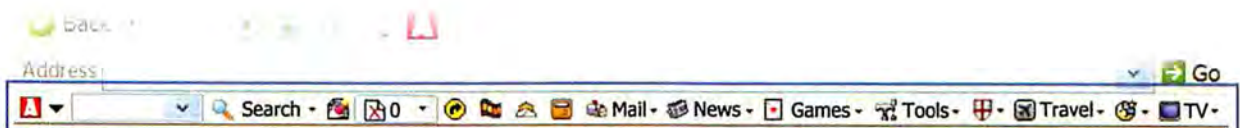
# Toolbar Review

There has never been a better time to use a toolbar with your Internet browser. Toolbars can provide users with numerous features such as Pop-up Blocking, Driving Directions, Adult Content Filtering, Security Features, Spyware Detection, Games and more. Toolbars are a convenient and powerful addition to your browser, making it easier than ever to navigate the Internet.

The comparison chart below will help you decide which toolbar is right for you.

| Toolbar Comparison Chart      |                  |        |        |     |
|-------------------------------|------------------|--------|--------|-----|
| Toolbar Features:             | Advanced Toolbar | Google | YAHOO! | msn |
| Search Engines                | 100+             | 1      | 1      | 1   |
| Search Tabs                   | ✓                |        |        |     |
| Blocks Pop-Up Ads             | ✓                | ✓      | ✓      | ✓   |
| Calendar Application          | ✓                |        |        |     |
| RSS News Reader w/Ticker      | ✓                |        |        |     |
| Auto Form Filler              | ✓                | ✓      |        | ✓   |
| Adult Content Blocker         | ✓                |        |        |     |
| Spyware Remover               | ✓                |        | ✓      |     |
| Homepage Protector            | ✓                |        |        |     |
| Browser Tracks Eraser/Cleaner | ✓                |        |        |     |
| File Shredder                 | ✓                |        |        |     |
| Add Buttons for Software      | ✓                |        |        |     |
| Add Buttons for Webpages      | ✓                | ✓      | ✓      |     |
| Screensaver Launcher          | ✓                |        |        |     |
| Games Links                   | 70               | 0      | 10     | 10  |
| E-mail Provider Links         | 52               | 0      | 1      | 1   |
| News Provider Links           | 88               | 0      | 1      | 0   |

With its vast array of features and incredible ease of use, the Advanced Toolbar stands out from the competition. It's a powerful web tool that allows you to choose from over 100 search engines, 80 plus news sources, 50 plus email providers and can be completely customized to meet your needs. The Advanced Toolbar does not record any user data, has a very straight forward privacy policy and is totally spyware and adware free. You can get a free copy of the Advanced Toolbar at <http://www.advancedtoolbar.com> and take advantage of everything this incredible toolbar has to offer.



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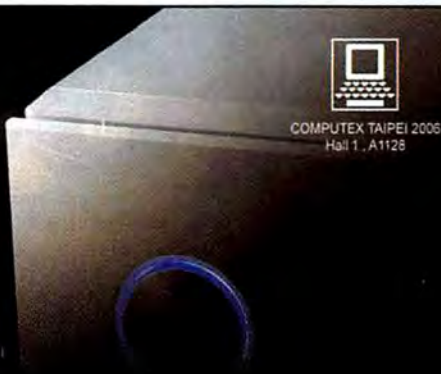
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## Keyboards: Still the Key to Success

I'M CREATING THIS column with a nineteenth-century device that requires lengthy, awkward training. So quirky is this thing that even capable users can produce hundreds of errors in an average day; nonetheless, no alternative invented since consistently matches its productivity.

Ladies and gentlemen, salute our friend the real, physical keyboard. And do it while you still can. Lately I've been running into a spate of boneheaded products that are trying to dispense with the old finger-bender entirely.

Take Microsoft's Ultra Mobile PC design—please! This scheme, as seen in Samsung's Q1 and the TabletKiosk Eo, gives you lots of ways to enter text: three incarnations of on-screen, no-tactile-feedback keyboards—two for a stylus and one for your thumbs—plus two modes of character recognition. Each of those methods, to put it politely, sucks. If you want a real keyboard, you can always hook up a USB model and learn to juggle—but you shouldn't have to.

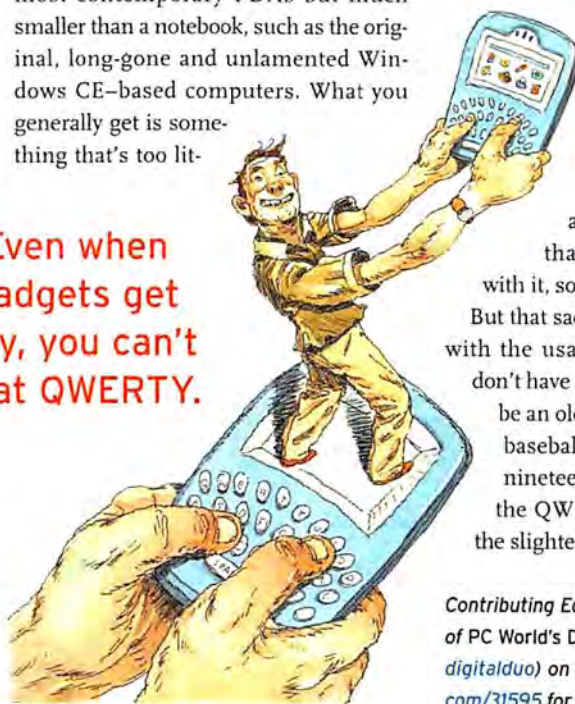
Then there's the even smaller Nokia 770 Internet Tablet. It's petite enough to fit inside your pocket, but entering something as essential as a URL involves pointing and tapping on a dysfunctional on-screen keyboard, or writing the way the device wants you to. Take away a genuine keyboard, and usability is lost.

The same goes for phones that make you enter multiple taps on a keypad or force you to rely on software that tries to guess what a series of single taps means. Suddenly, you find yourself longing for QWERTY—which you can get in a few phones that have slide-out keyboards.

A good keyboard can make the difference between a hit and a flop. The thumb-typing genius of the original BlackBerry helped make that product a household name. And Handspring swiped the idea for its Treo instead of sticking with the Palm OS tradition of requiring users to pick up a stylus and learn special characters. Clever variations include the wider keyboard on T-Mobile's Sidekick.

Keyboards have been less successful on tweener devices—ones a bit bigger than most contemporary PDAs but much smaller than a notebook, such as the original, long-gone and unlamented Windows CE-based computers. What you generally get is something that's too lit-

**Even when  
gadgets get  
tiny, you can't  
beat QWERTY.**



tle for touch-typing, but too unwieldy for thumbs, and usually without enough travel to reliably tell you whether your key presses have registered. Yet it doesn't have to be that way: The bygone Psion Series 5 proved that touch-typing in a minuscule space can be downright decent.

I'm not saying that QWERTY is the only usable way to get information into a device. I'm still a great fan of speech recognition, which is showing up on phones. But in noisy venues or those that call for silence, the keyboard wins every time; and even when speech is an option, you still want to have keys for editing the inevitable speech-input errors.

Even on traditional PCs, designers don't pay enough attention to keyboards.

Sony's compact notebooks used to have a wonderful extra function key embedded among the arrow keys. It let you use one hand for two-key combinations like <Page Up> and <Page Down>. Alas, that key has vanished—and with it, some ease of use.

But that sacrifice is nothing compared with the usability you lose when you don't have a real keyboard at all. It may be an old-fashioned gadget, but like baseball and hot dogs—two other nineteenth-century innovations—the QWERTY keyboard shows not the slightest sign of age. ■

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



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