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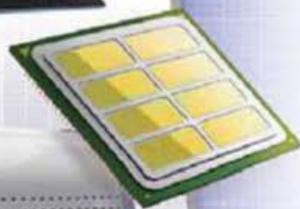
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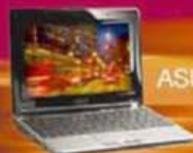


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The image is a promotional graphic for the video game Grand Theft Auto IV. It features a stylized, low-poly cityscape in shades of grey and white, with a prominent skyscraper resembling the Empire State Building. In the foreground, the back of a character's head and shoulder is visible, wearing a green jacket. The title "grand theft auto IV" is written in a large, bold, white font with a thick black outline, centered on the image. A small "TM" trademark symbol is located to the right of the word "auto".

grand theft auto IVTM

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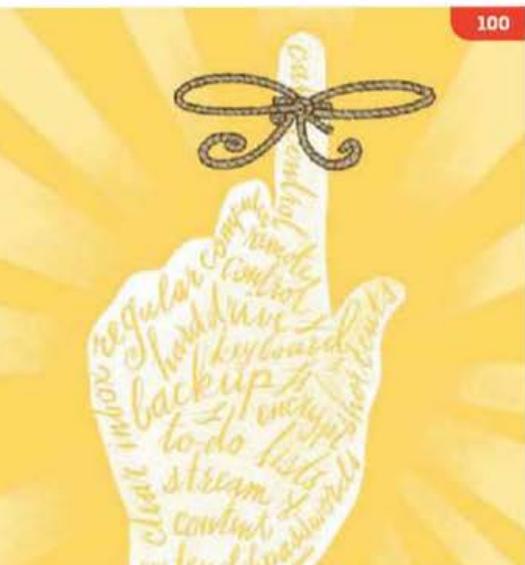
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How PCW's New Lab Tests Let You Go Green

SHOULD I TURN my PC off when I'm finished for the day, or leave it running? It's an evergreen—a tech question for the ages. *PC World's* advice through the years has been to shut down the PC because Windows can build up problems as it runs, and a fresh boot a day keeps the errors away.

Another important consideration in the leave-on/turn-off debate, though, is how much power the desktop slurps—on or off—while you snore. Computers consume a lot of energy, and much of it is wasted.

The U.S. Department of Energy estimates that in the average home, 40 percent of the electricity expended on plugged-in electronics burns away while the products are turned off. Nationwide, that amount of energy equals the annual output of 17 power plants, according to the government.

To make it easier for you to take power use into consideration before you plunk down your money for new gear, the PC World Test Center will, during the next few months, roll out power-consumption data on the desktops, laptops, high-def televisions, printers, hard drives, and graphics cards that pass through our lab for rigorous evaluation every day.

The Test Center will provide these power-use results—along with related data analysis—for all major hardware categories that *PC World* covers, and our reviewers will give them significant weight in the scoring that determines each product's overall rating.

Testing hardware for power consumption is part of the newest version of our long-evolving WorldBench test suite. (WorldBench 6 is, like earlier versions, an independent, applications-based

Our Test Center power-consumption data gives deeper insight into the true long-term costs of owning technology products.

performance benchmark for PCs.)

How does the power testing work? In the lab, test analysts attach a Watts Up Pro meter (available online for about \$160) to the product being tested. Then they measure the wattage that the device draws when it is working at top speed, when it's idle, when it's asleep, and when it's turned off.



PC WORLD DEVELOPMENT Analyst Thomas Luong uses a Watts Up meter to measure a system's power draw at various states.

The Test Center's proprietary software automatically collects the power-use results, providing the analysts with a summary of the data. As noted, each product's power-draw rating will become part of the product's overall performance score in WorldBench 6.

Recently the Test Center used a beta version of the new WorldBench 6 to test claims that AMD's quad-core Phenom X4 chips were indeed low-power-consumption models. The testing revealed that a system configured with a Phenom X4 9950 CPU drew 209 watts

when fully awake but idle, and only 3 watts while off. A setup with another Phenom, the 9350e, drew 147 watts at idle and 1.6 watts when off. The savings gained by turning off systems is clear.

Green Tech at Home

According to Climate Savers, a nonprofit organization dedicated to energy conservation, using the power-management features on a single PC can save more than 600 kilowatt-hours of electricity and more than \$60 a year in energy costs. By using these features you can reduce released carbon dioxide by nearly half a ton.

It's not just PCs. At home, TVs, DVRs, DVD players, and similar electronics can draw 30 or 40 watts of power each if you don't turn them off.

You can take some easy steps to shrink the carbon footprint at your own house, without the aid of a watts meter:

- Turn off desktops, monitors, and speakers when done for the day.
- Plug home electronics such as TVs and DVD players into power strips; turn off the power strips when not using the equipment.
- Use Windows power settings.
- Choose flat-panel monitors.
- Turn off screen savers (they aren't necessary with today's LCDs).
- Reduce monitor brightness.
- Look for the Energy Star logo when shopping for tech gear.
- Buy from companies that have a computer take-back program. ●

Kimberly Brinson is the managing editor of *PC World*.



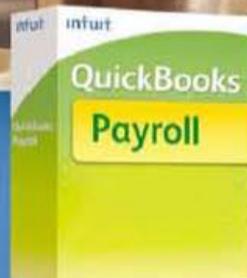
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October's article on specifications for consumer electronics (some that might be ignored and some that are overhyped) drew lots of responses, with readers mentioning specs we should have added. Do you have your own issue with specs? Go to find.pcworld.com/61760 and click 'Comment'.

The Specs That Matter...

Not all megapixels are equal ["The Specs That Matter (and the Specs That Don't)," October]. I have two digital cameras—a 4-megapixel Minolta and a 5.1-megapixel Fujifilm—and each of them comes with four different quality settings. The Minolta at its next-to-highest quality produces a much better picture than the Fujifilm at its highest quality, whether the pictures are on the computer or printed. In fact the Fujifilm camera is so bad, I think it's junk.

shanedr, from the PC World forums

One spec often left out is FSB (front-side bus) speed, which indicates how fast the internal bus handles the other plug-in cards and memory. Hard-drive speeds are part of an overall spec that should include the drive's type and its speed (in rpm). Graphics-card speeds are important but often neglected, and seldom understood by anyone but a hard-core technician.

mjd420nova, from the PC World forums

Power-supply wattage is frequently overlooked. If you're planning on buying a replacement graphics card, this information can be quite handy.

JimH443, from the PC World forums

For cameras, a very important spec is the delay between pressing the button and the actual taking of the photo. Film cameras (even el cheapos) have almost no lag. But for digital cameras (even some expensive ones), the lag can be almost half a second long, an eternity for candid or action shots.

Another important attribute is how many pictures you can take in a short time. With film cameras, especially with autowind, you can take a whole roll (36 shots) in a minute or less. You can't do that with most digital cameras, because the buffer gets filled.

Such limitations are why I still use film cameras in many situations (even though I like digital ones).

dmm1, from the PC World forums

Your Own Security Suite

Regarding "Build Your Own Free Security Suite" [October], I couldn't resist responding with my preferences. I currently use a mostly free suite: Alwil's Avast Antivirus, Comodo Pro Firewall, PCTools' Threatfire, and Tor (the last for when I want to protect my IP address when surfing the Web). In addition, I use two paid applications where I cannot find free ones that I believe to be comparable: PCTools' Spyware Doc-

tor for malware protection and History-Kill for cleaning/protection duty.

These apps run smoothly and harmoniously on both my machines (one XP, one Vista), and have caught many nasties trying to enter my systems (Avast seems to net the lion's share).

Joel Barton, Grove City, Ohio

Some high-speed Internet service providers have a free security suite that subscribers can download. Both Comcast and Cox, for example, offer McAfee's Security Suite for up to three PCs. So before building your own free security suite, check your ISP's Web page to see if such a suite is available there.

Terry Pyle, Mesa, Arizona

Hack Your Hardware

Overall, I liked October's "Hack Your Hardware," but the part about overclocking your CPU could be a little misleading. A common misconception is that an OEM heat sink and fan will han-

With the release of Google's Chrome has come a stimulation of competition in the browser market! At least articles are being written about this competition [find.pcworld.com/61759].

madams2008, PC World forums

dle overclocking, and that the BIOS will protect your system. Please don't make this mistake. It may very well cost you a motherboard, CPU, or memory module. If you want to overclock your PC or laptop, then install a thermal monitoring/management program, a very efficient CPU heat sink and fan, and an extra case fan to exhaust the heat generated by the increased speed of the CPU, frontside bus, and memory.

Thermal management is critical for a PC of any size and configuration—heat is the number one enemy of a sys- >>>

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tem. The PC World Downloads section has many free downloads for thermal management—take advantage of them.

Dogbreath077, from the PC World forums

By far the section I most appreciated was the explanation of how to adjust my Comcast remote to skip forward. I've been living for years with only a back-skip, which was a nuisance. That tip was worth a year's subscription!

Steven Friday, Little Rock, Arkansas

I have just followed your instruction, reprogramming my Comcast DVR remote to add the 30-second jump. This is a boon; my Motorola TV, unlike the TiVo, didn't have the feature, and I have been using the awkward fast-forward to skip commercials. Jumping forward in 30-second intervals, however, sometimes skips past the end of an ad, removing part of the desirable programming.

Ronald W. Keil, Corvallis, Oregon

Gas Crisis, Online Offers

There was a movie once, about the conspiracies that the oil companies supposedly maintain to keep people buying gasoline ["Gas Crisis Fuels Dubious Online Offers," *Forward*, October].

The fact is, such conspiracies don't exist, or the companies never would have allowed the current hybrid cars. Ford would love to produce a water-powered car; they could charge a million bucks per car, and people would buy it.

Even the *MythBusters* TV program tested these ways to "improve fuel efficiency." They really are bogus.

gothic1e, from the PC World forums

Sweet Deal or Moral Lapse?

The section "Is This Code for Me?" [in "Insider Deals: Sweet, If You Can Score Them," *Consumer Watch*, October] blatantly approves an immoral act—immoral because no one has the right (for their own or anyone else's benefit) to redefine the domain of coupon redeemers or coupon eligibility.

A comparable situation might be traffic laws. Each law (coupon) has as its in-

tent a certain set of drivers (highway, off-road, and so on). Highway drivers cannot apply the rules meant for off-road drivers (the coupons) to the highway to gain a benefit, such as no speed limits.

For retail sellers to subvert the intent of coupon issuers by not enforcing the issuers' intent is a moral lapse.

Rodger A. Sanders, McMinnville, Tennessee

Spam Kings

With regard to the article "Will the Real Spam King Please Stand Up?" [find.pcworld.com/61825]: The spamming activities of these so-called kings have often been a symptom of larger, more disturbing sociopathic tendencies. To take a phrase from Yoda, "spam does not make one great." These people are anti-social to begin with, so they don't particularly care how hated and reviled they quickly become—and they seem to enjoy the notoriety that they achieve, embodied in that "spam king" title. Why do you reward these people?

jdfolk, from the PC World forums

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

CORRECTION

"SAVE YOUR DATA With One of These Top Backup Programs" (*Reviews and Rankings*, October) should have said that NTI Backup 5 Advanced costs \$70 (the Standard edition costs \$30).

TELL US WHAT YOU THINK

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

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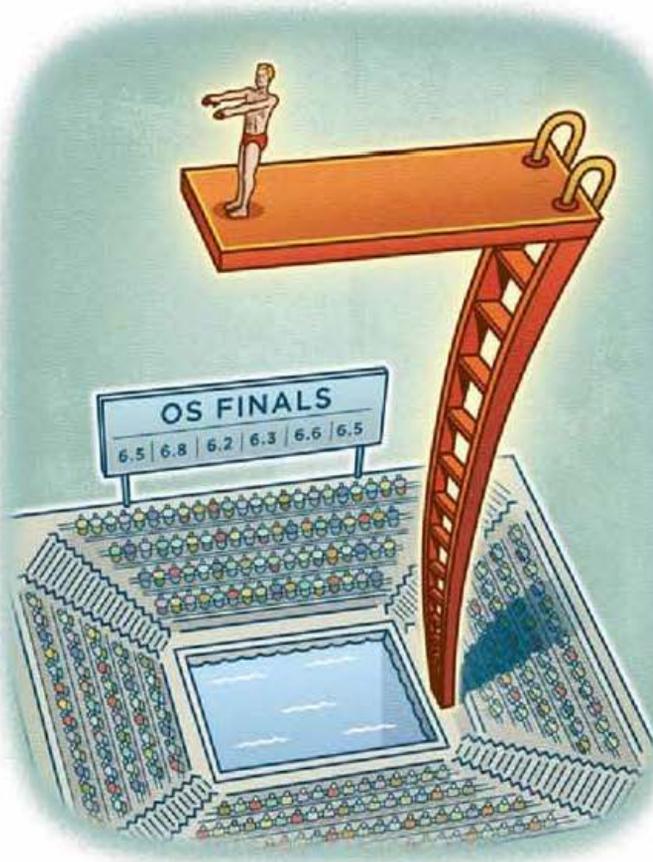
Microsoft Sets the Stage for Windows 7

BY YARDENA ARAR

AS USERS CONTINUE to grouse about Windows Vista nearly two years after its introduction, Microsoft appears relieved to turn its public focus on the next release of its flagship operating system. Pre-beta code (as Microsoft calls it) for Windows 7 is reportedly already in developers' hands, and reviewers should have their first peck by the time you read this; officially, the OS itself is slated to appear in early 2010—although some industry insiders say it may arrive before the end of 2009.

Last spring, Microsoft's lead Windows spokesperson Chris Flores wrote a blog post saying Windows 7 would refine (but not abandon) the Vista kernel. However, additional details about the new OS have been scant—and Flores and others have basically said this is because they don't want to create expectations that might not be fulfilled. (Remember when Vista was going to include the data-

Microsoft is preparing for the 2010 (or earlier) launch of Windows Vista's successor, touted as a faster, stripped-down refresh of the much-maligned OS.



base-like WinFS file system?) Consequently Microsoft says it will talk only about features that will definitely be in the OS.

The company declined interview requests for this story, pointing to various

internal blogs that include Windows 7-related posts—most notably the Engineering Windows 7 blog hosted by senior Windows engineering managers Jon DeVaan and Steven Sinofsky on the Microsoft Software Devel-

opers Network (find.pcworld.com/61789). Here's what we've gleaned from the blogs and assorted published reports:

Performance: Although Windows 7 will be built on the same code base as Windows Vista, a Fundamentals team (one of 25 within the Windows 7 development group) is working to speed up boot time, in part by trying to reduce the number of startup services, and to optimize the OS to take better advantage of technologies such as solid-state drives.

Let's hope those improvements are more effective than those that Vista Service Pack 1 provided. In our WorldBench 6 tests, Vista SP1 generated only a marginal performance improvement over the original version of Vista—and both versions' performance fell far short of Windows XP SP2's. See find.pcworld.com/61811 for expanded test results.

Interface: In one of the few early demonstrations of Windows 7, Bill Gates and Steve Ballmer last spring

Will Windows go Mac-like, or will it resemble the ever-vilified Vista? For additional details on the upcoming Windows 7, including our hands-on evaluation of the beta, go to find.pcworld.com/61816.

showed off its use of multitouch technology, similar to that in Microsoft's Surface tabletop computer (find.pcworld.com/61833).

Microsoft will improve the taskbar to better support users who tend to open large numbers of windows on their screen (the company's research indicates that nearly half of all users keep as many as six to nine windows open at a time), as well as to provide better ways to manage the windows themselves (including their size and arrangement). Published reports indicate that the ribbon interface that made its debut in core Office 2007 applications may also be a feature of Windows 7.

One Engineering Windows 7 blog post says that developers are looking into ways to customize notifications (the balloons that pop up on your taskbar to inform you about software and hardware updates), since many people find them intrusive. The same post suggests that Microsoft wants to better expose Windows Media features (its research shows that only 10 percent of users actually enable the Windows Media Toolbar). But the post stresses that users should be in control: One person's useful toolbar is another's desktop clutter.

Applications: Microsoft officials have said many traditional Windows accessories and apps that were bundled in Vista (including the Windows Mail e-mail client and image and video editors) will not be included in a



EARLY BETAS OF Windows 7 show a different interface for choosing desktop themes, as seen in this screen shot from the WinFuture.de Web site.

standard Windows 7 installation. Instead, you will have the option of downloading Web-based Windows Live apps (see "Leaner Windows 7 Will Let You Add Features à la Carte," page 18).

User Account Control revisited: Microsoft has said that the underpinnings (APIs and logo requirements) of the User Account Control security feature in Windows Vista won't change in Windows 7, but the actual user experience will. Intended to prevent unauthorized software installations, UAC is one of the most controversial features in Vista, drawing wide criticism for its intrusiveness. As a result, Microsoft says Windows 7 will allow developers to reduce the number of User Account Control prompts, thereby speeding up application installations.

Improved graphics: Though Windows Vista's Aero environment is designed to take advantage of the power available in modern graphics processors, Microsoft apparently believes that more remains to be done. Among other things, company blogs have devoted considerable ink to discussing how applications could be optimized

to look better on high-DPI (dots-per-inch) displays.

Energy-efficient computing: A description for a session at this October's Microsoft Professional Developers Conference says that with

Windows 7, software developers will find it easier to design applications that "do not negatively impact mobile PC battery life."

World support: Windows 7 will include new globalization support that will make it easier to change the languages and other location-related features of applications.

Server version: This won't be a major release. In fact, Microsoft has said that the server version of Windows 7 will be what was originally planned as Windows Server 2008 release 2 (the initial >>

PLUGGED IN ALAN STAFFORD



SPAMMERS PREFER OBAMA: Subject lines are seven times more likely to mention him than McCain. Well, sure—they know McCain doesn't use e-mail.



OBAMA PREFERS SPAM: The campaign announced his VP selection via e-mail—and then proceeded to Obama-bomb the inboxes of everyone who signed up.



XOHM...XOHM...XOHM: Sprint's new 4G wireless data service (say "zom") delivers broadband speed, in Baltimore at first. But, uh, shouldn't it be "zoom"?



APPLE MEGAPATCHES OS X: That makes 250 bugs that it has patched this year. Okay, Mac heads, now do you think you might need antivirus software?



DIGG FOUNDER UNDIGGS: Kevin Rose says, "We don't do a good job of servicing the long tail of content." Buried for use of Internet buzzwords.



BUBBLE 2.0 BURSTING? Venture capital funds slow. No surprise; after getting burned by zero-down home buyers, would you back zero-down dot-coms?



release, hailed as one of the most significant Windows Server upgrades in years, is less than a year old, having shipped last February).

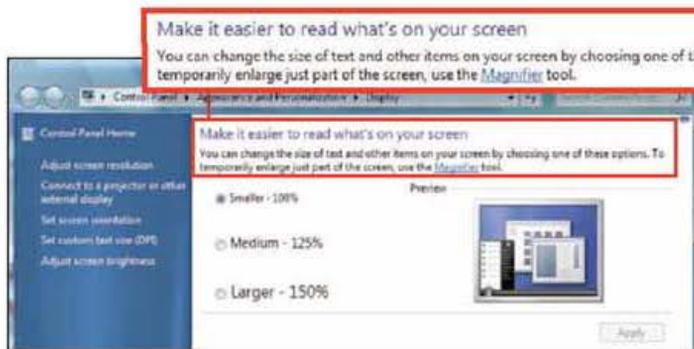
The names of the 25 engineering groups working on Windows 7 suggest other areas where Microsoft will be tinkering. An entire group is devoted to wireless networking, for example. A documents and printing group is no doubt an effort

to build support for the XPS (XML Paper Specification) document-printing format introduced with Windows Vista. A group called "Find and Organize" suggests that

Microsoft has not yet finished working on Windows' search capabilities.

Microsoft planned to reveal more details at the Professional Developers Confer-

ence and the Windows Hardware Engineering Conference in early November. Ironically, however, on the eve of these milestones, the company announced it would extend the cutoff date for providing discs for Windows XP Professional to new Vista PC buyers who wish to downgrade. Originally slated to end on January 31, that program will now continue through the end of July 2009.



MANY VISTA USERS run high-res monitors at nonnative resolutions so they can see small elements. Windows 7 should make tweaking settings easier.

DOWNIZING WINDOWS

Leaner Windows 7 Will Let You Add Features À la Carte

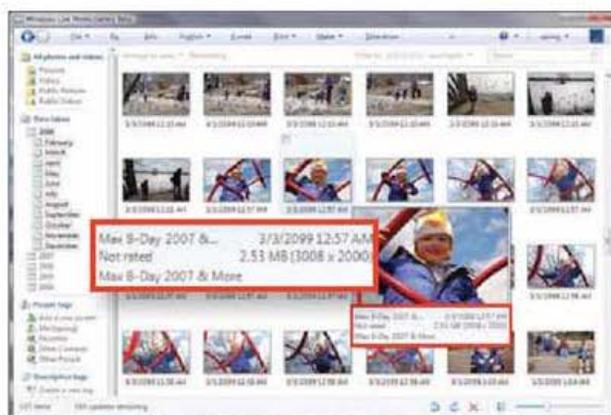
IT MAY BE hard to believe that Microsoft is prepping a version of Windows without e-mail, calendar, and instant messaging apps. After all, some of those features have been bundled with Windows almost from the start; with Vista, the list got longer, including additions such as Windows Photo Gallery and Vista Parental Controls. But Microsoft officials say the plan for Windows 7 is to deliver a lean operating system that lets you add the features you like, choosing à la carte from a suite of Windows Live Essentials programs you download.

Some applets are already available in beta form at download.live.com; more are expected to debut in mid-November. All have (or will have) hooks to free services such as online file storage, photo sharing, and collaboration tools.

Windows Live general manager Brian Hall says that stripping accessory programs from Windows will allow Microsoft to focus on the development of the operating system and streamline its support (service packs should be smaller—and possibly fewer—for a smaller OS). Hall adds that a "cleaner" operating system eliminates potential confusion for customers faced with two different programs that are similar in function—one already in Windows and the other from Windows Live.

When Windows 7 is available, Hall says, Microsoft will work with PC makers to place a desktop shortcut that will link to a download page where you can choose just the programs you want. Here's a list of what's available now from Windows Live.

- **Windows Live Messenger beta:** This instant messaging application has phone- and video-calling capabilities too.
- **Windows Live Mail beta:** In this e-mail program, you can merge multiple e-mail accounts. It also includes a calendar that syncs with a Windows Live Web-based calendar.
- **Windows Live Photo Gallery beta:** Similar to Google's Picasa, this photo organizing and basic photo editing program has hooks



THE WINDOWS LIVE Photo Gallery application reads metadata from your digital photos, with information such as when they were taken.

to Microsoft's Windows Live Photo Gallery as well as to third-party photo-sharing sites such as Flickr.

- **Windows Live Movie Maker beta:** This video editing software also automates the creation of movies from your own photos, videos, and music. The application can burn video to CD/DVD, or convert it for viewing on a cell phone or for posting online at Microsoft's Soapbox video-sharing site.
- **Windows Live Writer beta:** An application for composing and publishing blog entries to Windows Live Spaces, it also works with other blogging platforms, including Blogger and WordPress.
- **Windows Live Family Safety:** Through this parental control software, parents can limit the type of content that their children can access online and monitor their surfing activity.
- **Windows Live Toolbar:** This updated Internet Explorer toolbar enables fast access to Windows Live Web services.

—Tom Spring

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CBS Snubs Hulu, Will Put Shows on YouTube

CBS WILL SHOWCASE many of its television shows on YouTube.com, using the video-sharing site's new Feature View format, which presumably will offer much higher quality than grainy user-generated video. In fact, the format seems closely modeled after Hulu.com's, which has emerged as the



standard for long-form online video. CBS shows

like *CSI* and *Survivor* won't appear on YouTube initially; instead, you will see less-popular recent shows or old classics like *Star Trek* and *Beverly Hills 90210*. The big titles might come later.

CBS had been asked to host its content at Hulu but balked at sharing 30 percent of the advertising revenues with Hulu, which is owned by NBC Universal, News Corporation (Fox), and private investors. CBS instead concentrated on delivering "Webisodes" on CBS.com, and the video quality has been very good by today's standards. You will see ads before, during, and after CBS Webisodes—the same model that Hulu uses.

CBS seems to be taking a leap of faith by throwing in with YouTube, since the site is still unproven as a money-making venture for Google and its content partners.

—Mark Sullivan

GADGET FREAK DAN TYNAN



What I've Learned Writing 'Gadget Freak'

FIVE YEARS AGO this column began with a simple mission. To explore brave new technologies, to seek out new gizmos and gear, and to boldly go where no gadget column had gone before.

Now that mission has run its course: This will be the last *Gadget Freak* to appear in *PC World*

magazine. So now is a very good time to tell you what I've learned about what makes a gadget truly great.

The best gadgets have certain qualities in common. They solve difficult problems simply and elegantly. They're constantly ahead of the curve, adding new features before you realize you need them. And most important, they put you

in control of your own digital destiny—so that you can make the decisions about what you want to do and how you want to do it.

Over the past five years, I've seen five gadgets that thoroughly exemplify these qualities.

Apple iPod and iPhone: Steve Jobs's true genius is that he understands the total user experience, from package design to what's supposed to happen the first time you press the power button. Few devices have been as innovative as the iPod and the iPhone. The iPod almost single-handedly created today's digital media marketplace; the iPhone was the first pocket-size device to make untethered Web surfing not just bearable but fun. Sure, Apple has stumbled at times (battery problems, easily scratched screens, 3G connection glitches), but overall, nobody else comes close.

TiVo: Lots of decent DVRs are out there, but none can keep up with TiVo. The beauty of TiVo is that it gives you back all the time you used to waste watching commercials while waiting for shows to come on. I use a TiVo Series 2 (\$150

plus \$13 a month; tivo.com) to manage content on my Wi-Fi network. For example, to play a slide show of my recent trip to Reykjavik, Iceland (whale sashimi, yum), I use TiVo to access the photos on my computer, then display them on the TV. I can also access music or

video, view weather and traffic, and play games. I'd have a hard time living without my TiVo.

iRobot Roomba:

This squat, puck-shaped vacuum cleaner is so cute that millions of Roomba owners have given them pet names. The latest model is the Roomba 570 (\$430, irobot.com); it even talks to you when it needs help. Roombas also do a fine job

cleaning floors. Years from now, historians will see the introduction of the Roomba as the day that robots came into our lives to stay.

Sonos Sound System: This wireless system makes moving digital music around your home a snap, and it continues to improve with smaller, cheaper models like the Sonos Bundle 150 (sonos.com). At \$1000 for a two-room starter kit, the Sonos 150 is still pricey, but its sound quality easily bests cheaper alternatives.

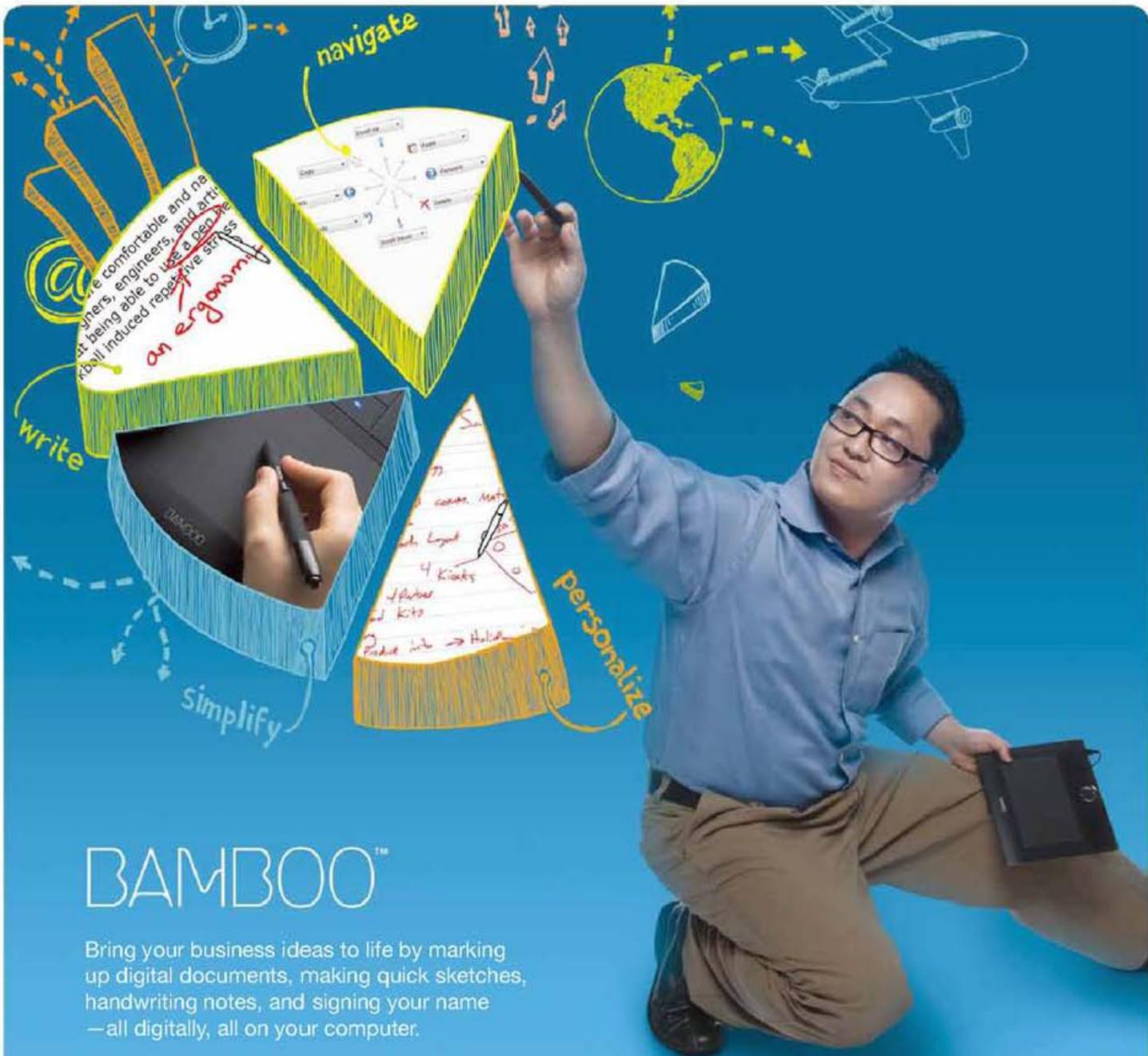
Nintendo Wii: Forget that it's the first game system you don't have to be an arrested adolescent to enjoy. The Wii (\$249, us.wii.com) brought gesture-based interfaces into the mainstream, managing to emulate real-life experience in a convincing way without virtual-reality goggles or gloves. Have I also mentioned it's a heckuva lot of fun?

As you roam the aisles this holiday season, you'll do well to look for gear that's as simple, innovative, and compelling as these five.

It's been a great five years. Thanks for reading. Now, beam me up, Scotty.

The best gadgets are both simple and elegant, and they change your life in ways you don't expect.





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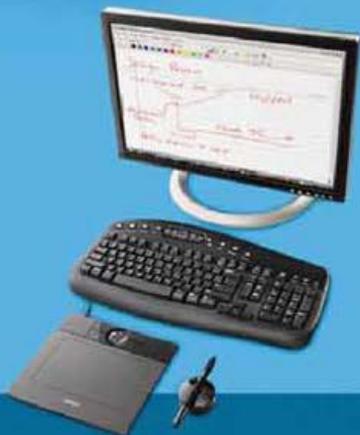
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Personal Finance 2.0: A Wealth of New Web Apps

USING THE WEB to manage your money used to mean logging into a plethora of banks and other institutions to check balances and maybe pay bills. Now various next-generation Web services are building on these basics by offering one-stop account tracking plus tools and advice to help you stick to a budget, reach financial goals, or cope with money problems.

Services such as Green Sherpa, Rudder, and Thrive target younger folks who are new to money management and are comfortable giving a third-party service access to their online account information, but who have little interest in traditional desktop tools such as Intuit's Quicken and Microsoft's Money. These services join pioneers Fincity (formerly Mvelopes), Mint.com, Wesabe, and Yodlee in providing so-called account aggregation, meaning that they can download information from multiple online accounts and use it to create a unified picture of your finances.

All of them also provide at least some means of categorizing transactions (sometimes automatically) to help you figure out where the money is going. But they differ in how they try to help your financial situation and whether they're supported by fees or by referrals and ads.

Green Sherpa (greensherpa.com), for example, plans to charge \$8 a month (\$6 if you prepay for a year) for tracking accounts and for projecting what your finances will look like in the future based

These free and fee-based Web services not only aggregate data from your online bank accounts, they give you tools for managing your money.

in part on downloaded historical data and on your own projections for expenses and income (say, a major vacation or a fat bonus check). Green Sherpa's Sharing fea-

founder Avinash Kanami describes as automated financial-advisor services. Thrive uses downloaded data to come up with a numerical rating for your



THRIVE'S FINANCIAL HEALTH ratings are based on multiple factors.

tures make it one of the first personal finance apps where you can chat with someone—a spouse, a CPA, or a financial planner—while both of you view your financial data.

I was not allowed to access the private beta, but Green Sherpa expected to launch by the time you read this.

Virtual Advisor

Loudwater Labs' Thrive service (justthrive.com) does not envision charging for what

financial health based on factors such as how much you are saving and spending, and whether you're getting the best return on savings, or paying the lowest possible interest for credit cards.

Thrive plans to make money from referrals to institutions that offer better rates (though Kanami says the referrals will not be influenced by its marketing partners). Thrive also calculates several what-if scenarios—for exam-

ple, how long your savings would last if you lost your job, or retired at age 67—and offers to create plans to deal with such eventualities.

Rudder (rudder.com) provides a snapshot (via e-mail, at your option) of account balances, what bills are coming due, and how much money you'll have left after you have paid the bills.

Rudder's Web site is based on widgets: The account balance, bill, and what's-left widgets are preinstalled, but you can add widgets that track spending and savings, too. Rudder hopes software developers will create new widgets. Like Thrive (and Mint.com), it plans to make money through referrals to financial-services providers.

All of these services look promising, but the versions of Rudder and Thrive that I tried out have limitations: Most notably, they base their conclusions on data that may be incomplete or lacking context (for example, they offer no good way to track cash expenditures). Rudder when tested didn't let you enter a second income (but should do so by the time you read this).

Mint.com still sets the standard for free services, with new investment features and support for custom categories. Fee-based Fincity has added community and editorial content.

And a growing number of mobile tools cater to users who are more familiar with phones than PCs. Quicken had better watch its back.

—Yardena Arar



RUDDER SHOWS HOW much money you'll have left after paying bills.



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Apple's MacBooks Get Aluminum 'Unibody'

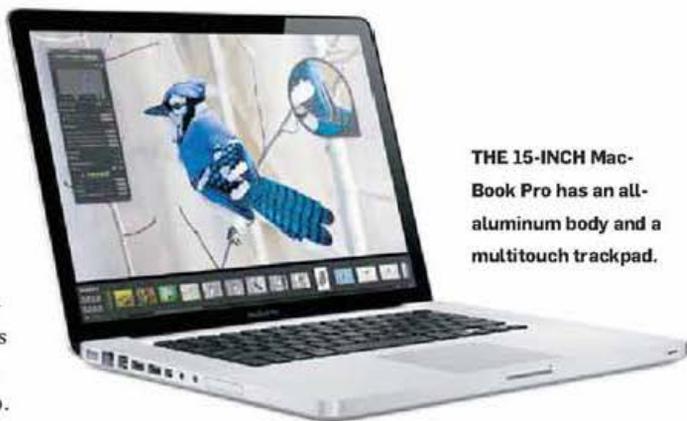
IN MID-OCTOBER, Apple announced new MacBook and MacBook Pro laptops that use enclosures crafted from single blocks of aluminum. The new models are the first notebooks of any type to include a Mini Display-Port for connecting an external monitor; Apple also unveiled an \$899, 24-inch LED-backlit monitor that uses the port—and works only with the new laptops.

Apple says the "unibody" design makes the notebooks stronger and allows them to

be thinner than their predecessors. The company claims that the laptops' fit and finish have been improved, too.

These are not the first notebooks from Apple to feature aluminum designs. The company introduced the metal in 2003 in its PowerBook G4 (which succeeded models that used titanium, whose superiority Apple had previously trumpeted).

Other innovations include the multitouch technology first seen in the iPhone, here applied to the MacBooks'



THE 15-INCH MacBook Pro has an all-aluminum body and a multitouch trackpad.

glass-surface touchpads. All of the new models use LED backlighting; according to Apple, the notebooks consume 30 percent less power than their predecessors.

A 2-GHz MacBook starts at \$1299; that buys a 160GB hard drive, a 13-inch screen, and discrete nVidia GeForce 9400M graphics. The laptop weighs 4.5 pounds and is

just shy of an inch thick.

The 15-inch MacBook Pro starts at \$1999. The base unit uses a 2.4-GHz Intel Core 2 Duo processor and includes a 250GB hard drive; it weighs 5.5 pounds.

Finally, the MacBook Air gets refreshed with discrete nVidia graphics and a 120GB hard drive; it starts at \$1799.

—Alan Stafford

BETA WATCH

EDWARD N. ALBRO



Flowgram: PowerPoint-Screencast Hybrid

Nobody likes PowerPoint presentations, but instead of just outlawing them, people keep trying to make the darn things better. The latest example is Flowgram, a free Web-based tool that uses the kind of timeline interface you would usually find in a movie editor to help you create timed online presentations of live Web pages, photos, documents, RSS feeds, and videos. In addition, the interactivity that a Flowgram allows is impressive. Not only can you narrate your presentation and highlight portions of the Web pages, but your viewers can click links on the pages you present and even view videos on sites like YouTube within the presentation. The Flowgram automatically pauses to let them see the whole video. flowgram.com

Invision.tv: Web TV Guide

The Web has many great video viewing options, but no great way to find them. Invision.tv aims to solve that problem by providing you with an electronic program guide to the Web. Videos are arranged by channels: CNN, Funny or Die, and the like. You can watch a video you select in a small window in the upper left corner of the Invision site, or you can choose to play it full screen or at the site where the video originates. If you tell Invision what you're interested in, it will suggest good viewing options. You also have access to social networking tools that let you vote or comment on a video, mark it as a favorite, or share it with a friend. (Check out ffwd.com for a different take on finding Net video.) invision.tv



THE WEB-BASED FLOWGRAM tool lets you create timed, interactive online presentations, including the use of live Web pages.

Birdpost: Flock Spotter

You've heard of citizen journalism, in which average joes report on news that's important to them. Well, Birdpost hopes to be one of the leaders of a citizen science movement. Avid birdwatchers from around the globe can join the free site and post their latest sighting of, say, a Black-capped Pygmy-Tyrant. Other birders or even novices can search for types of birds and in some cases can get a Google map that shows the species' range. birdpost.com

In a holiday hurry?
With me inside,
you can speed ahead.



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Performance measured using Photoshop® Lightroom® comparing latest-generation Intel® Centrino® 2 processor technology-based notebooks with comparable frequency first-generation dual-core Intel Centrino processor technology-based notebooks. Actual performance may vary. See <http://www.intel.com/go/consumerbenchmarks> for important additional information. ©2008 Intel Corporation. All rights reserved. Intel, the Intel logo, Centrino, and Centrino Inside are trademarks of Intel Corporation in the U.S. and other countries. Offer valid through Feb 24, 2009 and is subject to change without notice. No interest and no payments if paid in full in 12 months or 24 months when you purchase qualified computers using the Amazon.com Store Card. Applies only to products sold by Amazon.com. Does not apply to products sold on Amazon.com by third-party sellers. 1-Click and phone orders do not apply. Additional restrictions apply. See amazon.com/centrino2 for more details.

Free Wi-Fi Radio Band Passes FCC Tests

MOBILE DEVICES using a new radio band for free wireless service would not cause significant interference with cell phones employing a nearby band, the Federal Communications Commission has concluded from its tests.

The band was once used for microwave links between carrier facilities; but in 2006, citing the lack of any FCC plan at the time for assigning the spectrum, M2Z Networks proposed using it for



a combination of free and paid

wireless services that would reach 95 percent of U.S. residents. The startup proposed paying the government 5 percent of its revenue rather than going through a traditional license auction.

Last year, the government rejected M2Z's plan, but FCC chairman Kevin Martin is now circulating a proposal that would set rules for an auction of the spectrum.

T-Mobile took issue with the FCC report, saying the agency based its conclusions on assumptions not used when the tests took place. M2Z, not surprisingly, praised the report.

"There is no longer any need for American consumers, the public interest, and the FCC's regulatory process to be held hostage" by carriers, M2Z said in a statement.

—Stephen Lawson

GEEKTECH TOM MAINELLI



Geek-Tested Gifts for the Tech Fan in Your Life

THIS YEAR'S GEEKTECH wish list includes everything from a Bluetooth headset for the guy prone to blathering on in noisy surroundings to nifty running gear so pleasantly distracting that a gal may forget she is, you know, running.

The latest Aliph Jawbone Bluetooth headset (\$99; find.pcworld.com/61794) is notably smaller than its predecessor, with numerous earbuds and ear-loops to help achieve a perfect fit,



and it looks pretty slick. But what really matters is that when I call my wife on it, she can hear me over the ever-present din of road noise in my Honda Civic. I may sound a bit tinny at times, but I never have to repeat myself.

Speaking of noise, if your favorite techie needs to tune out the cubicle farm, you might spring for a closed headphone such as the Denon AH-D5000 (denon.com) or Monster Cable's Beats by Dr. Dre (www.beatsbydre.com). The mahogany-cupped AH-D5000s (\$700) deliver detailed audio in the league of world-class open-design cans like the AKG K701, while blocking modest levels of outside noise and preventing your music from blasting people nearby. For louder environments, consider the \$350 Beats by Dr. Dre. The Beats (shown at right) offer proprietary noise-canceling technology, great sound quality, and sharp (but fingerprint-prone) looks. Use the handy mute button for moments when you need to hear the outside world; alas, you can't turn off the noise cancellation in quieter environments.



For streaming music at home, try Logitech's Squeezebox Boom (\$299). It has an easy-to-use hardware interface, wireless or wired network connectivity, and an integrated amplifier and speakers. The unit was a snap to set up (the dial is perfect for Wi-Fi security code input); within minutes I was streaming music from SqueezeCenter software on my PC. Audio quality is good for such small speakers, and you can even set the unit to wake you in the morning.

The Amazon Kindle (\$359; reviewed at find.pcworld.com/61799) isn't new, but it remains a

Here are eight geek devices sure to please serious audiovisual gadget buffs these holidays.

near-perfect gift for techies with a literary bent. Fast, simple wireless access to a growing list of books, newspapers, and blogs, plus an easy-to-read screen,



make the Kindle a dream for frequent travelers. I don't love Amazon's DRM, the page-turning buttons are too easy to hit accidentally, and the design is, well, ugly. But it's an ugly you can grow to love. As to rumors of a next-generation Kindle, Amazon says that "there will not be a new Kindle until next year at the earliest."

Yes, it's been overhyped to the hilt, but the Apple iPhone 3G could make a great geek gift. I tested the 16GB black version (\$299 on contract; reviewed at find.pcworld.com/61800) and discovered that when it comes to Web access, mobile apps, and media playback, it simply slaughters my trusty Blackberry Pearl. The virtual keyboard and spotty 3G coverage remain issues, but the iPhone is sure to thrill most technophiles. For the same features (minus the phone), a second-generation iPod Touch (starting at \$229 for the 8GB model; reviewed at find.pcworld.com/61801) is a great choice.

Finally, the Garmin Forerunner 405 is a svelte descendant of larger, forearm-encompassing models that have long pleased runners seeking GPS-based stats like speed, distance, and pace. I tested the 405 with its optional heart-rate monitor (\$349 total; find.pcworld.com/61802), and found the unit offers speedy satellite acquisition, accurate vitals monitoring, and lots of obsession-worthy running data. The touch-sensitive bezel can be problematic, and battery duration ain't grand, but the watchlike 405 should be a great motivational tool for the fitness/tech fan in your life.



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World Class Web Hosting

Google Android Apps Compete With Apple, iPhone

CONCURRENT WITH THE launch of the T-Mobile G1 Android-based mobile phone (see review on page 60), Google has launched Android Market. Conceptually, the one-two combo of G1 and Market takes aim at Apple's iPhone operating system and its App Store.

The concept of applications for mobile devices is not a new one. Palm built its early following thanks in part to the large selection of programs available for its handheld platform; applications are available for BlackBerry, Symbian 60, and Windows Mobile, too.

But several points separate Android Market and Apple's App Store from the earlier attempts at mobile software. By having a central repository for applications, consumers can more easily locate the ones they seek. (Handango.com, a platform-agnostic site—one that sold lots of Palm apps—says it too will sell Android programs.) And with mobile broadband and operating systems that support over-the-air installations (recall that Palm rarely allowed apps to be installed directly), users can add software anytime, from anywhere.

Android Market goes further than



WIKITUDE'S TRAVEL GUIDE makes it easy to find points of interest near your current, GPS-oriented location or a specific address.

Apple's App Store, though (and further than Research in Motion's recently announced BlackBerry Application Center, which will launch in March 2009). Whereas all iPhone programs must go through Apple before they can be posted to the App Store, Market will



PAC-MAN, FROM NAMCO Networks, brings power-pellet munching fun to Android; navigate the maze simply by tilting the phone.

operate on a completely open model.

"It's called Market, not a store, so developers can reach consumers directly, with no middleman," Android co-founder and Google group manager for mobile platforms Rich Miner explains.

"Developers have to fill out a form and apply, and that will vet that it's a person" posting the application, he adds. Beyond that, "no permission is needed from a carrier or from Google to sell [or offer] an application."

All applications offered on Market will be free through the end of the year.



RAIN OR SHINE? AccuWeather.com lets you preprogram two cities, or use GPS to provide weather reports for your current locale.



COOKING CAPSULES OFFERS a delicious mix of animations and live videos, with a shopping list and cooking instructions, too.

How Market Works

On the T-Mobile G1, simply go to the Market shopping-bag icon, and you enter the Android Market.

Thumbnails for featured apps line the top of the Market. You can search by name or find content by subject, either Applications or Games. Applications are subdivided further by category: communication, entertainment, finance, multimedia, productivity, shopping, and the like. Games are divvied up into arcade, brain and puzzle, cards and casino, and casual subsets. All appli- ➤

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cations you've downloaded will appear in the My Downloads tab—a “digital locker” that is tied to your Gmail account, and that lets you uninstall or reinstall programs as needed.

When you download an app, Android provides detailed information on what services that software will tap into. Google's Miner says that this is one

way that consumers can stay informed and vigilant for any malevolent applications. “In Android, if an app were to try and do something other than what it says, it will be obvious,” says Miner. “We have a stronger security model than you have on a typical PC or smart phone; it's harder for an app to be malicious in the first case,” he says.

Miner expects the community and technical experts to filter and police applications, too. As on the Apple App Store, the Market has a rating and user-review system. “Apps that seem to be suspicious don't get downloaded by lots of people. And we will pull apps if people report they're harmful.”

Google's terms of service include a kill switch, which allows it to remove an app from Android phones if a developer violates the terms of service.



TERADESK'S E-STORAGE OFFERS virtual file storage and remote file access via Android; it works with Google Docs, too.



WITH SHOPSAVVY, YOU use the G1's camera to scan a product's bar code; it finds prices at both Web sellers and local stores.

Multitasking Apps

Another key difference with Android is that the operating system allows multitasking. That means you can download multiple programs or music tracks at once, for example, or have the phone's instant messenger running in the background while you surf the Web. On the iPhone, though, if you navigate away from the AOL Instant Messenger app, you're no longer logged in to the service; you must reopen AIM and log back in. With Android Instant Messenger, you'll see a notification if an instant message comes in while you are using another application. Once opened, apps don't actually close, says Miner. “The Web browser may have gone to sleep, but it will reinstate its context and go back to where it was.”

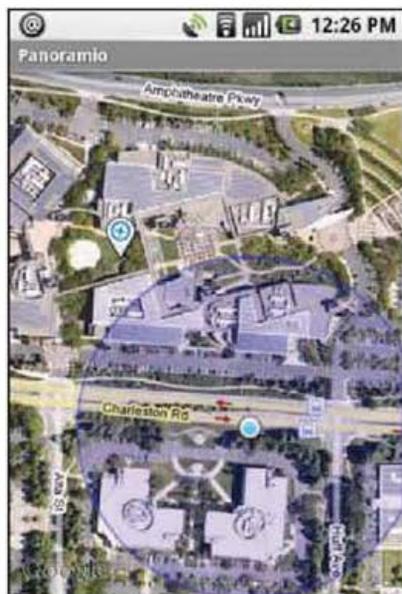
Google intends for Market apps to extend Android's capabilities—and handsets' capabilities, too. For example, although the T-Mobile G1 doesn't have a video camera, an application that uses the 3-megapixel camera's sensor to capture video could certainly come along, T-Mobile says.

T-Mobile says it will offer branded applications for its customers, such as a T-Mobile HotSpot app. Google may have similar plans: At launch, Android lacks a dedicated Google Docs icon, but that could be added later through a simple Market download. And some third party could add a notepad, as well as Microsoft Office and Adobe PDF viewing—capabilities that currently don't exist on the T-Mobile G1.

—Melissa J. Perenson ●



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PANORAMIO'S WEB-BASED, Google Maps-friendly photo-sharing community is easily accessible via this Android application.



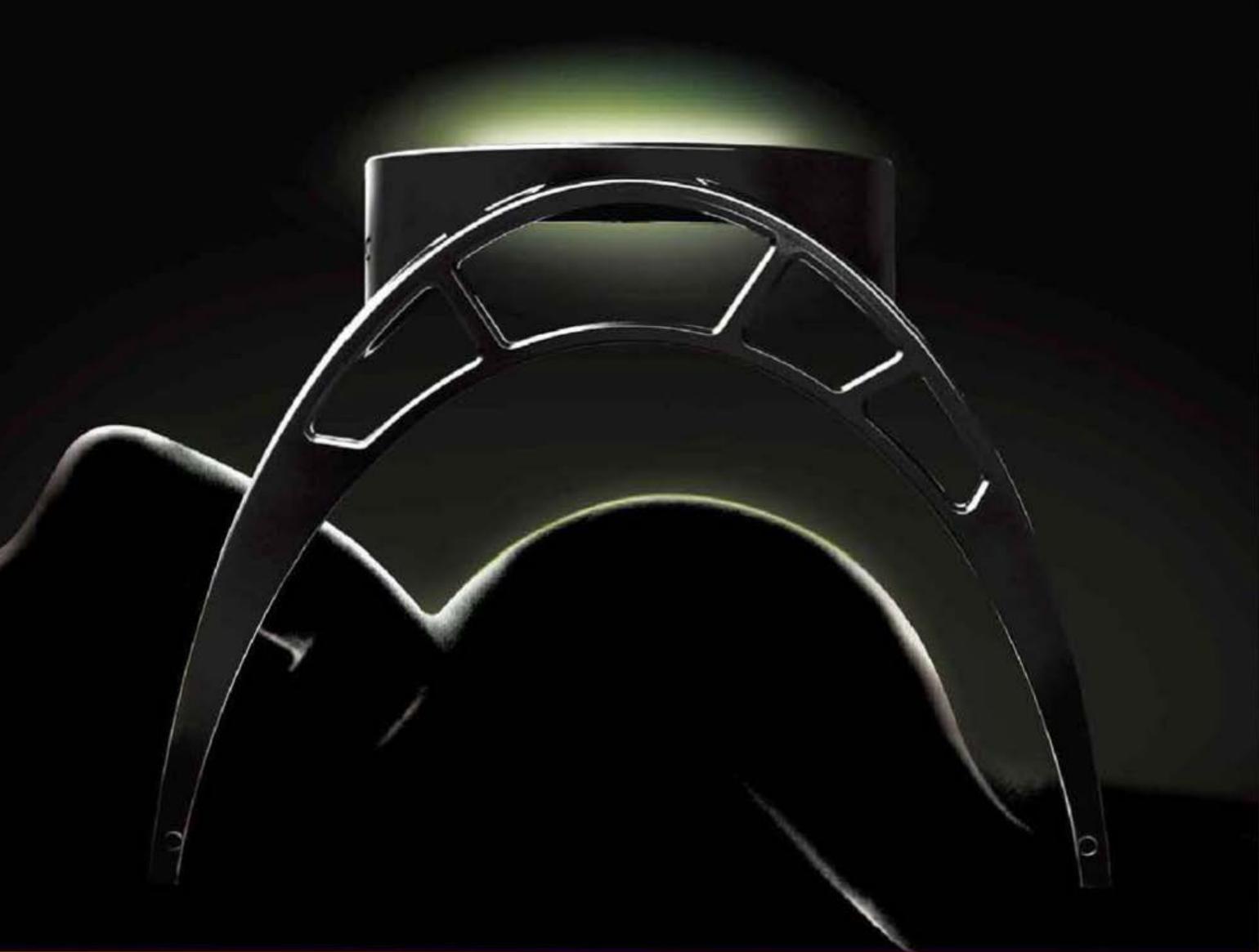
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Consumer Watch

Cool Tools to Save on Holiday Shipping

BY JR RAPHAEL

WE'VE ALL BEEN there: You find the perfect present, wrap it up, and take it to the post office—only to discover that the shipping costs as much as the gift itself. As the price of gas has climbed, package carriers have more than doubled their fuel surcharges since last year, and we're left to foot the bill.

Sending your holiday cheer doesn't have to break the bank, though. Surfing to the right sites can save you time and money, and spare you needless frustration, so don't buy a single stamp before reading on.

Comparing the Carriers

Deciding on a carrier means navigating an alphabet soup of options: Even if you know the team colors for DHL, FedEx, UPS, and USPS, you may not have time to figure out which service delivers the best value.

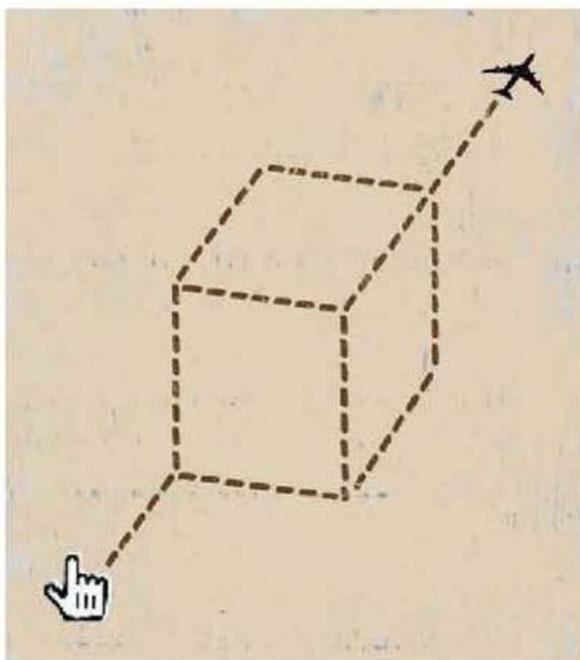
Enter Shipping Sidekick (www.shippingsidekick.com), a service that simplifies the task: You tell the site what you're

mailing, where it's coming from, and where it's going; in response, Shipping Sidekick generates a list of options available from the U.S. Postal Service and from three commercial outfits—DHL, Federal Express, and United Parcel Service. Some of the results may surprise you: The cheapest choice is “often the one you least expected,” says CEO Jacob Lakhany.

Unlike other comparison sites, Shipping Sidekick takes its rates straight from the carriers and in real time. It was the only service I tested that delivered reliable, accurate results, down to the penny. And speaking of pennies, Shipping Side-

kick recently dropped its subscription fee and now offers its service for free. A quick tip: Select the ‘oversize packaging’ option, which lets you input the specific dimensions of your box and thereby obtain more-accurate rates. But be prepared to scroll through a rather large ad before any results appear.

Whether you're sending a gift to someone special or an item that you've sold on eBay, these sites and tips can save you money.



Deep Discounts

Now that you know how the carriers stack up, you might want to visit a site that can knock off up to 70 percent of the cost. A little-known service called eShipper (www.eshipper.com) offers discounted shipping that can save you serious dough. The trick? The company ships enough packages with each major carrier to get some of the best corporate rates. (FedEx, for example, says that most company discounts don't exceed 10 percent.)

“If you have a lot of volume that you're shipping, then your rates are going to be cheaper,” says general manager Rick Wray.

Though eShipper's sign-up form lists a \$20 enrollment fee, you can avoid it by clicking to

the site from any of several partners, including Shipping Sidekick. Or visit find.pcworld.com/61717. In my test, which involved shipping a second-day FedEx package, I paid \$32.91—39 percent less than the FedEx-quoted price of \$53.80.

Here are some useful hints that I garnered along the way. Make sure that your package weight and dimensions are on the mark. If you're in doubt, round up to the nearest whole number. Also, note that only DHL provides free pickup at the quoted price; the other carriers charge extra if you don't want to drop the package off. Finally, look for the link to print >>

ILLUSTRATION: DAN PAGE

PCWORLD.COM

Are you a frequent snail-mailer? If so, you might find a Web-based postage service such as Endicia or Stamps.com worth its monthly fee in saved trips to the post office (see find.pcworld.com/61830).



SKEPTICAL SHOPPER YARDENA ARAR

your prepaid label once you reach the confirmation screen. The link doesn't jump out at you, and you'll definitely need it to send your box on its way.

Online Freebies

A couple of the carriers have freebies of their own that are worth checking out. The U.S. Postal Service (www.usps.com) offers free envelopes, boxes, and other supplies, which it will deliver to your door at no charge. You can schedule no-cost package pickups, too—and if you pay for the postage at the USPS Web site, you'll shell out 11 percent less than you would at the counter.

FedEx (www.fedex.com) permits you to sign up online for free pickup as well. Its most unusual feature, though, is a courtesy one-on-one phone-based packaging advice service. You can chat with a rep about the best way to secure your stuff from damage, and you can even send in a digital photograph to receive more-detailed ideas. "They'll get a similar item, package it, take pictures, and send it back to you," says FedEx spokesperson Matt Cenicerros.

The service's phone number is a bit buried in the Web site. To reach it, dial 800/633-7019; press 5, and press 2 to connect and to start your session.

More Money Savers

A few final strategies to help you make the most of your shipping dollar:

- Ship to a business if you can. Carriers usually charge more for home delivery.
- Don't waste money buying boxes. Google "cardboard recycling center" with your zip code, and you'll find mountains of them free for the taking.
- Find online retailers that offer free shipping. Sites like FreeShipping.org and FreeShippingOn.com list offers by store. At filleritem.com, tools will help you find an inexpensive item of any amount so you can hit the free-shipping minimum on Amazon or Buy.com.

The tools are at your fingertips. Put them to good use this holiday season, and don't spend more than you must to get your gifts where they need to be.

Six Common HDTV Showroom Pitfalls

WITH THE long-awaited transition to digital broadcasting just around the corner (February 17), many shoppers will take the HDTV plunge during the holidays and beyond—and stores eagerly await them. Even if you plan to buy online, it's smart to eyeball sets in a local big-box store, but don't take everything you see or hear at face value. Here are some issues to be aware of.

Check the content: In a recent visit to a Best Buy, I noticed that the inexpensive sets were playing a recorded HDTV loop (sales reps couldn't say whether it was 720p or 1080i, the two broadcast HD formats), but the pricey units in the store's upscale Magnolia area were playing different content—some broadcast quality but some from media. Not surprisingly, the set playing a Blu-ray movie looked best, since Blu-ray is the only source of native 1080p content.

Best Buy wasn't systematically promoting its fancy sets, though: Next to the set with the Blu-ray hookup, another expensive HDTV was playing a standard-def DVD movie, which made it look markedly inferior to its neighbor. More and more sets offer 1080p resolution, so try to play a Blu-ray Disc for your evaluation.

Examine the hookup: At the same Best Buy, the content loop on the main floor traveled through coaxial cable to the antenna-in port; the Magnolia sets were using either component (analog) or HDMI (digital) inputs. Reportedly, some retailers use lower-quality composite-video hookups to make inexpensive sets look worse than pricier models linked via component video or HDMI. Peek around the back of sets to check their connections, and try to compare only those playing the same content through the same hookup.

HDTV buyers beware: Things that you see or hear when inspecting sets in a store can be extremely misleading.

Avoid the brightness trap: In brightly lit stores, LCDs tend to look brighter (and more attractive) than plasma sets do—especially since most manufacturers ship them with brightness at its top setting. If you expect to watch television in a well-lit room, you'll want a bright screen to stand up to the illumination. But if you watch TV at night or in low lighting, you might find excessive brightness irritating. Turn it down to see if the picture still looks good.

Consider distance and viewing angle:

Regardless of how far from your set you sit at home, emulating that distance in a store with narrow aisles is difficult. Also, some LCDs don't look great when viewed at an angle, so check a set's image quality from the sides and from above. If a TV is on a bottom shelf or high on a wall, try to have it placed at a more real-world level.

Resist cable upsells: Don't splurge on high-end digital cables. Since digital content isn't subject to the vagaries of analog media, you should be fine with a decently shielded cable for \$10 to \$20, depending on length (see find.pcworld.com/61812).

Verify all sales claims: A salesperson at Sears insisted to a colleague of mine that all consumer electronics stores charge a 10 percent restocking fee for returns; but that isn't the case. Unless you do your own research, you'll never know whether the rep is offering help or a hard sell.

For additional tips on HDTV shopping, see "10 Things to Do When You're Ready to Buy an HDTV" (find.pcworld.com/61790). Also, check out our advice about financing offers (find.pcworld.com/61810). And enjoy your new high-def set!





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Consumer Watch



ON YOUR SIDE GINNY MIES

EARLIER THIS MONTH, I purchased Famatech Radmin 3.2 Remote Control software, but the setup instructions were not very helpful. Though I was able to connect to a remote computer using the software, I couldn't do so consistently. I ended up purchasing a competitor's product, which so far has worked every time I've used it. I subsequently e-mailed Famatech and asked for a refund, but the company turned me down, saying that it was sure it could make the software work. I checked Famatech's Web site, and there is no refund policy. Can you help me resolve this issue?

Mark Curtis, Helena, Montana

OYS Responds: Famatech told us that it denied Curtis's refund for two reasons: (1) he activated the license key, and (2) he provided insufficient information about what may have caused his problem.

Curtis might not have had to ask for a refund had he taken full advantage of the 30-day free trial that Famatech offers for Radmin 3: Because the software initially worked correctly, Curtis paid \$50 to activate the license right away. If a free trial is available, we recommend using it to its full term before buying the software, since you might discover problems later.

Famatech's refund policy is rather hard to locate, but we found it (in a legal notices page inaccessible from the home page) by doing a keyword search for "refund." According to the policy, the company grants refunds "based on the passage of time and/or the number of support incidents at Famatech's discretion."

If you encounter a problem after purchase, give the company's help desk a detailed account of the situation, including all the measures you've taken to try to fix it. Tech support may be able to solve your problem, so you can avoid seeking a refund altogether. Famatech did not refund Curtis's money but said it was willing to work with him further to resolve his issue.

Where's My Nimbus?

Phil Shapiro of Silver Springs, Maryland, failed to receive a Nimbus Cloud Computer that he had ordered from a startup called ScreenPC, even though his credit card was charged for shipping and handling. He asked us to investigate.

After some digging on nimbuscc.com, we found a message stating that the



company had experienced manufacturing issues that forced it to delay shipments; the company stated that it "expect[s] to clear up these issue[s] in a few weeks."

Nimbus cofounder Vijay Das told us he had e-mailed everyone who had ordered a computer, offering a refund of the shipping and handling charges. He was surprised that Shapiro hadn't received the e-mail, because he recognized the name.

Das later said that he thought our reader hadn't been contacted because of a mixup involving another customer named Shapiro. Phil Shapiro says that Das has since promised to send the Nimbus soon.

iPhone Charger Recall

Apple has recalled the ultracompact USB adapters sold with its 3G iPhones, warning that the metal prongs could break off and put owners at risk of electric shock. No injuries have been reported, but Apple has urged owners to recharge the phone by connecting it to a computer until they can trade the faulty charger in for a new one. They can initiate such a trade either in person at an Apple Store or through Apple's Web site (find.pcworld.com/61749).

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Consumer Watch

Netflix Adds Blu-ray Fee

BLU-RAY MOVIES and TV are getting a bit more expensive for Netflix subscribers: The Web-based video rental service has introduced a monthly \$1 surcharge for customers who rent Blu-ray



Disc content rather than DVDs.

Previously, you could order Blu-ray versions of movies and TV shows from Netflix at no extra cost. But no longer.

"Blu-ray movies are more expensive than standard-definition movies," Netflix told customers in an e-mail alert.

The \$1 surcharge for Blu-ray discs was due to begin appearing on subscribers' statements in November. Users may discontinue receiving Blu-ray content (and save the monthly \$1) by calling the company or by logging in to their account preferences.

The move came two days after Netflix cut its fourth-quarter projections for subscribers and revenues. The service now says it expects to end the year with 8.95 million to 9.25 million customers, down from an earlier estimate of 9.1 to 9.7 million. Revenues for the quarter, once projected at \$357 million to \$367 million, are now expected to drop to between \$353 million and \$359 million.

Netflix says the "economic climate" is to blame. It didn't help that the company had to shell out \$6.5 million in subscriber credits following a four-day service interruption in August.

On the whole, Blu-ray isn't exactly catching on like wildfire. Netflix has previously indicated that high-def content "is a very, very small, single-digit percentage" of its product shipment. But the market is picking up: *Home Media* magazine in September reported that in the first nine months of 2008 retailers sold 8.8 million Blu-ray discs, versus 5.6 million in all of 2007.

—JR Raphael ●

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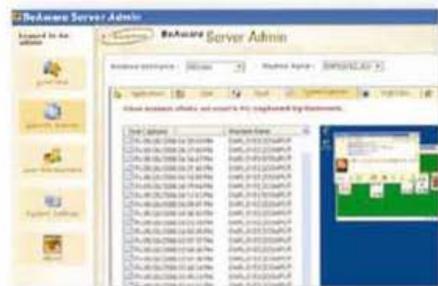


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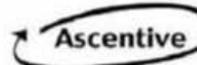
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Business Center

Four Essential Ways to Cut Your Tech Costs

BY ALEXANDRA KRASNE

WHETHER YOUR BUSINESS has just two people or two hundred, the following tips can help you cut costs, save money, and focus on what's really important in a down economy: your bottom line.

1. Use open-source and free software: When you're trying to keep your business afloat, plunking down lots of cash for off-the-shelf software can really hurt. Thankfully, freeware and low-cost software can be a pleasant surprise in terms of robustness and functionality.

While not as polished as Microsoft's Office suite (but not as much of a memory or re-source hog), OpenOffice.org (find.pcworld.com/56735) is a free, open-source alternative with a full suite of applications for word processing, spreadsheets, presentations, and databases that are compatible with Microsoft Office formats.

Google Docs (docs.google.com) is another viable and free alternative to Office. It's Web-based, meaning you have no software to download or install. Though it isn't nearly as full-featured as either Office or OpenOffice, the basic functionality and streamlined interface of Google Docs may be all you'll ever need.

Creating PDF files may be crucial for business, but spending \$450 on Adobe's Acrobat Professional is not. CutePDF

(find.pcworld.com/56229) is a free program that simply exports files to PDF. Just download and install it; from the target file, choose *File•Print*, and select *CutePDF* from the printer menu. (If you're

From relying on free software to buying a refurbished PC, you have many ways to save your business money in this troubled economy.



using OpenOffice or Google Docs, you won't even need to install CutePDF—both let you export to PDF directly.)

2. Telecommute: Working at home lets you save on gas costs, yet you can remain just as productive when telecommuting thanks to tools that permit you to connect and collaborate almost as if you were in the office.

Wikis make it simple to post text or documents so that a group can make comments or changes. Some wikis are free and public while others are more enterprise-focused, with more-robust security features. PBwiki (pbwiki.com) offers three flavors: Business, Academic, and Personal. It includes WYSIWYG editing tools, storage space, SSL encryption, automatic notifications via e-mail or RSS, and controls on access.

If you cringe at the thought of setting up a VPN (virtual private network), services such as LogMeIn Hamachi (secure.logmein.com) may just be your ticket to headache-free remote VPN access. LogMeIn Hamachi promises easy setup using peer-to-peer technology to let off-site employees access files. The service works within your firewall and costs just \$5 a month for one user license.

For more tips and case studies, check out PC World's Telecommuting Resource Guide (find.pcworld.com/61796).

3. Hold online meetings: Why fly out to see a client when you can save time and money by holding the meeting in cyberspace? Using free videoconferencing software such as Skype (www.skype.com/business), you need only a Webcam, a PC, and an Internet connection—saving money not only on travel costs, but on long-distance as well.

If you would like to upgrade to a >>



NET WORK RICHARD MOROCHOVE

more comprehensive Web conferencing service, Cisco's WebEx (www.webex.com) supports up to four Webcams and lets you share documents and run presentations from your desktop.

GoToMeeting (find.pcworld.com/58565) is another service that offers VoIP, supports meetings with up to 15 attendees, and lets you give presentations, collaborate, or provide training from your desktop, saving money on travel costs and meeting space.

4. Buy refurbished hardware: Purchasing refurbished (nearly new) hardware is a great way to get a bargain.

If you have your eye on a specific brand of computer, go to that manufacturer's site to find deals on refurbished systems. But note that each vendor defines "refurbished" a bit differently. For instance, Dell sells three types of refurbished computers, all of which are tested and restored to factory specs: Certified Refurbished includes laptops and desktops that were returned to Dell and may have minor cosmetic dings or blemishes. Previously Ordered New items were shipped new, but the customer decided to return the system without so much as booting it. Scratch and Dent products may appear a bit more worn on the outside, but still work well and don't have any dings or scratches on the palm rest or screen.

The Dell Outlet store (find.pcworld.com/61797) lets you search for refurbished Dell desktops, accessories, and laptops by price range; most items cost up to 35 percent below retail.

Amazon.com features a long list of refurbished computer resellers, and the site's seller ratings tell you immediately what sort you're dealing with. Under Amazon's A-Z Safe Buying Guarantee, sellers will allow you to return items if they're defective.

eBay (www.ebay.com) also has a wealth of deals. Like Amazon, eBay backs buyers, and the community will boot anyone out if they aren't on the level.

Just remember that refurbished systems may not be under warranty, and the vendor may sell one to you "as is."

5pm Helps Keeps Your Team Organized

MANAGING and prioritizing tasks is key to meeting business obligations.

Can you improve the way you do this?

I had a client who neatly printed each to-do item on a sticky note and slapped it on the bezel of his monitor, moving high-priority tasks higher and low-priority notes to the bottom and then on to his desk. But his system crashed one night when a new office cleaner removed the stickies and put them in a neat pile by his phone.

Several simple Web services can keep you and your team members organized. I like QGI Software's 5pm (www.5pmweb.com), a relatively inexpensive, easy-to-use service. It's

no Microsoft Project, but it lets you create and update tasks and projects either on the Web or via e-mail; its visually appealing timeline charts allow you to quickly check your progress, and it integrates with some calendar services.

5pm's Free Trial

You can sign up for a 14-day free trial without providing a credit card number. 5pm supports recent versions of Internet Explorer, Firefox, Safari, and Opera. You will need to select your own subdomain (as in mycompany.5pmweb.com) to log on. Video tutorials are available.

After you log on, you'll see four tabs down the left side of the display: Projects, Timeline, Reports, and Profiles. You'll probably spend most of your time working in Projects, which displays a list of projects in the left pane; click on one, and details such as tasks and progress indicators appear in the right pane. Hover over a project, and more details appear in a pop-up window—a nice touch.

I like the way you can customize 5pm, simply dragging columns to re-sort data, or dragging borders to resize columns.

Step up to this simple Web-based project management service—and forget paper.

5pm can sync deadlines into iCalendar-compatible datebooks, including Apple iCal, Mozilla Sunbird, and Google Calendar. (The process takes longer with the last one; the company blames Google.)

E-Mail Integration

You can create projects and tasks either on the Web or by sending e-mail to your 5pm address. You can also use e-mail to add up to 20MB of document files and update the percentage completion of a task. Parameters in e-mail subject lines let you specify more details, such



as start dates and deadlines. E-mail integration makes it easy to update projects from a mobile device on which the Web site might not display well.

5pm supports four types of users: Administrators have full access rights; users can edit projects and tasks for their teams; external users can view projects and tasks for their teams; and clients can view and edit their own projects.

5pm does more than the popular Basecamp (www.basecamp.com), yet is easy enough for project management neophytes. It doesn't, however, offer the current capabilities of the higher-end Wrike (www.wrike.com), which recently added wiki-like knowledge collaboration (see find.pcworld.com/61795 for my earlier review of these services).

Monthly fees for 5pm range from \$18 (five users, ten projects, and up to 250MB of storage) to \$175 (no limits on users or projects and up to 5GB of storage). With 1 million users and a free basic offering, Basecamp may be the market leader for entry-level Web-based project management. But if you'd like something a little slicker, then consider 5pm.



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Google Expands E-Mail Archiving

THESE DAYS, the story of a business's activities and its intellectual property is often told in e-mail messages to and from its customers, vendors, and partners. More and more often, if your business becomes involved in a regulatory or legal action, much of the discovery process can focus on the hardware and software you use to archive your e-mail communications.

Acknowledging this, and the fact that securing and archiving e-mail is typically an expensive IT line item for small businesses, Google has extended its hosted e-mail archiving service to hold e-mail messages for up to a decade, securing them with its Postini antispam and antivirus filtering software.

The archiving service, called Google Message Discovery, costs a flat fee of \$45 per user per year if you want to store your e-mail in one of Google's massive server farms for up to ten years. Google says its service can ar-



GOOGLE'S SEARCH INTERFACE lets you do archive searches from within your e-mail client.

chive e-mail from Microsoft's Exchange and IBM's Lotus Domino e-mail systems, among others. The e-mail travels to Google's archiving service via your e-mail system's journaling feature.

E-Mail Search Options

The service also provides a search interface for quickly locating relevant messages in the event your company is asked to provide them, Google says. Once the right ones are found, you can view them through your regular e-mail interface (Outlook Express, for example), or output them to a secure FTP server for sharing with outside legal counsel.

Google claims that while the need for secure, long-term e-mail archiving is

growing, many businesses are confused about how to do it, and so do nothing.

"Regulations and guidelines like the Federal Rules of Civil Procedure put pressure on IT organizations to ensure that email is properly retained and can be reliably located and preserved in the event of legal discovery," writes Google product manager Bill Kee at Google's Enterprise blog. "Coupled with the growing importance of email as a store of intellectual property, email archiving has become both legally necessary and critical to ... your business."

Google says companies routinely spend about \$200 per user per year to secure and archive their e-mail.

—Mark Sullivan

Nokia's E71: Good Looks and Brains, for a Price

AS NOKIA'S VERY first 3G phone with a full QWERTY keyboard, the \$500 E71 offers a sleek design and features for both business and personal use.

I found the phone's call quality to be very good generally, but at times callers on the other end reported that my voice sounded tinny. I also noticed an echo in some calls. In the PC



NOKIA'S 3G E71 sports a full QWERTY keyboard.

World Test Center's trials, the battery lasted 4 hours, 50 minutes—on a par with other 3G smart phones we've seen.

The E71's raised, tactile keys enable quick and easy typing. Finding one of your contacts in the phone is as simple as typing the first few letters of their name.

The phone's Web browser loads quickly, and pages look sharp on the E71's 2.3-inch QVGA screen. Nokia's Mini Map feature, which zooms out to a full-screen view of the entire page, is help-

ful for speedy navigation. You can access your home page, calendar, address book, and e-mail from the dedicated shortcut keys on the keyboard. You can also customize the keys to launch another application of your choice.

Setting up personal e-mail is a snap, but business e-mail requires your IT department's assistance. The free Nokia Exchange client synchronizes your phone with push e-mail, contacts, and calendar appointments from Microsoft Exchange, but you cannot access e-mail subfolders—something I find baffling in a business phone.

The unlocked Nokia E71 comes at a rather steep price, and you'll foot the whole bill as no U.S. carriers currently offer it. Then again, the E71 does more than the average business phone.

—Ginny Mies

PCW Test Center

3G phone with a full QWERTY

keyboard, the \$500 E71 offers a sleek design and features for both business and personal use.

I found the phone's call quality to be very good generally, but at times callers on the other end reported that my voice sounded tinny. I also noticed an echo in some calls. In the PC

79
GOOD

E71 | Nokia

Sleek smart phone boasts a multitude of useful features for business and personal use. List: \$500

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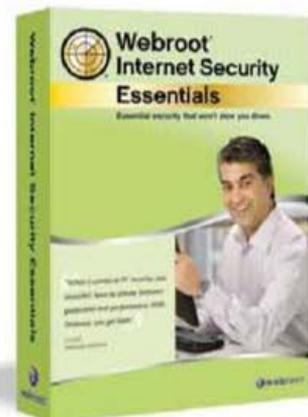
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Security Alert

Don't Be Dragooned Into the Botnet Army

BY ERIK LARKIN

THE MALWARE ARMIES are growing, with a sharp rise in the number of computers corralled into botnets—far-flung networks of infected PCs that digital crooks use to steal financial account data, relay spam, and launch crippling Internet attacks. Now that popular Web sites can invisibly and unwillingly spread malicious software, the days of staying safe just by being careful where you surf are sadly long gone. But you can take steps to protect yourself and your PC from these threats.

The volunteer white hats of Shadowserver.org, a nonprofit organization dedicated to battling the bot scourge, maintain a count of how many bot-infected PCs they see with their distributed Internet sensors. In mid-June that count began to climb dramatically, eventually exploding from a sample set between 100,000 and 200,000 for most of the year to a peak of about 500,000 in mid-September.

Since Shadowserver's sensors don't see every botnet, the total number of bot-infected machines is almost certainly a good deal larger. And some of the apparent increase stems from Shadowserver's having launched more sensors. But "there are clearly more bots and infected PCs," says Andre' M. DiMino, a Shadowserver founder. "There's a rise in the surface area of infections and consequently the number of bots we're seeing."

Some experts tie the botnet rise to a recent wave of Web-based attacks. SQL injection attacks, a type of assault against

online applications, can crack open vulnerable but otherwise benign Web sites and allow a malicious hacker to insert booby-trapped code. When someone unknowingly browses a poisoned site, the triggered booby trap invisibly hunts for exploitable software holes through which it can install a bot or other malware. Once it

infects a PC, a bot contacts a server on the Internet to pick up commands, such as to steal financial-site log-ins, from its thieving controller.

"At the time when this jump [in the number of bot-infected machines] started," says John Bambenek, an incidence handler at the Internet Storm Center, "there was a round of SQL injection attacks against thousands of Web sites." The ISC (isc.sans.org) is another volunteer organization that tracks widespread Internet attacks.

Innocent Sites Suffer

Much like the bot software they install, SQL injection and similar Web attacks force victim sites to do their bidding. And they have a growing number of holes to target: In 2007 one security company, Secure-

Works, found 59 flaws in applications that allowed for SQL injection attacks. So far in 2008, it has found 366.

Tracking down and closing those holes before crooks find them can be a real challenge. Just ask BusinessWeek.com. That site was only the latest big-name online property to suffer an attack. As of this writing (at the end of September), Google's Safe Browsing scan report (find.pcworld.com/61754) said that among BusinessWeek.com's 2484 pages the search giant had found 213 that "resulted in malicious software" >>

A favorite multipurpose weapon of online thieves is growing larger and more powerful, according to those who combat the threat.



Find out which heartthrob actor's name proved the biggest malware lure, at find.pcworld.com/61804; and read a sobering account of potential e-passport security holes, at find.pcworld.com/61805.

being downloaded and installed without user consent" over the past 90 days. The report didn't list the site as suspicious overall, and stated that "the last time suspicious content was found on this site was on 09/11/2008." In reply to our inquiries, a BusinessWeek spokesperson wrote that "the attack affected only one application within a specific section of our website, and that application has been removed."

The Big Risk: Web Exploits

According to Joe Stewart, director of malware research at SecureWorks, for a would-be botnet criminal these Web exploit attacks are by far the preferred choice for distributing evil code. "It's almost unheard of these days for these guys to try and send the attachment in e-mail," he says. "Even e-mails will typically direct you to an infected site."

Stewart hasn't noticed any major growth in the large botnets that he watches, but he says he typically sees an ebb and flow in the size of distributed malware networks. When IT workers and antivirus companies catch on to bot infections and clean them up, the crooks respond by infecting a new batch of PCs. "They're having to keep up these seeding campaigns to keep up their botnet size," Stewart says.

Those seeding campaigns typically employ Web attacks that target outdated browser plug-ins and other vulnerable software. "Flash and RealPlayer [plug-ins]—those are the big ones," Stewart says. The attacks are often successful because it can be hard for users to know when a plug-in is old and susceptible, especially if it's so old as to predate automatic updates.

The free Personal Software Inspector (or PSI) from Secunia can make that task easier. It will scan for outdated software and also provide links for you to patches or updated versions. Nab it from find.pcworld.com/61755. A good anti-virus program will also help, of course, and a firewall capable of blocking a bot's phone-home connections can provide a secondary layer of defense.

BUGS & FIXES

STUART J. JOHNSTON



iTunes 8 to Vista: Give Me a B, an S, an OD

APPLE'S HUGE POPULAR devices may have become gold standards, but recent

glitches in the new iTunes 8 bring an unwelcome blast from the past to Microsoft's latest operating system. Connect an iPhone or iPod, and some Vista PCs either crash with the dreaded Blue Screen of Death or spontaneously restart.

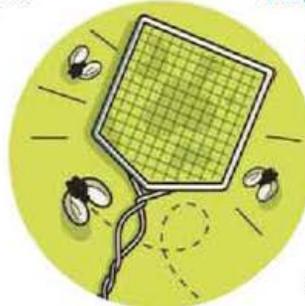
Apple says the problem can have more than one cause, and the company hasn't yet promised a patch. But if you're suffering from this unhappy pairing, Apple suggests a few options, including reinstalling iTunes 8, updating old device drivers, and checking for address conflicts between USB devices. For details, including which iPod models can have trouble (all iPhones do), head to find.pcworld.com/61752.

Plus: Windows Media Player and Encoder risks, and Firefox fixes.

enabled its ActiveX control, your PC could be completely compromised if you visit a rigged site. Check your 'Add or Remove Programs' list to see if you've installed the software.

Finally, the fourth patch closes a hole in Office 2007's OneNote note-taking software. Clicking a malicious link could trigger a digital assault.

If for some reason you don't use Automatic Updates, get all of these patches at find.pcworld.com/61748.



Firefox Fixes

Mozilla is on double time: Since last month the open-source browser maker released not one but two new Firefox versions to close two sets of critical

holes (with version 3.0.2) and fix a password-manager bug (with version 3.0.3). The first set of critical flaws gives hackers an opening if they crash the browser and corrupt its memory. The second allows for PC takeovers via rigged JavaScript files. Lucky for Firefox users, none of the bugs had been targeted prior to the new version's release.

The password-manager bug prevented some people who had upgraded to 3.0.2 from being able to save new Web site passwords or access those they had already saved. Annoying, to say the least, so Mozilla rushed out the 3.0.3 version to deal with it. To make sure you have the latest Firefox with all these fixes, select *Help • Check for Updates*.

Mangled Media

Not to be outdone, Microsoft issued another four critical patches of its own. One patch fixes five holes in the way that Windows displays Enhanced Metafile (.emf) and Windows Metafile (.wmf) image files. An attack could hit the flaws simply through your viewing a poisoned picture on a Web page, so be sure to get the fix. Every supported version of Windows from 2000 Service Pack 4 through 64-bit Vista SP1 requires the patch.

The second patch addresses a hole in Windows Media Player 11's handling of audio files streamed from a Windows Media Server. You could be victimized if you happen onto a site that hosts a poisoned audio file. Windows XP SP2 and SP3 through Vista 64 SP1 need the fix.

Windows Media Encoder 9, which converts a variety of files into Windows Media files, is the focus of the third patch. If you've specifically downloaded that software from Microsoft—it does not come with Windows—and you have also

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Sneaky Malware Steals via Bank Site Overlay

A TROJAN HORSE program that is now infecting hapless computers can add extra data-entry fields to legitimate online banking sites and trick visitors into giving up bank card numbers, PINs, and other valuable data.

The Limbo malware insinuates itself into a Web browser using a technique called HTML injection, says Uri Rivner, head of new technologies at RSA Consumer Solutions, a division of EMC. Because it's so closely integrated with the browser, it can operate while the

user is at a genuine bank site and surreptitiously change the actual layout of that real site, he says.

"Nothing tells you that something is wrong here, with one exception: You're being asked to provide some information that you were never asked to give before," Rivner says. "If you are convinced that you are communicating with the bank, the fraudsters can get away with anything they like."

Like other malware, Limbo can infiltrate a user's computer through many

paths: pop-up messages that ask you to download an (often security-themed) fake application, drive-by downloads from hacked Web sites that invisibly attack holes in vulnerable and outdated software, and other means.

Fraudsters can buy Limbo via a complex underground market, and it's getting cheaper: It costs about \$350, down from about \$1000 a year ago.

"The big trend here is that it's becoming affordable," Rivner says.

—Stephen Lawson



PRIVACY WATCH ERIK LARKIN

How Private—or Secure—Is So-Called Private Browsing?



ALL THE MAJOR browsers—Firefox, Internet Explorer 8, Safari, and even the new Google Chrome—now have or will soon have a major privacy feature. The name varies from browser to browser, but the basic intent is largely the same: While active, it masks your browsing trail from

anyone who might later sit down at that PC and try to check the browser's history, cookies, and other data.

While these features should prove effective in that situation, they won't disguise you from the sites you visit; sites will still be able to record your IP address and monitor the searches and other information you enter. And more important, the technology won't make you any more or less safe from Web-based attacks that might surreptitiously attempt to infect your PC with malware when you view a page—the favored approach among money-minded digital crooks these days. So you'll still need to be careful where you surf.

Safari's Private Browsing feature comes with its current 3.1.2 release version (www.apple.com/safari); for IE 8, you'll need to grab beta 2 (find.pcworld.com/61792) to use its InPrivate option. The feature is called Incognito in the recent Google Chrome beta release (www.google.com/chrome). Firefox is set to add its Private Browsing to the upcoming 3.1 release, but at press time only the feature specs were available (find.pcworld.com/61791).

In general the functions work (or will work) in a similar fashion. You start by telling the browser to initiate a private browsing session, which for IE 8 and Chrome means you'll get a new window with clear visual indicators that you're in a private session. Safari,

New browser features add privacy, but they won't completely cover your tracks.

unfortunately, uses the same browser window with no visual cues (after an initial pop-up confirmation), so you might easily forget you're in private mode—or think you're in the mode when you aren't. Mozilla isn't saying whether it plans to use a separate window or other visual indicator for its feature.

In private mode, the sites you visit won't be added to the browser's history. When you leave the mode, the browser deletes any cookies added during the session, and clears the download list (or, in the case of Safari, the list won't acquire new entries in the first place). However, downloaded files will stick around unless you manually delete them, as will bookmarks you add yourself.

Secrecy—Not Security

Sites you visit during a private session generally won't be able to access cookies, history, or other browser data created or saved before you entered the session. IE 8's InPrivate has an additional blocking option that will prevent sites from sharing data about your visit with third-party data collectors, such as ad networks, that the browser learns about during the course of your surfing. But no browser can prevent sites from tracking your visit. To hide yourself from sites, you need to use a service such as the for-pay Anonymizer (anonymizer.com) or the free Tor (www.torproject.org).

These new privacy features are all worthwhile, and they should all fit in with your everyday surfing much better than existing browser options (such as those that wipe out your entire browsing history). Just keep in mind that they're not a panacea, and that they're for secrecy, not additional safety. ●

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LOOKS LIKE SOMEONE'S NOT EXACTLY FEELING "HAPPILY-EVER-AFTER."



When it comes to safeguarding your computer, the current crop of Internet security products just can't keep up with today's more sophisticated threats. In fact, right now, cybercriminals are scheming-up new ways to attack your computer, through applications you use every day, like MS Office and Acrobat, plug-ins like Flash, and sites you know and trust, like Facebook, MySpace and Wikipedia.

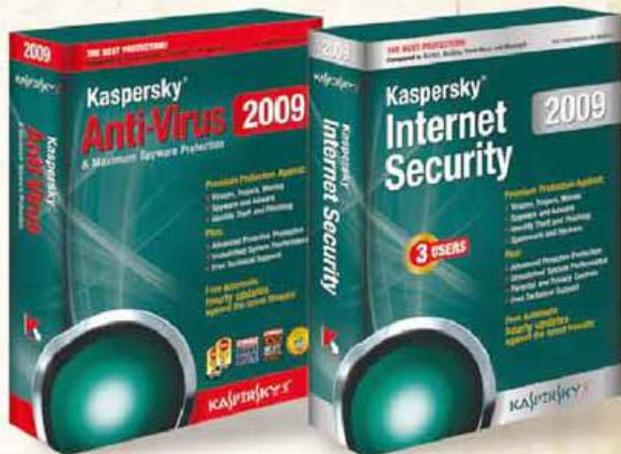
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Finally, 1800mAh in a pocket-size backup battery!

by Richard Thalheimer

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The dual-port USB car charger will charge the RichardSolo 1800 and power another device. The RichardSolo 1800 also features a built-in laser pointer, and super bright LED flashlight, with lock button to prevent accidental use.

For iPhone, sturdy support brace holds iPhone and RichardSolo 1800 securely together. And, this is the only snap-on battery available with an actual iPhone latching mechanism, to keep the RichardSolo 1800 and iPhone firmly attached.

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These are actual customer comments:

I had read a number of glowing reviews about RichardSolo quality, and am thrilled to discover your support is top notch. Thanks again for the fantastic customer care — you've certainly gained my loyalty.

— D.G.

I'm sure you can appreciate how little true "customer service" is evidenced in today's business environment. To have you and your company exhibit exceptional service is unbelievably refreshing. Thank you, Thank you, thank you!!! I will be highly recommending your company to anyone I encounter.

— P.S.

Dear Richard and Team: This is what I call great customer support. I wish more companies would figure this out these days. Thank you so much.

— D.C.

I've tried ALL the others products AND yours is the ONLY one that works correctly!!!!

— H.L.

Your service and attention was first rate and I will recommend that all my friends with iPhones or iPods purchase your product with confidence that if there is a problem, you guys will fix it! Good customer service is getting more rare each day so a big THANK YOU to you and your company.

— T.C.

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— T.K.

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— M.W.

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— L.L.

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Reviews & Rankings



THE ACER Aspire One (left) and the Lenovo IdeaPad S10 (right) top our chart of the best mini-notebooks.

Mini-Notebooks Gain Power

IT DOESN'T MATTER if you have already shed an optical drive

PCW Test Center

from your ultraportable—you still need to lose weight. When you're on the go, you normally perform only a handful of tasks, and you shouldn't have to lug an armful of extra gear.

Cue the mini-notebook. This new breed of pint-size portable continues to gain momentum and acceptance. Superslim, lightweight (2 to 3 pounds), and affordable (starting at under \$400), these units go by a few other names: netbooks, mobile Internet devices, and—my

New sub-\$500 mini-notebooks hit the scene—and, thanks to Intel's Atom processor, they all run Windows XP reasonably well.

new favorite—"laptots." But their goal, to provide serious mobile computing to the masses, remains the same.

These micro machines aren't designed to compete with more-powerful ultraportables. Mini-notebooks are good for Web browsing, e-mail, and document creation, but little else (editing a 10GB image file on one will try your patience). Consider a mini-notebook as a complement to your primary PC and a modest road com-

panion. Asus released its first Eee PC in late 2007; today the choices are numerous, with bigger players, including Acer, Dell, and Lenovo, on the field.

Similar Configurations

The latest contenders to pass through the PC World Test Center—Acer's Aspire One (\$349), Asus's Eee PC 1000H 80G XP (\$449), Dell's Inspiron Mini 9 (\$474), Lenovo's IdeaPad S10 (\$449), and MSI's Wind NB U100

(\$499)—also represent the best that the fledgling category has to offer. All five carry Intel's 1.6-GHz Atom CPU and 1GB of RAM, the magic configuration that has become the baseline for such petite portables to run Linux or Windows XP smoothly.

In addition to seeing similar designs for these systems, we're seeing comparable specs and port layouts (an ethernet jack, 802.11 b/g Wi-Fi, VGA-out, a Webcam, one ExpressCard slot, headphone and microphone jacks, and two or three USB ports). These similarities also mean a fairly consistent



60 T-MOBILE G1



66 APPLE IPOD Nano, Microsoft Zune



72 SLINGBOX PRO-HD



85 IHOME AUDIO iH70SRC

experience performance-wise, all the way around.

In fact, the mini-notebook category is so young that only in recent months have we received a quorum of models that can accommodate our WorldBench 6 test suite on their tiny hard drives. And even then, we still couldn't run all of the contenders through our test suite—which is why we've chosen not to include performance as part of our rating. But let's put it this way: The performance is such that you won't want to use any of these computers for CAD or Photoshop projects.

Subtle Differences

Even without gauging performance, we found enough ways to distinguish the five models, though their differences were subtle. Lenovo's IdeaPad S10 manages to pack a good deal of power and hard-drive capacity into its 9.8-by-7.3-by-0.9-inch frame. You get a crisp, 10.2-

PC WORLD TOP 5 MINI-NOTEBOOKS

MODEL	PCW Rating	Performance	Features and specifications
1 BEST BUY Acer Aspire One \$349 find.pcworld.com/61821	85 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 34 Very Good Overall design: Very Good Tested battery life: 2:16 	<ul style="list-style-type: none"> 1.6-GHz Intel Atom N270 8.9-inch wide screen 2.9 pounds
BOTTOM LINE: Considering its bargain price, the Aspire One is a steal—until you realize that you want the S100 six-cell battery.			
2 Lenovo IdeaPad S10 \$449 find.pcworld.com/61818	82 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 41 Superior Overall design: Very Good Tested battery life: 2:35 	<ul style="list-style-type: none"> 1.6-GHz Intel Atom N270 10.2-inch wide screen 3.4 pounds
BOTTOM LINE: Faster than its mini-notebook brethren, the S10 offers enough perks to make it a top pick for serious mobility.			
3 Asus Eee PC 1000H 80G XP \$449 find.pcworld.com/61822	82 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 37 Superior Overall design: Very Good Tested battery life: 4:32 	<ul style="list-style-type: none"> 1.6-GHz Intel Atom N270 10.0-inch wide screen 3.7 pounds
BOTTOM LINE: Asus addresses most of the Eee family's shortcomings with its newest—and biggest—mini-notebook.			
4 Dell Inspirin Mini 9 \$474 find.pcworld.com/61823	74 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 25 Fair Overall design: Good Tested battery life: 3:34 	<ul style="list-style-type: none"> 1.6-GHz Intel Atom N270 8.9-inch screen 2.7 pounds
BOTTOM LINE: Dell's first mini-notebook is a solid deal, but a couple of minor design choices hold it back.			
5 MSI Wind NB U100 \$499 find.pcworld.com/61824	74 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 36 Very Good Overall design: Good Tested battery life: 2:24 	<ul style="list-style-type: none"> 1.6-GHz Intel Atom N270 10.0-inch wide screen 3.3 pounds
BOTTOM LINE: MSI's Wind is a hardy, if vanilla, mini-notebook; for the Windows XP faithful, it offers enough oomph for the job.			
CHART NOTES: Prices and ratings are as of 10/6/08. Weight includes adapter.			

inch, 1024-by-600-resolution display in a device roughly the size of Acer's Aspire One (which has only an 8.9-inch screen). That extra bit of space allows Lenovo to provide a good-size keyboard. Though using the S10 won't match the luxurious tactile response of working with a ThinkPad, it remains one of the better experiences

among mini-notebooks. On the other hand, if you put the S10 side by side with the MSI Wind and Asus Eee PC 1000H, its keys seem a little scrunched by comparison. And regrettably, the touchpad's mouse buttons feel clacky and a bit on the cheap side for my tastes.

At 3.4 pounds (with charger), the S10 is one of the

heavier mini-notebooks on the market (Asus's Eee PC 1000H similarly tips the scale). But the S10 stands out for its relatively beefy specs, such as its 160GB hard disk. More notably, this unit logged a score of 41 in our WorldBench 6 tests, a result that easily makes it the performance leader of this pack, edging out the Eee PC >>>

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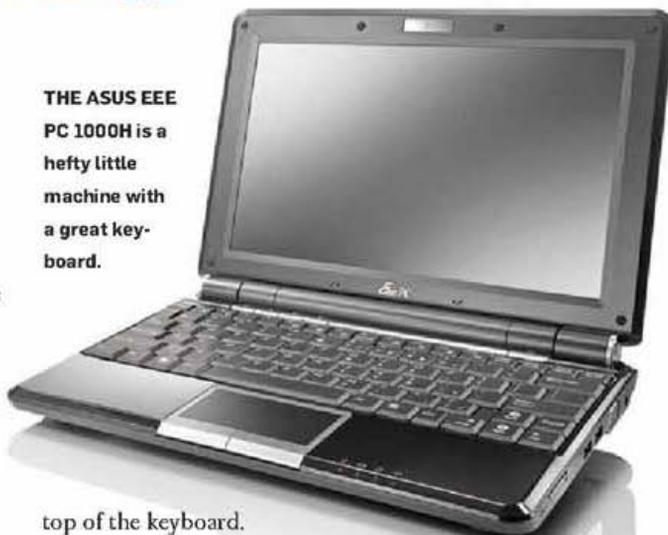
For more news and reviews covering mini-notebooks—and full-size laptops—go to find.pcworld.com/61819.

1000H, which scored a 37.

The three-cell battery that shipped with our review machine lasted only about 2.5 hours in our tests. Though the S10 scored better than the Acer Aspire One (which held out for just 2 hours, 16 minutes), Lenovo would be wise to offer an optional six-cell battery.

Lenovo's tradition of thoughtful software bundling continues here with the inclusion of a handy recovery application, Cyberlink OneKey Recovery 6.0. This app lets you create backups, as well as set partitions and restore points—the latter a more flexible backup option than simply restoring the PC to factory-fresh condition. Lenovo even goes so far as to place a OneKey panic button at the

THE ASUS EEE PC 1000H is a hefty little machine with a great keyboard.



top of the keyboard.

In comparison with the IdeaPad S10, whose size and weight border on that of a full-fledged ultraportable, Dell's dainty Inspiron Mini 9 looks as if someone had left a standard laptop in the dryer too long. Our test configuration included an 8GB solid-state drive stuffed with Windows XP Home and preinstalled software

such as Microsoft Works; about 1GB remained free. You should pay the extra \$40 for a 16GB drive.

Despite the Dell's tiny drive, we were able to fit our WorldBench 6 and battery tests on it. First, the good news: The Mini 9 lasted about 3 hours, 34 minutes with its four-cell battery—

far better the three-cell battery of the MSI Wind, which struggled to hit 2 hours, 24 minutes. The bad news: The Dell system mustered an abysmal score of 25 on our WorldBench 6 suite.

The Mini 9 weighs just 2.7 pounds and measures 9.1 by 6.7 by 1.1 inches. In spite of its diminutive size, the Mini 9 accommodates a rich, colorful 8.9-inch screen. Unfortunately, a glossy coating makes the screen slightly difficult to see in some lighting conditions. If big keys are all you care about, however, this little laptop has incredibly oversized keys that make typing a breeze.

An added bonus: The Mini 9 includes a convenient built-in Support Center (with online links) and a free, base-level account (good for 2GB of storage) with Box.net's online file storage service.

ULTRAPORTABLE

Samsung Battles Apple's Air, Asus's Eee

PRIOR TO INTRODUCING quirky pseudo nano-notebooks such as its Q1 UMPC (ultramobile PC), Samsung struggled to make headway in the North American market. Now, the company is back in play in the United States—and it has announced several new laptop lines. Among them is the Samsung NC10, a mini-notebook equipped much like Lenovo's IdeaPad S10, albeit with a six-cell battery (the NC10, however, didn't arrive in time for our story).

Samsung is also entering the ultraportable arena with its X360. Technically a competitor to Apple's MacBook Air, the X360 measures 12.2 by 8.9 by 0.6 inches. It's the flip side of a mini-notebook, offering a reasonably big, bright 13.3-inch display capable of 1280-by-800-pixel resolution; a big cut-out keyboard; 3GB of RAM; and an Intel Core 2 Duo U9400 CPU that can

THIS HOT LITTLE number, Samsung's X360, will set you back \$1899 for the base-level model.



run Windows Vista Business. If Samsung's spokespeople can be believed, the X360 will last 10 hours on its included six-cell battery. And of all the ports packed into this compact model, I'm happy to see HDMI.

Of course, all of those perks come with a hefty price tag. The version of the X360 that ships with a 120GB, 5400-rpm hard drive sells for \$1899 while a model containing a 128GB solid-state drive goes for \$2499.

Small but Substantial

Asus, the mini-notebook pioneer, decided to go big with its newest entry. The Eee PC 1000H 80G XP is so beefy, in fact, that (like the MSI Wind) it approaches an ultraportable laptop in size and weight—but with half the power. This relatively hefty unit has a 10-inch display, measures 10.5 by 7.5 by 1.5 inches, and weighs 3.7 pounds (the added weight coming in part from the system's 80GB hard disk and six-cell battery).

The 1000H also has a great keyboard, probably the best offering in the entire mini-notebook category; it's certainly a refreshing change from previous Eee PC





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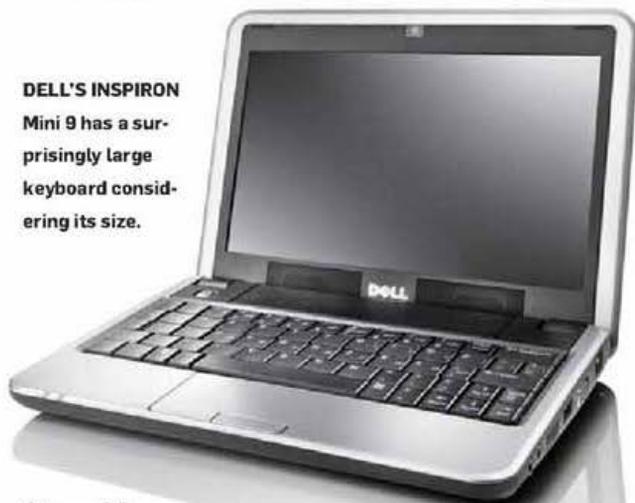


models' cheap-feeling and cramped keyboards. The 1000H also provides useful shortcut keys, surprisingly rich sound, and a touchpad that feels better than those on many full-priced laptops.

The 1000H's performance, however, will snap you back to reality, as it is no fully baked ultraportable. The system received a score of 37 on our WorldBench 6 tests, just a point higher than MSI's Wind managed.

Of the group we tested for this story, MSI's Wind is probably the closest to the Eee PC 1000H: It has the same specs and hard drive, and a similar but slightly smaller design (10.2 by 7.1 by 1.2 inches). However,

DELL'S INSPIRON Mini 9 has a surprisingly large keyboard considering its size.



this model comes across as slightly vanilla by comparison. It's certainly capable enough. The keyboard is small but usable, a sturdy single bar covers the two mouse buttons, and the chassis feels sturdy, too. The problem is that the Wind offers no real differentiators

to justify its price tag, which is \$50 higher than that of the Asus or Lenovo models.

The Budget Choice

The Acer Aspire One, meanwhile, undercuts the competition by coming in at just \$349—a full \$100 less than the next closest rival, the Lenovo IdeaPad S10. Acer's well-constructed, elegant entry is roughly the same size as the S10 (it measures 9.8 by 6.7 by 1.1 inches). And the Aspire One weighs 2.9 pounds—roughly the same as the tiny Dell Mini 9.

We recently received the Windows XP variant of the Aspire One, and came away pleasantly surprised by how much extra Acer could pack inside it as compared with the Linux version (find.pcworld.com/61750). This model maintains the same profile, the same excellent keyboard, and the same small yet crisp 8.9-inch screen, but replaces the 8GB flash drive of the Linux model with a 120GB hard drive. And it provides Windows XP Home at roughly the same price (just \$20 more) as the Linux variation.

Unfortunately, our World-

Bench 6 test results placed the Aspire One toward the back of the Atom-based mini-notebook pack with a score of 34. (On the bright side, it easily outpaced HP's 2133, fueled by Via's C-7M CPU, which scored an anemic 26.) What's worse is that the Aspire One's three-cell battery lasted a mere 2 hours, 16 minutes. A six-cell battery is available, but you must pay an absurd-sounding \$100 premium for it.

A couple other issues with the Aspire One are a bit of a letdown. The mouse buttons flank the touchpad, a design deviation that can make navigating documents difficult. A more minor issue is the software bloat: Our test system came preinstalled with a 60-day trial of Microsoft Office, McAfee Security Center, and InterVideo's WinDVD. (However, as mind-boggling as that last choice may seem for a mini-notebook lacking an optical drive, Acer includes a copy of WinDVD so that the machine has the MPEG-2 codec for video playback.)

When you're shopping for a mini-notebook, think about what's important to you. Going strictly by size, Dell's Mini 9 is the smallest of this group, yet it has a good keyboard and a crisp screen, while the Asus Eee PC 1000H is the largest model here and possesses the best interface of the bunch. Though not the sexiest, Lenovo's IdeaPad S10 is a good all-around performer. Ultimately, however, Acer's Aspire One is a great bargain despite its few flaws.

—Darren Gladstone

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T-Mobile G1 Smart Phone: More Than Meets the Eye

PCW Test Center

AT FIRST glance, T-Mobile's G1 doesn't seem to merit much attention. It looks like just another bland, HTC-manufactured phone. But use the G1—the first phone to run Google's Android operating system—and you'll start to see why it's one of the best-designed phones you can buy.

The phone itself is narrower than its chief rival, Apple's iPhone, but slightly thicker. A 3.2-inch capacitive touch-screen display dominates the front face of the device; in the lower fifth of the front, an easy-glide trackball and five buttons for navigating the G1's many features occupy most of the space.

A full QWERTY keyboard lurks beneath the display; when you press the middle left part of the handset, the display smoothly slides out.



THE G1'S BUTTONS are well chosen and clearly labeled.

A microSD Card slot is hidden on the left of the phone.

Like other HTC-designed handsets, the G1 doesn't have a standard dedicated headphone jack; this means you have to use the included wired stereo headset, which plugs into the proprietary jack at the device's base.

T-Mobile plans to offer a converter at extra cost, but this dongle approach is rather inelegant. That's too bad, because the phone is certainly a capable media player.

Good Call Quality

The phone sounded great when I tested it. I received both 3G and EDGE network coverage in the San Francisco Bay Area; audio was clear, with no background noise.

In the PC World Test Center, the battery lasted for 5 hours, 51 minutes of continuous talk time. In my hands-on trials, however, the battery drained a bit faster than I had expected: After an hour of use (including phone calls, and music and application downloads), the battery had drained by 31 percent.

The opening home screen consists of a myFaves icon at the upper left, an analog clock icon in the middle, and four primary applications: Dialer (the phone), Contacts, Browser, and Maps. When you hold your finger down on an app, the device will vibrate once and release the icon so that you can move it to another spot on the screen. Pressing or dragging the tab at the bot-



tom of the screen reveals the other apps.

The phone supports both GPS and assisted GPS. The built-in Google Maps application uses both; but in my casual tests in San Francisco, it failed to reach the same level of accuracy in picking up my location as an iPhone 3G's Google Maps app had.

The G1 comes with a number of applications already installed—and you can add more that you pick up from the Android Market. Mail from Gmail gets its own icon, but you can set up other POP3 and IMAP e-mail accounts as well, in just a couple of steps. Bizarrely, Android has no Google Docs support at launch; the only way you can access Google Docs is through the Web browser—a bit of a pain.

Browsing the Web

The Web browser handled much of what I threw at it, but it balked at some tasks (for example, it lacks in-browser Flash support). I also missed having discrete forward and backward controls (you can go back only by pressing the universal hardware back button).

The Amazon MP3 application is a useful alternative to iTunes, and music download-

THE ROOMY BACKLIT keyboard makes typing easy, though the buttons feel just a bit too flat.

ed quickly and easily. Unfortunately, its selection is less extensive than iTunes'.

The music player application is easy to navigate, and great for finding and playing back music. Music sounded okay when piped through the built-in speaker. But the absence of a standard headphone jack limits the G1's potential as a music player.

The included 3-megapixel camera is a big disappointment. It lacks a flash, a zoom, and any controls for adjusting image quality. At launch, it lacks a camcorder, too.

The G1 isn't especially sexy or eye-catching, but it does a lot of things right, and it's a very strong first-generation Android device.

—Melissa J. Perenson

85
VERY GOOD

G1 | T-Mobile

Great call quality and a nice melding of hardware with the Android OS. List: \$179 (with two-year contract) find.pcworld.com/61827

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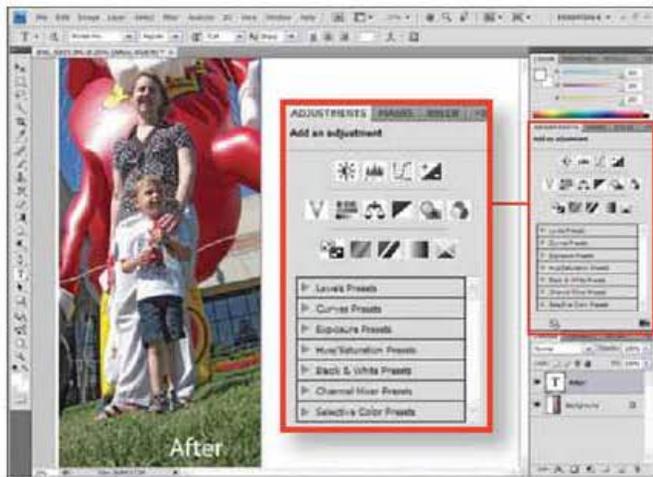
But the bigger news is that Photoshop comes in 32-bit and 64-bit Windows Vista versions. The 64-bit edition will allow PCs with lots of RAM to work on large images with less (and ideally no) hard-disk swapping, thus speeding up operations.

To test betas of both versions of Photoshop CS4, I installed them on a workstation with dual Intel Xeon

CPUs, 64-bit Windows Vista, and 8GB of RAM. Instead of acquiring RAM on the fly, Photoshop requires that you allocate a specific amount.

In the 64-bit version, I created and edited a 45,000-by-45,000-pixel image, totaling a little over 2000 megapixels with a 5.6GB file size. Most people won't need that level of precision, but some professional photographers will.

Running the 64-bit version will generate scant performance benefit beyond the ability to address more RAM. And even a system configured with lots of RAM won't always be able to avoid the slow process of reading and writing data to disk. I had to stare at a dialog box for a coffee-break-length period when I asked Photoshop to



A NEW ADJUSTMENTS palette contains many often-used photo enhancements that previously were accessible only through a menu.

apply a simple monochrome gradient to my 5.6GB file.

Of course, the new under-the-hood elements aren't Photoshop CS4's only added features. The most gee-whiz update is the new context-sensitive scaling, which lets you resize pictures while retaining foreground objects' scale. The feature didn't work in every instance—expanding the canvas size sometimes caused background elements

to tile—but even so, it's an unmistakably awesome tool.

The new adjustments palette provides easy access to often-used photo enhancements. But it offers more than convenience: Effects are applied as adjustment layers, so your edits won't affect the original image.

Photoshop CS4 Extended (a \$999 version found in the Design Premium, Web Premium, Production Premium, and Master Collection versions of Creative Suite 4) has, among other things, enhanced 3D editing capabilities. These allow you to apply 2D images (for example, a logo) to a 3D object, with excellent results.

In the short term, most Photoshop CS4 owners will probably continue to run the program in its 32-bit form. But as RAM limitations become more imposing, more people will switch to the 64-bit version. I wish that Adobe would offer 64-bit versions of its other applications, but I give it credit for starting with Photoshop. The latest version has many new features that make it a substantial, worthy upgrade.

—Ginny Mies

—Alan Stafford

Photoshop CS4 | Adobe

Not rated; beta

CS4 offers a 64-bit version plus nice upgrades to please 32-bit users.

Street: \$699

find.pcworld.com/61829

SUITE OVERVIEW

Adobe Apps Get a Boost in Creative Suite 4

THE UPDATE OF Adobe Systems' Creative Suite is the company's biggest software release to date.

CS4 remains a cornucopia of individual applications, most of which are sold independently, too. But with CS4, Adobe tightens the links among the applications—evidence that the company recognizes designers' need to switch between programs without leaving a project.

Adobe addresses that need with a significantly simplified workflow. For example, an expanded version of Dynamic Link in CS4 Production Premium enables designers to move content between After Effects and Premiere Pro, and to see their updates instantly without rendering.

Illustrator CS4 now lets designers work from multiple art boards at once. Designers can pull up art boards from within InDesign, and



they can then drag and drop elements from those boards into page layouts. InDesign CS4 also includes a Live Preflight tool to help designers catch production errors, and a customizable Links panel for placing files.

CS4 applications will be available by the time you read this; Adobe is providing a choice of six suites or full-version upgrades of 13 stand-alone programs. The company will offer tiered upgrade pricing to owners of previous versions.

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Value PCs Walk Tall and Get Small

JUST WHAT IS value anyway?

PCW Test Center To Donald Trump, it's a well-crafted prenuptial agreement. To a hobo, it's a dented can of beans. And in today's PC market, it's a computer/monitor combo that will do the job for between \$500 and \$1500 (our cutoff for value systems), depending on how much you splurge on hard-drive space, monitor size, and video frame rates.

To keep baseline costs low, value systems tend to skimp on all three of those variables, especially the gaming chops: A high-end graphics card increases a system's

price significantly, so underpowered integrated graphics chips and entry-level boards are the norm in value configurations. (Four of the five models on our chart have a graphics rating of Poor.)

Though most of the contenders for this month's *Top 5 Value PCs* chart fall in the lower half of our value price range, they handily exceed the line for minimum usable performance. Even the \$649 Polywell Poly i7050 managed a fair score of 77 in our WorldBench 6 test suite.

The Micro Express MicroFlex 82B's superior graphics and WorldBench 6 results—



THE MICRO EXPRESS MicroFlex 82B is a fully equipped value PC.

offered for just \$799—helped it capture the top spot, even though it comes with a relatively small 17-inch LCD and lacks the cohesive styling typical of the big-brand PCs. If you're looking for big things in a small package,

check out the number three Acer Veriton L460. Packing very good performance into a case the size of a hardcover novel is no minor feat, especially when the PC includes a 3.5-inch (not 2.5-inch) hard drive. It ran cool to the touch, too—a factor buyers often overlook when choosing a PC for tight quarters.

The fourth-ranked Gateway GT5692 is the first PC we've reviewed with AMD's triple-core Phenom processor. Our thoughts? There's no reason to avoid the CPU; but if you have the software to take advantage of more than two cores, you might as well buy a quad-core setup.

HP's Pavilion Elite a6560T beat out Dell's Inspiron 518 for fifth place. Both well-designed packages tout 3GB of RAM, a classy 20-inch LCD, and roughly 300GB of drive space. But even though the \$1129, 2.4-GHz Core 2 Quad Q6600-equipped Dell was our second-best value performer, its higher price was enough to nudge this strong system off the chart.

—Jon L. Jacobi

PC WORLD TOP 5 VALUE PCs

MODEL	PCWRating	Performance	Features and specifications
1 BEST BUY Micro Express MicroFlex 82B \$799 NEW find.pcworld.com/61742	84 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 117 WorldBench 6 rating: Superior Overall design: Good Graphics: Superior 	<ul style="list-style-type: none"> 3-GHz Intel Core 2 Duo E8400 250GB drive capacity 17-inch Samsung 740BX LCD 512MB nVidia GeForce 8800GT
BOTTOM LINE: The MicroFlex 82B gives you plenty of horsepower and excellent graphics, without draining your savings.			
2 Polywell Poly i7050 \$649 find.pcworld.com/59996	79 GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 77 WorldBench 6 rating: Fair Overall design: Good Graphics: Poor 	<ul style="list-style-type: none"> 2-GHz Intel Pentium Dual-Core E2180 250GB drive capacity 19-inch KDS 928W LCD nVidia 7150
BOTTOM LINE: PC delivers solid performance for basic tasks but not for fast-action games; compact case limits expansion.			
3 Acer Veriton L460 \$749 NEW find.pcworld.com/61739	77 GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 94 WorldBench 6 rating: Very Good Overall design: Very Good Graphics: Poor 	<ul style="list-style-type: none"> 2.6-GHz Intel Core 2 Duo E4700 160GB drive capacity 19-inch Acer X193w LCD Intel GMA 3100
BOTTOM LINE: Tiny but powerful, Acer's Veriton L460 is perfect for small workspaces and kiosks.			
4 Gateway GT5692 \$770 NEW find.pcworld.com/61737	77 GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 82 WorldBench 6 rating: Good Overall design: Good Graphics: Poor 	<ul style="list-style-type: none"> 2.1-GHz AMD Phenom 8450 500GB drive capacity 19-inch Gateway HD1900 LCD ATI Radeon HD 3200
BOTTOM LINE: This triple-core Phenom system is a solid buy for small-office/home-office users on a budget.			
5 HP Pavilion Elite a6560T \$1030 NEW find.pcworld.com/61738	75 GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 103 WorldBench 6 rating: Very Good Overall design: Very Good Graphics: Poor 	<ul style="list-style-type: none"> 2.6-GHz Intel Core 2 Duo E4700 320GB drive capacity 20-inch HP w2007 LCD 256MB nVidia GeForce 9300 GE
BOTTOM LINE: The Elite a6560T is a nice value system with good mainstream performance and a TV tuner.			

CHART NOTES: Prices and ratings are as of 10/10/08.

MORE ONLINE Visit find.pcworld.com/61745 for in-depth reviews, full test results, and detailed specs for each desktop in our chart.



Break glass in case of an emergency.

You never know when your Wi-Fi or broadband connection might be compromised. **Just in case**, it's good to have a USRobotics 56K USB Modem on hand.

The USRobotics 56K USB Modem delivers the performance and reliability USR is known for, in a compact design.

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- Send and receive faxes through your computer, supports group faxing and timed faxing
- Controller based modem handles all communications processing functions freeing your computer from any additional processing
- Small and light, it fits into any laptop bag for easy storage

Broadly compatible across major operating systems including Linux, Windows, and Macintosh, the USR 5637 USB Modem is perfect for:

- Home users with no broadband access and/or those who desire the additional security of dial-up Internet
- Business travelers with laptops and no internal modem for office access (when broadband isn't available)
- Laptop and desktop users that desire "back-up" access to the Internet in case of broadband failure
- Home and business users that need fax capability to and from their computers

Record Everything Your Employees Do On The Internet

(When your employees are playing on the Internet, they are NOT working)

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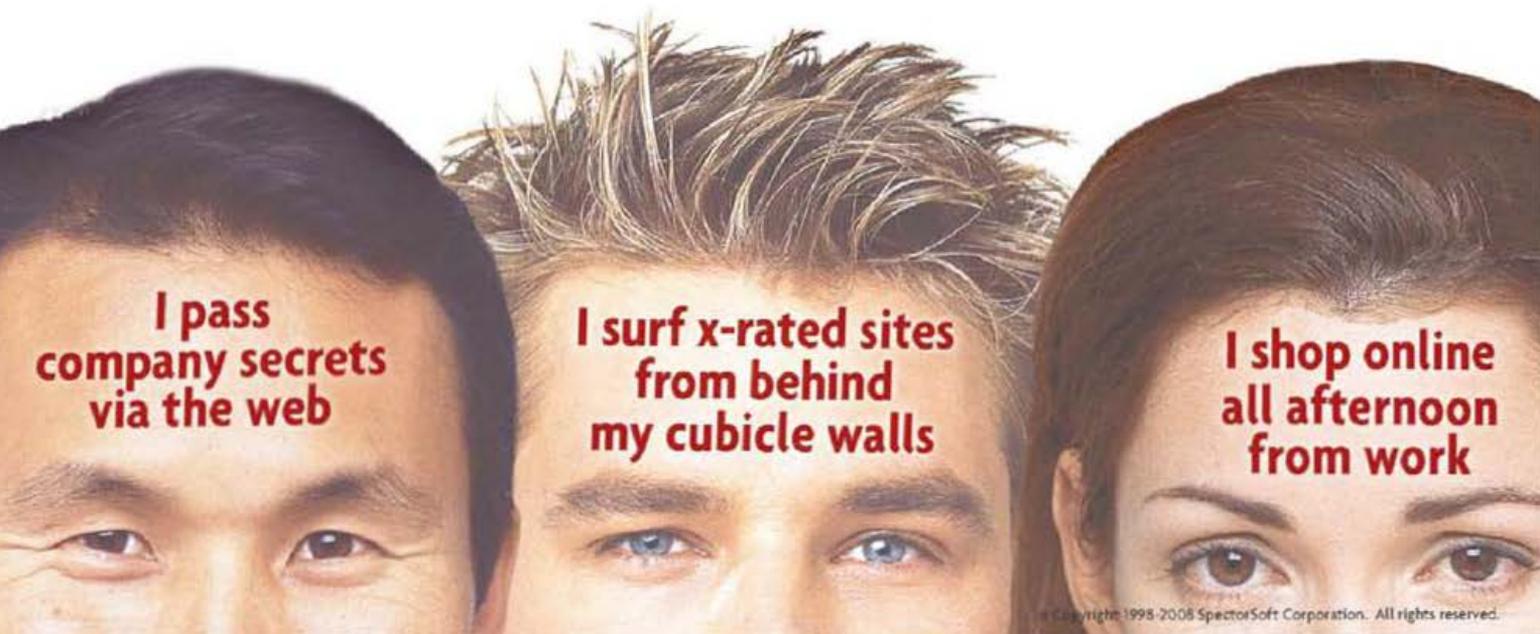
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New iPod Nano, Zune Players Face Off

PCW Test Center BOTH APPLE and Microsoft have updated their flash-based media players with \$200, 16GB models. The latest iPod Nano and Zune show further evolution, but neither represents a complete overhaul.

The new Nano is almost identical in height and width to its second-generation grandparent, bucking the third-generation model's wider-but-shorter design. With the change, it more closely resembles the Zune, which retains the size and weight of its predecessor.

Both players preserve their predecessors' controls and menu systems. The Zune's touch-sensitive controls double as a clickable D-pad controller, so you can scroll in any of four directions: Scrolling right or left flips through the albums in your library, and scrolling up or down flips through songs.

The Nano relies on Apple's usual wheel-based navigation, though the company has introduced some cosmetic changes to the menu system, primarily so that it works better when used in a



THE NANO SPORTS a 2-inch display, while the Zune's is 1.8 inches.

portrait-screen orientation.

In our lab tests of audio quality, the Nano noticeably outperformed the Zune. The Nano's audio output was a notch better than its predecessor's; it earned a rating of Superior on the PC World Test Center's suite of audio tests. (The new Nano and its new Touch sibling lead in our latest audio-output rankings.) The Zune's audio quality scored a Good rating, but its 20-step digital volume control hinders fine-tuning.

You can play back video and display photos on the devices' 320-by-240-pixel screens. The Zune's display is fine for watching TV shows or short clips—all that Zune Marketplace offers. To play video on the Nano, you must turn it on its side; unfortunately, having the screen on one side and the navigation wheel on the other makes the Nano seem off-kilter.

The new iPod Nano incorporates Apple's Genius algorithm, which produces playlists of related music for you when you select a song.

With the latest Zune soft-

ware (Zune 3.0 firmware), you can find and download content from Zune's Marketplace over Wi-Fi. You also get a feature that permits you to buy songs that you hear over the built-in FM tuner—something that all iPods still lack.

Neither of these players is a must-have upgrade. But of the two, the Nano has the edge, due to its high-quality audio and its integration with third-party accessories.

—Nick Mediatl and Ginny Mies

Slacker Player Gets Sleeker

THE SLACKER G2 is a slick, slimmed-down version of the bulky first-generation Slacker portable. Though the G2 is still blocky, buggy, and slow, it's much better than its predecessor was.

The concept behind the player is simple: You build stations online for free, sync them to the player, and end up with a player full of customized music stations. Sync over the air via Wi-Fi; or if you use Windows, drag and drop music to the player.

Some glitches that plagued



THE SLACKER G2 is sleeker than the bulky first-generation player.

the first player, most notably its unusable touch strip and awkward earbuds, have vanished. The new earbuds are comfortable, but their tinny sound means you'll probably want to upgrade them.

Despite its flaws, the G2 will surely please people who are hungry for free music.

—Tim Moynihan

Slacker G2 | Slacker

Not rated

Slimmer, slicker Slacker is still flawed. List: \$200 (25 stations)

find.pcworld.com/61838

82
VERY GOOD

iPod Nano (16GB) | Apple

More of an evolutionary step than a major overhaul. List: \$199

find.pcworld.com/61813

76
GOOD

Zune (16GB) | Microsoft

Gets a storage boost, but little else has changed. Street: \$200

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Blist: A Fresh New Online Database Service

DATABASES rarely have a reputation for being easy to use, and I don't think of them as being fun, either. But Blist, a new, free browser-based service, manages to be both.

The service lets you create Blists—short for “Web lists”—simple databases that can hold anything from an office-supply inventory to a recipe collec-

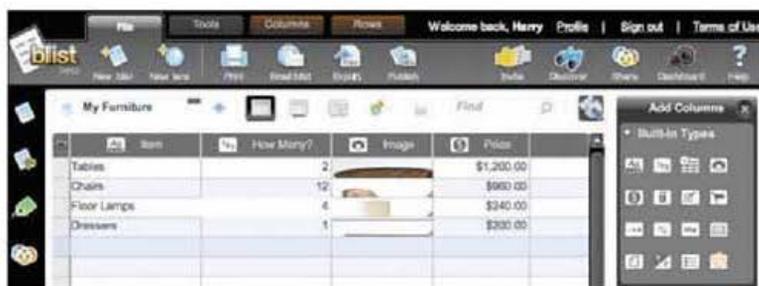
Blist | Blist

Not rated, beta

An easy-to-work-with database service that's actually entertaining.

Free

www.blist.com



BLIST'S INTERFACE IS slick and clever, and as snappy as a desktop application's.

tion. And since Blists live on the Web, you can share them with a group of folks that you specify or with the world.

Blist's standard gridlike view resembles a spreadsheet; and you can import an Excel file to get started. Well-organized icons and dialog boxes let you quickly

create fields for text, numbers, and graphics, then fill your Blist with information.

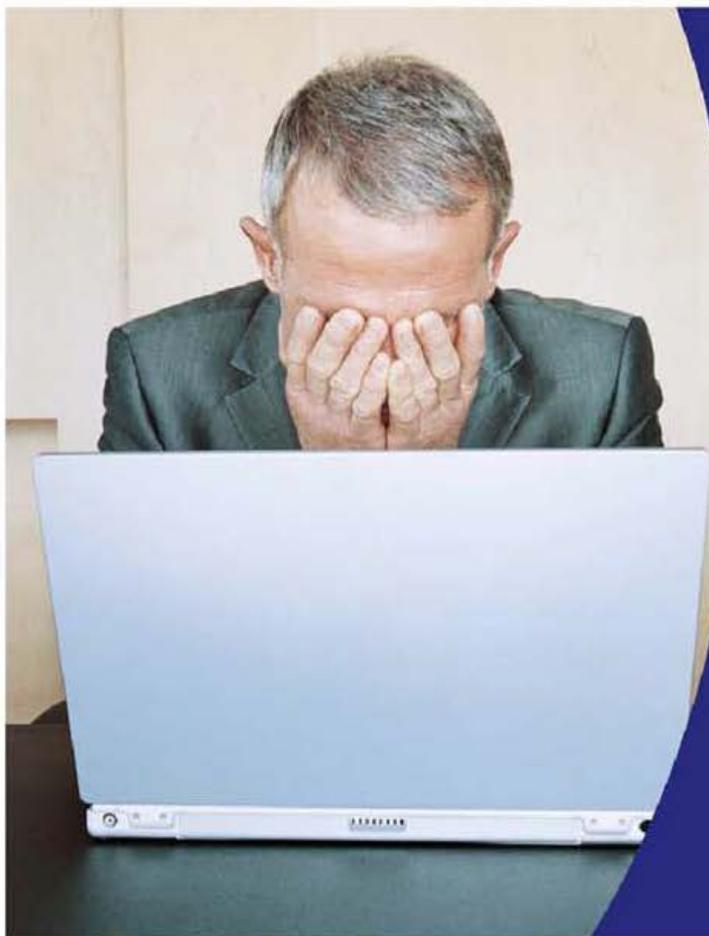
One thing that makes Blist fun to work with is its social feel: You can incorporate a Blist into a blog or a Facebook page. You can also browse through other users' Blists, or use one as a tem-

plate. Curiously, even private Blists show up in searches; you can only see their names and column labels, but this service isn't a good choice if you require true security.

Blist is a beta, and it has some rough spots.

For instance, the pop-up window for text editing is ungainly. I also found the service's white-on-gray color scheme vaguely oppressive. Clearly Blist remains a work in progress—but one that offers a promising blend of old-style productivity tools with Web-era collaboration.

—Harry McCracken



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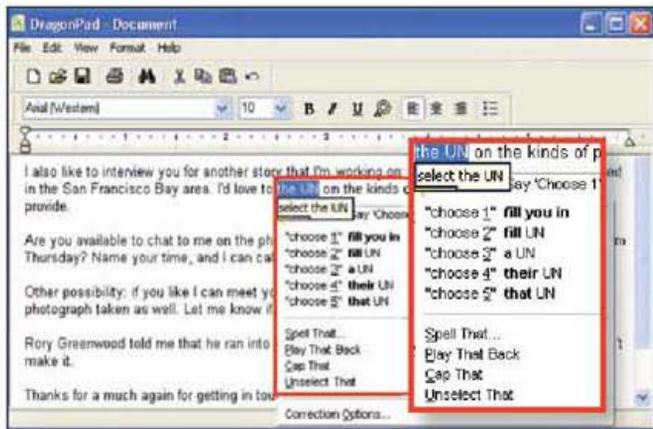
NaturallySpeaking 10: Best Voice Recognition Yet

NEVER MIND fussing with a keyboard or mouse: Dragon NaturallySpeaking 10 lets you talk to your PC to take care of all kinds of business.

Dragon says that you can achieve up to 99 percent ac-

curacy using the software right out of the box; that's close to the 97.7 percent accuracy I achieved in my informal testing. After I did some training—by reading a series of paragraphs aloud—the software's accuracy inched up to 98.1 percent.

Formatting text—whether in Dragon's dictation application, in Microsoft Word, or in an e-mail window—has dramatically improved. In the past, you had to say (for instance) "select 'PC World,'" followed by "italicize that," and conclude with "go to end of document." Now you



DRAGON MAKES a few mistakes, but you can easily correct them.

89
VERY GOOD

Dragon NaturallySpeaking 10
Nuance Communications

Accurate software lets you skip the typing and run your PC by voice.

Street: Standard \$100, Preferred

\$200, Professional \$900

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just say "italicize 'PC World.'"

Dragon's new shortcuts for Web searching are another winning feature. As a test I spoke the phrases "Search Wikipedia for Ernest Shackleton" and "Search eBay for iPod Nano," and both commands worked like a charm—though in some instances I

did have to repeat my query.

If you need a break from your keyboard, give Dragon a try. It's sometimes quicker to accomplish a task using your keyboard or mouse, but version 10 gives you the best software yet for getting work done using your voice.

—Aoife M. McEvoy

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Slingbox Pro-HD Adds High-Definition Streaming

WITH THE Slingbox Pro-HD, Sling Media has created a “place-shifting” device that lets you view high-def video in high definition, remotely. Like the Slingbox Solo and the Slingbox Pro, the Pro-HD works by streaming video from a home video source

through the Slingbox unit, and then displaying the video footage on a network- or Internet-connected PC.

But to have any hope of success in using the Pro-HD to stream high-def video, you need robust broadband (at least 1.5 mbps upstream and downstream, according to Sling Media) and a decent Windows PC. Even then, you might be disappointed.

Installing and setting up the Pro-HD to work with my Comcast/Motorola HD DVR went fairly smoothly. I used a laptop PC connected to my home network to watch



THE SLINGBOX PRO-HD connects to your cable box or DVR.

both live and recorded high-def programs from my Comcast box. On an HP notebook, playback was pretty darn good: The images looked terrific. On an older ThinkPad, my experience was not as good: The audio and video feeds began stuttering after a few minutes.

My DSL service tops out at about 750 kbps upstream, so I reinstalled the Slingbox at home with cable broadband service (to meet the requirement for HD bandwidth).

Back at the office on PC World's wired network, I watched the high-def stream on the HP notebook and on an older Dell desktop. Playback wasn't perfect—I could see dropped frames throughout, and I noticed a few skips—but it was acceptable.

I would consider getting a Slingbox Pro-HD if I were confident of having access to high-bandwidth broadband, and if I didn't insist on flawless video performance.

—Yardena Arar

84

VERY GOOD

Slingbox Pro-HD | Sling Media

Great for moving high-definition video around a fast home network.

List: \$300

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Ease of use is also a highlight of **R-Crypto**, the R-Tools data encryption system utility that protects a user's confidential information and personal data against unauthorized access, whether on a desktop, notebook, or a removable data storage device. **R-Crypto** encrypts and decrypts data in real time and is fully transparent to the user.

For the ultimate in recovery, R-Tools provides R-Studio, a family of powerful and cost-effective undelete and data recovery software for Windows, including Vista, and for the Mac. And for the Linux

community, the new R-Linux 3.0 version is a free file recovery utility for the Ext2FS/Ext3FS file system used in the Linux OS and several varieties of Unix.

R-Tools also offers **R-Wipe&Clean**, which automatically keeps applications free and clear of harmful clutter, and **R-Drive Image**, which gives users mission-critical capability to totally restore their systems after a major crash. R-Drive Image can create an image of a hard drive without any partition.

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HTC's Touch Diamond Shines

PCW Test Center

HTC'S TOUCH Diamond is an appealing Windows Mobile smart phone that's slim enough to fit easily into a shirt pocket.

The Touch Diamond runs Windows Mobile 6.1, and it comes with a full suite of Windows Mobile applications. You also get HTC's custom TouchFLO 3D inter-

face, which puts contacts, text messaging, e-mail, video and music, and Web access at your fingertips. I found TouchFLO 3D attractive and easy to use, albeit with some awkward points. For example, the slider bar at the bottom of the screen was less convenient than a conventional home screen's.

For browsing the Web, you get Internet Explorer Mobile and Opera Mobile. Opera can handle regular Web sites as well as mobile sites—and it can do so over the Sprint EvDO broadband network or over Wi-Fi.

In view of the fact that the Touch Diamond isn't played

up as a multimedia-centric phone, I found its multimedia handling to be surprisingly good. The built-in 3.2-megapixel, 2X zoom camera/camcorder yielded pleasing results. It includes settings for auto-focus and white balance, as well as a timer and even a tool to stitch together a panorama.

The Touch Diamond also comes with a music player that supports a number of popular audio formats, including MP3, AAC, and WMA. It provides its own YouTube application as well.

In my tests performed in the San Francisco Bay Area, call quality was very good,



HTC'S 2.8-INCH touch screen displays crisp, bright images.

with clear and loud voices.

Though it may not fully quench your iPhone lust, the HTC Touch Diamond is certainly worth a look.

—Nick Mediati

74
GOOD

Touch Diamond | HTC

Well-rounded specs and design are marred by a few annoyances. List: \$350 with service contract
find.pcworld.com/61839

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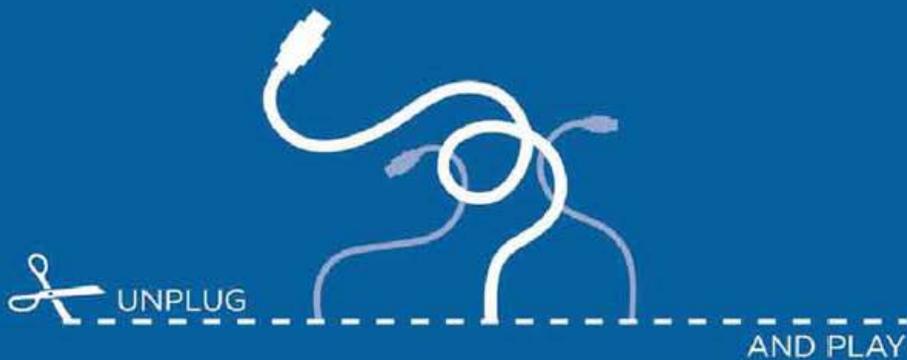
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With Wireless USB you get all the functionality of USB, without the wires. Wireless USB is a high-speed wireless technology that connects multimedia consumer electronics, peripherals and mobile devices to your computer. You get a high data rate, short range, point-to-point connection with the simplicity of no wires.

Visit www.usb.org



New Snapshot Printers: Fun, Cheap, Even Fast



FAST AND CAPABLE: HP's Photosmart A636 Compact Photo Printer.

PCW Test Center

A SNAPSHOT printer offers near-immediate gratification: Load some paper and ink, insert a media card or connect a camera, and you're ready to print photos without using a PC. On-board editing tools range from basics such as red-eye removal and a date/time stamp to extremely sophisticated clip art, layout options, and image adjustments. Even consumables are simplified: Every model we tested offers combination packs with an ink cartridge that is guaranteed to last for the number of included sheets of photo paper.

Just a year ago, the Epson PictureMate Dash debuted as our Best Buy. This year, it remains on top, even though Epson has raised the price significantly without upgrading the model. Why? Because it's still very fast compared with the competition; the prints it produced are among the best we've seen; and the cost of its consumables is the lowest we've seen.

HP's Photosmart A636 follows closely on the Epson PictureMate Dash's heels in many respects. Its ink and paper costs are a bit higher, but it can print on 5-by-7-inch paper, which the Epson

can't. The A636 also has a 4.8-inch touch-sensitive LCD, much bigger than the Epson's 3.6-inch screen.

HP's new Photosmart A536 debuts in third place. Currently it is the least-expensive snapshot printer

we've tested; and like its cousin, the Photosmart A636, it can print on 5-by-7-inch sheets of paper. Even though the Photosmart A536 is rather slow, it's still a tempting bargain.

The other new model to hit the chart, Canon's Selphy CP770, is the cutest of the bunch, looking more like a sand bucket than a snapshot printer. It offers simplicity and style for a midrange price, but its print quality and speed are less impressive. Also, its dye-sublimation technology involves a lot of waste.

Two other new snapshot printers—Canon's Selphy ES3 and Sony's Picture Station Digital Photo Printer DPP-FP95—failed to make the chart. Simply put: Both are expensive and slow.

As you brave the holiday crowds, look to any of our top-ranking models for an easy, one-box gift. All are simple even for novices, and they're great for distributing real-time snapshots at gatherings of family or friends.

—Melissa Riofrio

PC WORLD TOP 5 SNAPSHOT PRINTERS

MODEL	PCW Rating	Performance	Features and specifications
1 BEST BUY Epson PictureMate Dash \$150 find.pcworld.com/58735	86 VERY GOOD	<ul style="list-style-type: none"> Color photo quality: Good Grayscale photo quality: Very Good Tested speed: 1.5 ppm 	<ul style="list-style-type: none"> Media types: CompactFlash, Memory Stick, SD Card, XD Picture Card Cost per print: \$0.25
BOTTOM LINE: This bulky printer produces nice-looking photos quickly, easily, and at a good price.			
2 HP Photosmart A636 Compact Photo Printer \$150 NEW find.pcworld.com/61406	85 VERY GOOD	<ul style="list-style-type: none"> Color photo quality: Good Grayscale photo quality: Good Tested speed: 1.2 ppm 	<ul style="list-style-type: none"> Media types: CompactFlash, Memory Stick, SD Card, XD Picture Card Cost per print: \$0.29
BOTTOM LINE: A few shortcomings can't stop this speedy, simply designed printer from being lots of fun.			
3 HP Photosmart A536 Compact Photo Printer \$100 NEW find.pcworld.com/61840	82 VERY GOOD	<ul style="list-style-type: none"> Color photo quality: Good Grayscale photo quality: Good Tested speed: 0.7 ppm 	<ul style="list-style-type: none"> Media types: Memory Stick, SD Card, XD Picture Card Cost per print: \$0.29
BOTTOM LINE: Bargain hunters and entry-level users can get decent, basic snapshot printing with this model.			
4 Epson PictureMate Zoom \$230 find.pcworld.com/59195	79 GOOD	<ul style="list-style-type: none"> Color photo quality: Good Grayscale photo quality: Very Good Tested speed: 1.5 ppm 	<ul style="list-style-type: none"> Media types: CompactFlash, Memory Stick, SD Card, XD Picture Card Cost per print: \$0.25
BOTTOM LINE: An integrated CD burner makes this printer pricey but simplifies mass-quantity photo backups.			
5 Canon Selphy CP770 \$149 NEW find.pcworld.com/61841	76 GOOD	<ul style="list-style-type: none"> Color photo quality: Fair Grayscale photo quality: Fair Tested speed: 0.8 ppm 	<ul style="list-style-type: none"> Media types: CompactFlash, Memory Stick, SD Card, XD Picture Card Cost per print: \$0.28
BOTTOM LINE: Though this model looks very attractive, its overall performance is merely adequate.			

CHART NOTES: Prices and ratings are as of 1Q/1Q/08. Speeds are in pages per minute (ppm).

MORE ONLINE Visit find.pcworld.com/61746 for in-depth reviews, full test results, and detailed specs for each printer in our chart.

Acer recommends Windows Vista® Ultimate.

acer

November/December 2008



Performance to go

ASPIRE

GEMSTONE BLUE

Explore the edges of mobile computing

BLUEPOWER

Power is a strong emotion. You can feel it, sense it, crave it or enjoy it. The Aspire Gemstone Blue will transform digital entertainment into an unforgettable experience. Enjoy faster multimedia performance with Intel® Centrino® processor technology. Explore the edges of mobile computing.

Acer® Aspire® 6920

- Intel® Centrino® processor technology
- Genuine Windows Vista® Ultimate
- 4GB DDR2 667 SDRAM
- 250GB¹ hard drive
- Integrated Blu-ray Disc™ drive
- 6-in-1 card reader
- Acer CineCrystal 16.0" WUXGA (1920 x 1080) TFT display
- NVIDIA® GeForce® 9500M GS graphics
- 802.11a/g/n WLAN, Bluetooth®, gigabit LAN, V.92 modem, webcam
- Fingerprint reader
- One-year limited warranty²

Blu-ray Disc™

Acer Aspire 6920-6422

\$1,999

Intel® Core™2 Duo Processor T9300 (6MB L2 cache, 2.50GHz, 800MHz FSB) Genuine Windows Vista® Ultimate (LX.AP00U.090)



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Acer® TravelMate® 4720

- Intel® Centrino® processor technology
- Genuine Windows Vista® Business
- CD with Genuine Windows® XP Professional³
- Microsoft® Office Ready (60-day trial)⁴
- 1GB DDR2 667 SDRAM
- 120GB¹ hard drive
- Integrated Super-Multi drive
- 5-in-1 card reader
- 14.1" WXGA (1280 x 800) TFT display
- Intel® Graphics Media Accelerator X3100
- 802.11a/b/g WLAN, gigabit LAN, V.92 modem
- Fingerprint reader
- One-year limited warranty²

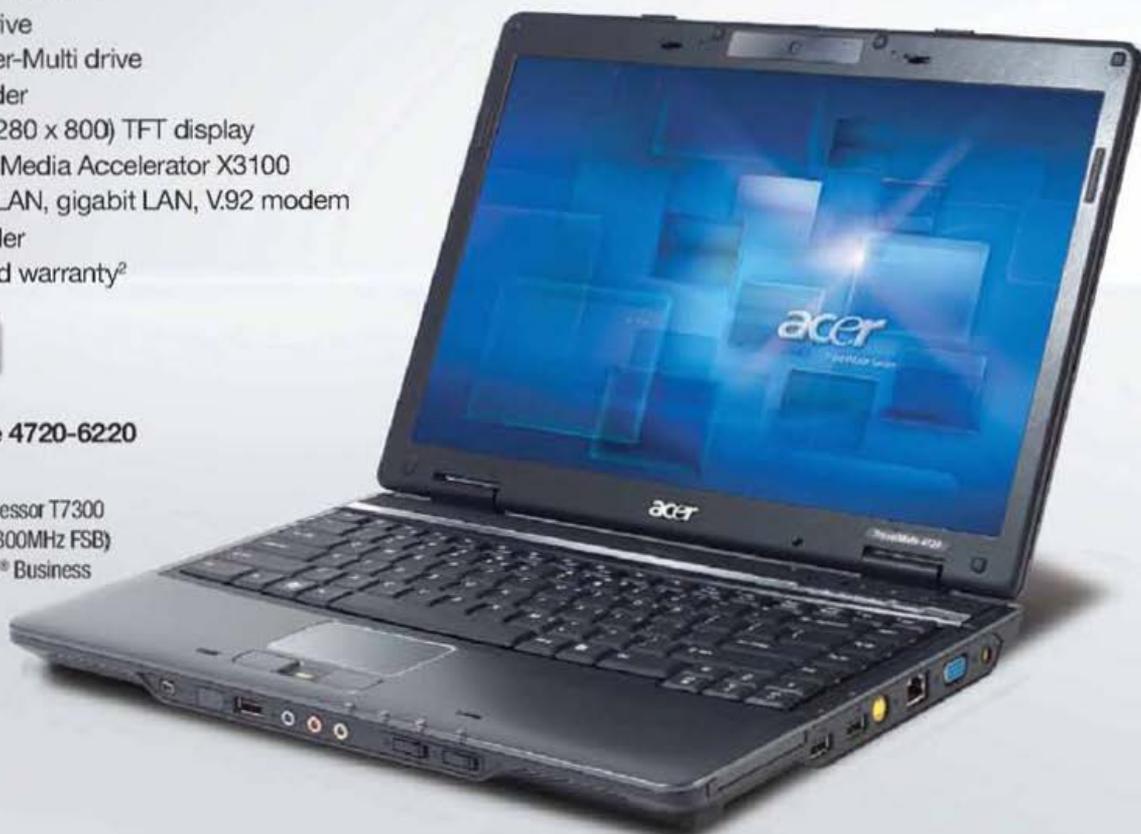
The webcam shown in this image is not included on the advertised model.



Acer TravelMate 4720-6220

\$769

Intel® Core™2 Duo Processor T7300
 (4MB L2 cache, 2GHz, 800MHz FSB)
 Genuine Windows Vista® Business
 (LX.TKJ0Z.015)



Acer X263WBi

\$499

- 25.5" wide-screen TFT LCD
- 1920 x 1200 maximum resolution
- 3000:1 dynamic contrast ratio
- 170°/160° horizontal/vertical viewing angles
- VGA, HDMI signal connectors
- 350 cd/m² brightness
- 5ms gray-to-gray response time
 (ET.GX3WP.001)



Acer B243W bdr

\$359

- 24" wide-screen TFT LCD
- 1920 x 1200 maximum resolution
- 3000:1 dynamic contrast ratio
- 160°/160° horizontal/vertical viewing angles
- VGA, DVI (HDCP) signal connectors
- 400 cd/m² brightness
- 5ms response time
- Height, pivot, tilt and swivel adjustments
 (ET.FB3WP.001)



Acer SignalUp

This technology strategically positions two PIFA antennas on the notebook's top panel to generate an omni-directional signal sphere for superior wireless reception.



Acer GridVista

Easy-to-use software designed to automatically split the screen in up to four separate windows and make the most of available screen space.



Acer® TravelMate® 5730

- Intel® Centrino® processor technology
- Genuine Windows Vista® Business
- CD with Genuine Windows® XP Professional³
- Microsoft® Office Professional 2007 (60-day trial)⁴
- 2GB DDR2 667 SDRAM
- 160GB¹ hard drive
- Integrated Super-Multi drive
- 5-in-1 card reader
- 15.4" WXGA (1280 x 800) TFT display
- Intel® Graphics Media Accelerator 4500MHD
- 802.11a/b/g/Draft-N WLAN, gigabit LAN, V.92 modem, webcam
- Fingerprint reader
- One-year limited warranty²



Acer TravelMate 5730-6984

\$899

Intel® Core™2 Duo Processor T5870
(2MB L2 cache, 2GHz, 800MHz FSB)
Genuine Windows Vista® Business
(LX.TQH0Z.379)



Acer B223W B bmzdr \$239

- 22" wide-screen TFT LCD
- 1680 x 1050 maximum resolution
- 10000:1 dynamic contrast ratio
- 170°/160° horizontal/vertical viewing angles
- VGA, DVI (HDCP), USB signal connectors
- 300 cd/m² brightness
- 5ms response time
- Height, tilt, swivel and pivot adjustments
(ET.EB3WP.003)



Acer Bio-Protection

Gain an extra layer of security while eliminating the need to remember passwords and PINs with the Acer Bio-Protection fingerprint reader.

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

acer.com/us

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Acer® TravelMate® 6292

- Intel® Centrino® processor technology
- Genuine Windows® XP Professional
- 2GB DDR2 667 SDRAM
- 120GB¹ hard drive
- Modular Super-Multi drive
- 5-in-1 card reader
- 12.1" WXGA (1280 x 800) TFT display
- Intel® Graphics Media Accelerator X3100
- 802.11a/g/n WLAN, Bluetooth®, gigabit LAN, V.92 modem, webcam
- Fingerprint reader
- Three-year limited warranty²



Acer TravelMate 6292-6856

\$999

Intel® Core™2 Duo Processor T7500
 (4MB L2 cache, 2.20GHz, 800MHz FSB)
 Genuine Windows® XP Professional
 (LX.TG606.082)



Acer B223W bdmr \$215

- 22" wide-screen TFT LCD
- 1680 x 1050 maximum resolution
- 2500:1 dynamic contrast ratio
- 170°/160° horizontal/vertical viewing angles
- VGA, DVI (HDCP) signal connectors
- 300 cd/m² brightness
- 5ms response time
- Two 1.0W integrated speakers
- Height, tilt, swivel and pivot adjustments (ET.EB3WP.002)



Acer B203W bdmr \$205

- 20" wide-screen TFT LCD
- 1680 x 1050 maximum resolution
- 2500:1 dynamic contrast ratio
- 160°/160° horizontal/vertical viewing angles
- VGA, DVI (HDCP) signal connectors
- 300 cd/m² brightness
- 5ms response time
- Two 1.0W integrated speakers
- Height, tilt, swivel and pivot adjustments (ET.DB3WP.002)



Acer DASP

Disk Anti-Shock Protection is a technology that safeguards the hard disk against knocks and provides an unmatched level of protection.



Acer QuickCharge

Found on select models, Acer QuickCharge technology enables the notebook's battery to be 80 percent fully charged in just one hour.



Performance to go

Acer® TravelMate® 4720

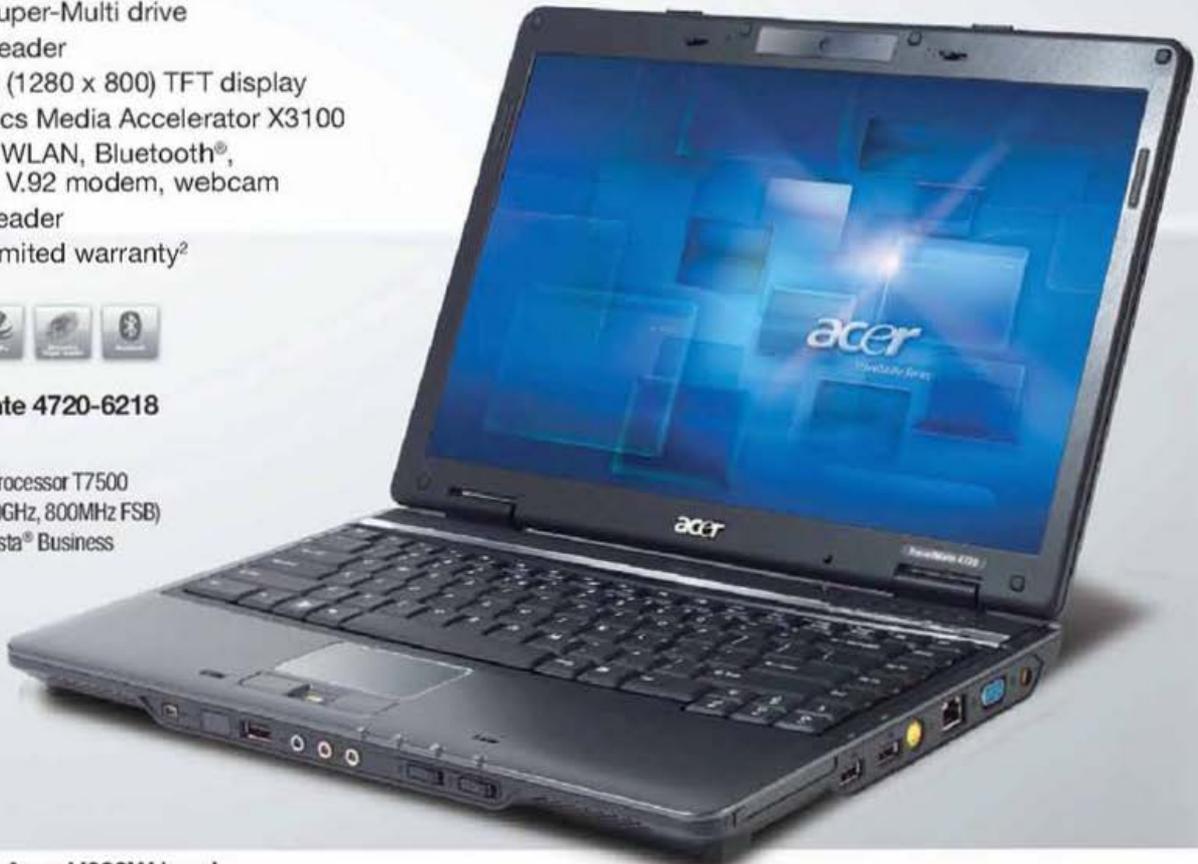
- Intel® Centrino® processor technology
- Genuine Windows Vista® Business
- CD with Genuine Windows® XP Professional³
- Microsoft® Office Ready (60-day trial)⁴
- 2GB DDR2 667 SDRAM
- 160GB¹ hard drive
- Integrated Super-Multi drive
- 5-in-1 card reader
- 14.1" WXGA (1280 x 800) TFT display
- Intel® Graphics Media Accelerator X3100
- 802.11a/g/n WLAN, Bluetooth®, gigabit LAN, V.92 modem, webcam
- Fingerprint reader
- Three-year limited warranty²



Acer TravelMate 4720-6218

\$999

Intel® Core™2 Duo Processor T7500
 (4MB L2 cache, 2.20GHz, 800MHz FSB)
 Genuine Windows Vista® Business
 (LX.TK50Z.042)



Acer Acer V223W bmd

\$185

- 22" wide-screen TFT LCD
- 1680 x 1050 maximum resolution
- 2500:1 dynamic contrast ratio
- 170°/160° horizontal/vertical viewing angles
- VGA, DVI (HDCP) signal connectors
- 300 cd/m² brightness
- 5ms response time
- Two 1.0W integrated speakers (ET.EV3WP.002)



Acer CrystalEye

Enjoy all the potential of video conferencing with the integrated Acer CrystalEye, simple to use and compatible with Internet-based video and voice communication services.

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Acer® Veriton® M460

- Intel® Core™2 Duo Processor or
- Intel® Pentium® Dual-Core Processor
- Genuine Windows Vista® Business
- CD with Windows® XP Professional³
- Microsoft® Office Professional 2007 (60-day trial)⁴
- 160GB¹ hard drive
- Intel® Graphics Media Accelerator 3100
- Gigabit LAN
- One-year limited warranty² with limited on-site service⁵



Acer Veriton M460-ED7201C

\$579

Intel® Core™2 Duo Processor E7200 (3MB L2 cache, 2.53GHz, 1066MHz FSB)
Genuine Windows Vista® Business
2GB DDR2 SDRAM, Super-Multi drive (PS.V520Z.056)

Acer Veriton M460-ED4700C

\$549

Intel® Pentium® Dual-Core Processor E4700 (2MB L2 cache, 2.60GHz, 800MHz FSB)
Genuine Windows Vista® Business
2GB DDR2 SDRAM, Super-Multi drive (PS.V520Z.053)

Acer Veriton M460-ED7200C

\$479

Intel® Core™2 Duo Processor E7200 (3MB L2 cache, 2.53GHz, 1066MHz FSB)
Genuine Windows Vista® Business
1GB DDR2 SDRAM, DVD-ROM drive (PS.V520Z.055)

Monitor sold separately



Veriton Service Upgrades

Next-business-day limited on-site service⁶ for years 2 and 3 of Veriton L460 or M460 ownership (146.AB769.003)

\$173

Mail-in/carry-in depot repair coverage for years 2 and 3 of Veriton L460 or M460 ownership (146.AB769.004)

\$68

Acer B193 bdmh

\$195

- 19" TFT LCD
- 1280 x 1024 maximum resolution
- 2000:1 dynamic contrast ratio
- 160°/160° horizontal/vertical viewing angles
- VGA, DVI (HDCP) signal connectors
- 300 cd/m² brightness
- 5ms response time
- Two 1.0W integrated speakers
- Height, tilt and swivel adjustments (ET.CB3RP.002)



Acer B193W bdmh

\$169

- 19" wide-screen TFT LCD
- 1440 x 900 maximum resolution
- 2000:1 dynamic contrast ratio
- 160°/160° horizontal/vertical viewing angles
- VGA, DVI (HDCP) signal connectors
- 300 cd/m² brightness
- 5ms response time
- Two 1.0W integrated speakers
- Height, tilt and swivel adjustments (ET.CB3WP.002)



Acer eLock Management

Acer eLock Management locks and unlocks storage media with password protection for additional security.



Acer eRecovery Management

Acer eRecovery Management is an easy-to-use utility to create backups or restore from your archives.

Acer® Veriton® L460

- Intel® Core™2 Duo Processor or
- Intel® Pentium® Dual-Core Processor
- Genuine Windows Vista® Business
- CD with Windows® XP Professional³
- Microsoft® Office Professional 2007 (60-day trial)⁴
- 160GB¹ hard drive
- Super-Multi drive
- Intel® Graphics Media Accelerator 3100
- Gigabit LAN, 802.11b/g WLAN with antenna
- Ultra-compact form factor
- One-year limited warranty²
with limited on-site service⁵



Monitor sold separately



Acer Veriton L460-ED8400C

\$679

Intel® Core™2 Duo Processor E8400
(6MB L2 cache, 3GHz, 1333MHz FSB)
Genuine Windows Vista® Business
2GB DDR2 SDRAM
(PS.V570Z.057)

Acer Veriton L460-ED5200C

\$499

Intel® Pentium® Dual-Core Processor E5200
(2MB L2 cache, 2.5GHz, 800MHz FSB)
Genuine Windows Vista® Business
1GB DDR2 SDRAM
(PS.V570Z.076)



Acer V193 bm

\$169

- 19" TFT LCD
- 1280 x 1024 maximum resolution
- 2000:1 dynamic contrast ratio
- 176°/176° horizontal/vertical viewing angles
- VGA signal connector
- 300 cd/m² brightness
- 5ms response time
- Two 1.0W integrated speakers
(ET.CV3RP.002)



Acer eDataSecurity Management

Conveniently integrated into the Windows® environment, Acer eDataSecurity Management provides one-click encryption and decryption of your files.

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Acer® TravelMate® 5730

- Intel® Centrino® 2 processor technology
- Genuine Windows Vista® Business
- CD with Genuine Windows® XP Professional³
- Microsoft® Office Professional 2007 (60-day trial)⁴
- 2GB DDR2 667 SDRAM
- 160GB¹ hard drive
- Integrated Super-Multi drive
- 5-in-1 card reader
- 15.4" WXGA (1280 x 800) TFT display
- Intel® Graphics Media Accelerator 4500MHD
- 802.11a/b/g/Draft-N WLAN, gigabit LAN, V.92 modem, webcam
- Fingerprint reader
- Three-year limited warranty²



Acer TravelMate 5730-6953

\$999

Intel® Core™2 Duo Processor P8400
 (3MB L2 cache, 2.26GHz, 1066MHz FSB)
 Genuine Windows Vista® Business
 (LX.TQH0Z.378)



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Protect Your Investment with an Acer Notebook Service Upgrade

Quality is built into every notebook PC Acer makes, and each comes with a one-year or three-year standard limited warranty.² It includes hardware technical support via toll-free phone plus a concurrent International Traveler's Warranty for travel outside the U.S. and Canada. For extra protection – and peace of mind – consider a warranty extension or, even better, the **Total Protection Upgrade**. This plan covers the cost of a replacement unit if, as determined by Acer, your covered notebook cannot be repaired.

**2-Year Extension of Limited Warranty (146.AB820.EX2)
 for Notebooks with 1-Year Limited Warranty**
 \$99

**2-Year Extension of Limited Warranty + 3-Year Total Protection Upgrade (146.AD077.002)
 for Notebooks with 1-Year Limited Warranty**
 (Total Protection Upgrade runs concurrently with limited warranty and limited warranty extension)
 \$199

**3-Year Total Protection Upgrade (146.AD339.004)
 for Notebooks with 3-Year Limited Warranty**
 (Total Protection Upgrade runs concurrently with limited warranty)
 \$99

Each of these upgrades prepays freight from the Acer repair depot and excludes extension of the International Traveler's Warranty.

¹ 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.

² 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.

³ Genuine Windows® XP Professional can be installed in place of, not in addition to, Genuine Windows Vista® Business.

⁴ The 60-day trial of Microsoft® Office Ready is available with Genuine Windows Vista® Business only, not with Genuine Windows® XP Professional.

⁵ For next-business-day response customer call must be received by 4:00 p.m. Central Time. Next-business-day response does not apply to service calls missed for reasons outside the control of Acer, such as airport closures or parts shortages. Next-business-day response and on-site service applies to the continental U.S. and Canada only and may not be available in all locations. In those areas where on-site service is provided, a technician will be dispatched, if necessary, following efforts to resolve the problem by telephone support.

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DOWNLOAD THIS LAURA BLACKWELL

Speakers Play iPod and PC Audio

YOU COULD BUY one set of speakers for your PC and another to play back audio from your iPod. Or you could opt for iHome Audio's \$150 iH70SRC speakers, which can handle both jobs.

The speakers are tall and narrow, with a small footprint. An iPod dock sits in the base of one speaker, while the base of the other speaker holds the power switch and volume controls.

I found the sound quality to be pretty good, though a



THESE SPEAKERS come with a remote that can control an iPod.

bit thin overall. They may not blow you away, but with their sleek design and dual functionality with iPods and PCs, these speakers are a good all-around choice.

—Nick Mediat

83

VERY GOOD

iH70SRC | iHome Audio

Combo PC/iPod speaker set sounds good and has an attractive design.

Street: \$150

find.pcworld.com/61837

A Disk Checker, a Finance Planner, and a Puzzle

HEALTH, WEALTH, AND happiness top everybody's wish list; we likewise want health for our PCs, and wealth and happiness from them. Here's software to help keep your hard drive healthy, improve your finances, and have fun.

SMARTen up Your PC's Hard Drive

Most people don't know their hard drive feels bad until it crashes. But LSoft Technologies' free Active@ Hard Disk Monitor might provide some warning. It uses SMART (for Self-Monitoring, Analysis, and Reporting Technology), which is built into most hard drives to keep tabs on such key attributes as disk errors and suspect patterns.

Active@ Hard Disk Monitor shows SMART's findings in an easy-to-read interface, with simple interpretations. A clean report doesn't guarantee that your hard drive is healthy, but a warning might alert you to trouble in time to make backups or repairs.

The free version of the monitor will suffice for most of us, but business users may find that the \$20 Pro version's ability to monitor drives over networks is worth the price. Free, find.pcworld.com/61756.

Don't Leave Your Finances to Fate

Is your current financial path leading you into a darkling wood? Financial Fate digests massive amounts of data to determine what your estate (or debt) would be if you died at a given date. Sold by Financial Modeling Solutions for \$70 until recently, it's now free.

Unlike the typical five-question online calculator, Financial Fate tracks data in ten categories (such as Housing & Debt, Income, and Pension Plans) and their subcategories.

Data entry can be time-consuming: There's no support for electronic data downloads. But once you do provide the numbers, Financial Fate can project your tactfully named "ending net worth" in future and current dollars. You can run what-if scenarios to see the effect of

actions as big as diversifying your portfolio or as small as changing your cell phone plan.

It won't replace a professional financial planner or tax advisor, but Financial Fate can be enlightening. Best of all, you can review the data at your own pace, in your own home—without spending a dime. Free, find.pcworld.com/61757.

This Game's Got You Pegged

On humdrum days, escape into Peggle Nights. This sequel to the popular casual game Peggle is even more fun than its predecessor.



LSOFT TECHNOLOGIES' FREE Active@ Hard Disk Monitor download uses SMART to detect impending disk failure in your hard drive.

To play, you shoot a ball at a board that's loaded with pegs of various colors; the pegs struck by the ball disappear, changing possible paths for the next ball. To advance, you must clear the orange pegs. Tricky layouts and obstacles heighten the challenge, but Peggle Master character's help by lending special powers (explosions, flippers, and so forth).

In Adventure Mode, Peggle Nights walks you through the dreams of the Peggle Masters.

There's a special something in the absurdity of teaching an alien to bowl or helping a cartoony unicorn become a caped crimefighter.

The innovation likeliest to please hard-core Peggleheads is still in development: After completing Peggle Nights, you'll be able to visit vendor PopCap Games's site for new playable levels, free of charge. Sweet dreams to all. Free 1-hour demo, \$20 to keep playing, find.pcworld.com/61758.

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DOMAINS

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With 1&1's all-in-1 domain packages, you're not only getting a domain, but also a 5-page starter website builder and privacy protection. Private registration is included for FREE with all plans. Prices start at just \$8.99/year.

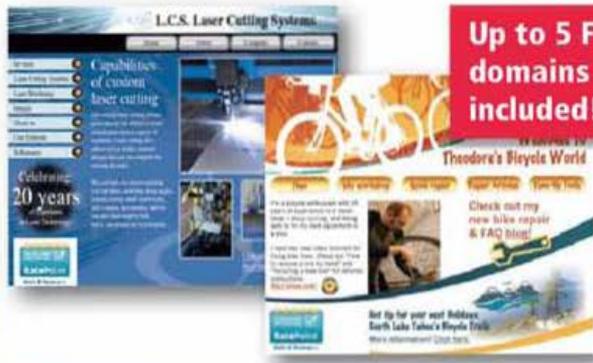


Up to a \$5 credit!



WEB HOSTING

Get your website online today! Whether you're creating your first website, or you're a web professional, we offer web hosting packages for every skill level and budget. Our entry level packages start at just \$3.99 per month.



Up to a \$50 credit!



Up to 5 FREE domains included!

*Credit amount dependent on package selected, and a minimum of between 12 months and 24 months contract term applies. Credit cannot be redeemed for cash. Visit www.1and1.com to view all applicable fees and full promotional offer details, terms and conditions. Product and program specifications, availability and prices subject to change without notice. 1&1 and the 1&1 logo are trademarks of 1&1 Internet AG, all other trademarks are the property of their respective owners.

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With 20 years of experience, 1&1 is dedicated to security, innovation and value when it comes to your website. As a 1&1 customer, you are not only assured your website is up and secure, but we also equip you with marketing and communication features to achieve success on the web.

Get a credit of up to \$300 just for signing up!*



E-COMMERCE

Up to a \$150 credit!*

Build your own eCommerce website! 1&1 eShops are a simplified eCommerce solution. Use the Setup Wizard to build your shop using customizable design templates, traffic boosting tools, and multiple payment options that suit your business and ensure your transactions are safe and secure. Prices start at \$9.99 per month.



SERVERS

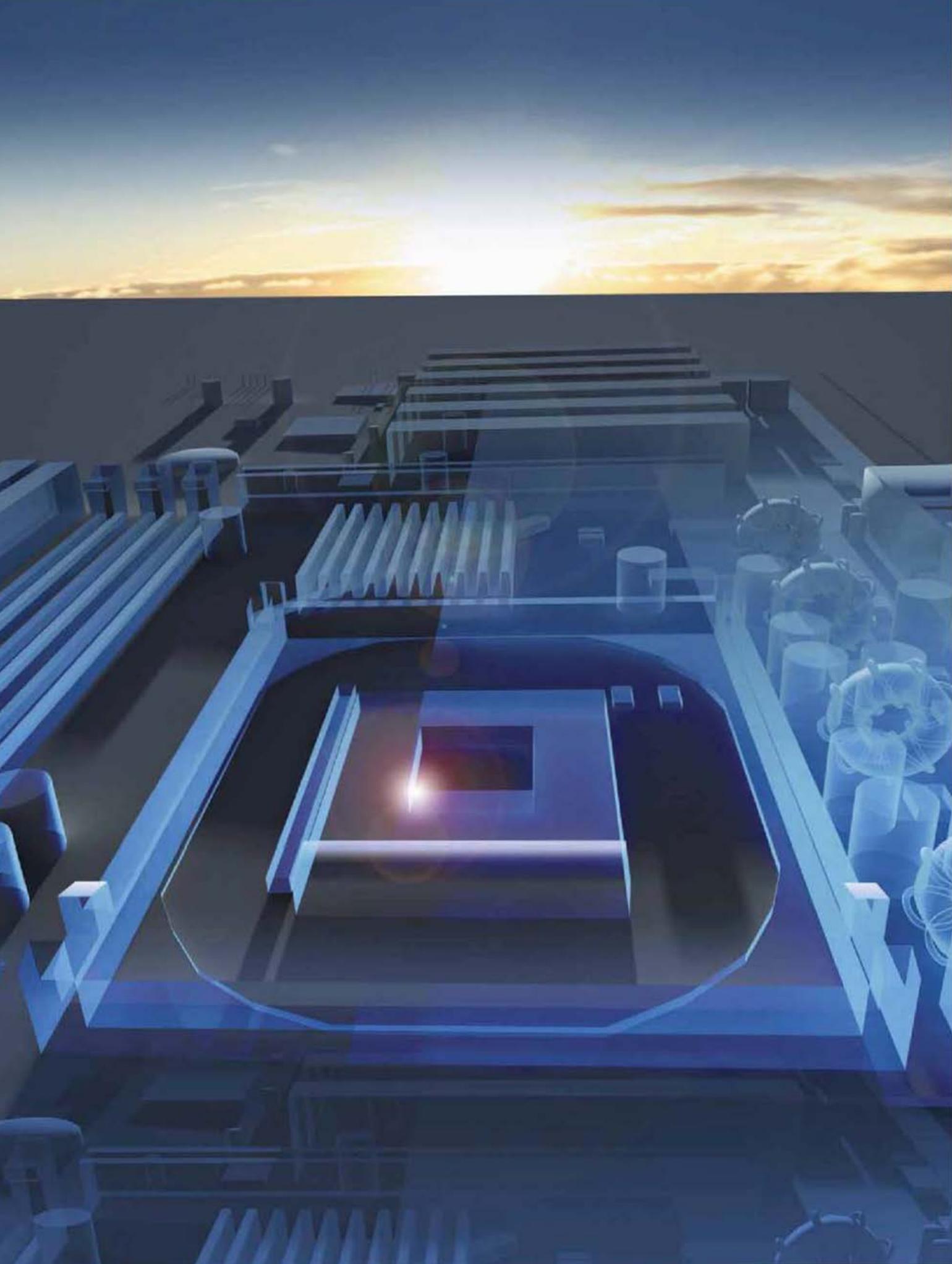
Up to a \$300 credit!*

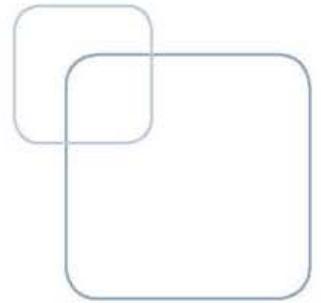
NEW: 1&1 Premium Servers!

Our new servers with Quad-Core AMD Opteron™ Processors give you ultimate processing performance, cutting-edge, energy efficient technology and unparalleled reliability. Starting at \$99.99 per month.



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FuturTech

Ultrasmall PCs that fit on a single chip.

Batteries that recharge without cables.

TVs that respond to your every gesture.

These and other developing technologies will

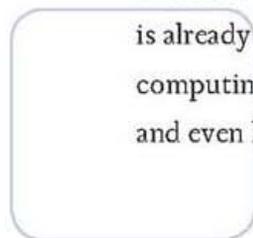
fundamentally change the way

you think about—and use—

technology.

BY CHRISTOPHER NULL • ILLUSTRATION BY RANDY LYHUS

THE NEXT BIG thing? The memristor, a microscopic component that can “remember” electrical states even when turned off. It’s expected to be far cheaper and faster than flash storage. A theoretical concept since 1971, it has now been built in labs and is already starting to revolutionize everything we know about computing, possibly making flash memory, RAM, and even hard drives obsolete within a decade.



The memristor is just one of the incredible technological advances sending shock waves through the world of computing. Other innovations in the works are more down-to-earth, but they also carry watershed significance. From the technologies that finally make paperless offices a reality to those that can throw electricity across a room, without wires, these advances should make your humble PC a far different beast come the turn of the decade.

In the following sections, we outline the basics of 15 upcoming technologies, with predictions on what may come of them. Some are breathing down our necks; some advances are still just out of reach. And all have to be reckoned with.

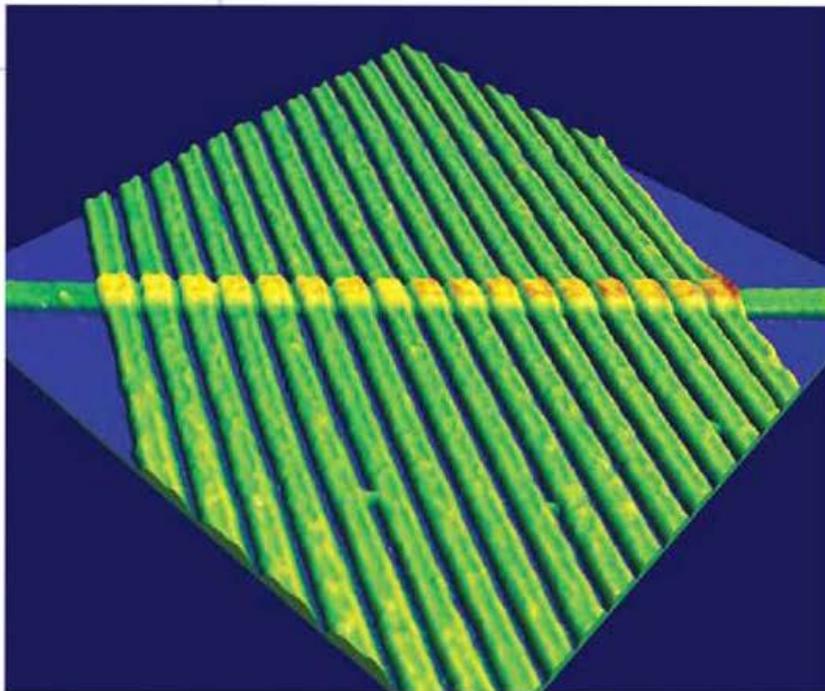
Inside Your PC

A Groundbreaking New Circuit

Since the dawn of electronics, we've had only three types of circuit components—resistors, inductors, and capacitors. But in 1971, UC Berkeley researcher Leon Chua theorized the possibility of a fourth type of component, one that would be able to measure the flow of electric current: the memristor. Now, just 37 years later, Hewlett-Packard has built one.

What is it? As its name implies, the memristor can “remember” how much current has passed through it. And by alternating the amount of current that passes through it, a memristor can also become a one-element circuit component with unique properties. Most notably, it can save its

THIS SIMPLE memristor circuit could soon transform all electronic devices.



8-CORE INTEL and AMD CPUs are about to make their way onto desktop PCs everywhere. Next stop: 16 cores.

electronic state even when the current is turned off, making it a great candidate to replace today's flash memory.

Memristors will theoretically be cheaper and far faster than flash memory, and allow far greater memory densities. They could also replace RAM chips as we know them, so that, after you turn off your computer, it will remember exactly what it was doing when you turn it back on, and return to work instantly. This lowering of cost and consolidating of components may lead to affordable, solid-state computers that fit in your pocket and run many times faster than today's PCs.

Someday the memristor could spawn a whole new type of computer, thanks to its ability to remember a range of electrical states rather than the simplistic “on” and “off” states that today's digital processors recognize. By working with a dynamic range of data states in an analog mode, memristor-based computers could be capable of far more complex tasks than just shuttling ones and zeroes around.

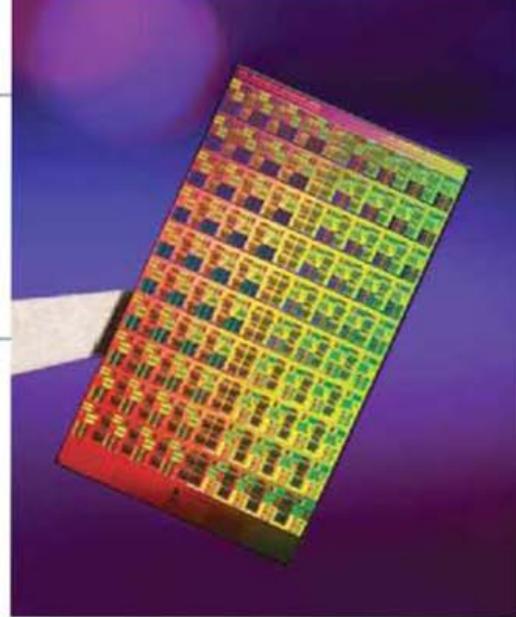
When is it coming? Researchers say that no real barrier prevents implementing the memristor in circuitry immediately.

But it's up to the business side to push products through to commercial reality. Memristors made to replace flash memory (at a lower cost and lower power consumption) will likely appear first; HP's goal is to offer them by 2012. Beyond that, memristors will likely replace both DRAM and hard disks in the 2014-to-2016 time frame. As for memristor-based analog computers, that step may take 20-plus years.

32-Core CPUs Under the Hood

If your CPU has only a single core, it's officially a dinosaur. In fact, quad-core computing is now commonplace; you can even get laptop computers with four cores today. But we're really just at the beginning of the core wars: Leadership in the CPU market will soon be decided by who has the most cores, not who has the fastest clock speed.

What is it? With the gigahertz race largely



abandoned, both AMD and Intel are trying to pack more cores onto a die in order to continue to improve processing power and aid with multitasking operations. Miniaturizing chips further will be key to fitting these cores and other components into a limited space. Intel will roll out 32-nanometer processors (down from today's 45nm chips) in 2009.

When is it coming? Intel has been very good about sticking to its road map. A six-core CPU based on the Itanium design is due out by the time you read this, when Intel then shifts focus to a brand-new architecture called Nehalem, to be marketed as Core i7. Core i7 will feature up to eight cores, with eight-core systems available in 2009 or 2010. (And an eight-core AMD project called Montreal is reportedly on tap for 2009.)

After that, the timeline gets fuzzy. Intel reportedly canceled a 32-core project called Keifer, slated for 2010, possibly because of its complexity (the company won't confirm this, though). That many cores requires a new way of dealing with memory; apparently you can't have 32 brains pulling out of one central pool of RAM. But we still expect cores to proliferate when the kinks are ironed out: 16 cores by 2011 or 2012 is plausible (when transistors are predicted to drop again in size to 22nm), with 32 cores by 2013 or 2014 easily within reach. Intel says "hundreds" of cores may come even farther down the line.

64-Bit Computing Allows for More RAM

In 1986, Intel introduced its first 32-bit CPU. It wasn't until 1993 that the first fully 32-bit Windows OS—Windows NT 3.1—followed, officially ending the 16-bit era. Now 64-bit processors have become the norm in desktops and notebooks, though Microsoft still won't commit to an all-64-bit Windows. But it can't live in the 32-bit world forever.

What is it? 64-bit versions of Windows have been around since Windows XP, and 64-bit CPUs have been with us even longer. In fact, virtually every computer sold today has a 64-bit processor under the hood. At some point Microsoft will have to jettison 32-bit altogether, as it did with 16-bit when it launched Windows NT, if it wants to induce consumers (and third-party hardware and software developers) to upgrade. That isn't likely with Windows 7: The upcoming OS is already being demoed in 32-bit and 64-bit versions. But limitations in 32-bit's addressing structure will eventually force everyone's hand; it's already a problem for 32-bit Vista users, who have found that the OS won't access more than about 3GB of RAM because it simply doesn't have the bits to access additional memory.

When is it coming? Expect to see the shift toward 64-bit accelerate with Windows 7; Microsoft will likely switch over

to 64-bit exclusively with Windows 8. That'll be 2013 at the earliest. Meanwhile, Mac OS X Leopard is already 64-bit, and some hardware manufacturers are currently trying to transition customers to 64-bit versions of Windows (Samsung says it will push its entire PC line to 64-bit in early 2009). And what about 128-bit computing, which would represent the next big jump? Let's tackle one sea change at a time—and prepare for that move around 2025.

Windows 7: It's Inevitable

Whether you love Vista or hate it, the current Windows will soon go to that great digital graveyard in the sky. After the tepid reception Vista received, Microsoft is putting a rush on Vista's follow-up, known currently as Windows 7.

What is it? At this point Windows 7 seems to be the OS that Microsoft wanted to release as Vista, but lacked the time or resources to complete. Besides continuing refinements to the

WILL WINDOWS 7 finally push PC software into the 64-bit world for good? We can only hope.



security system of the OS and to its look and feel, Windows 7 may finally bring to fruition the long-rumored database-like WinFS file system. Performance and compatibility improvements over Vista are also expected.

But the main thrust of Windows 7 is likely to be enhanced online integration and more cloud computing features—look for Microsoft to tie its growing Windows Live services into the OS more strongly than ever. Before his retirement as Microsoft's chairman, Bill Gates suggested that a so-called pervasive desktop would be a focus of Windows 7, giving users a way to take all their data, desktop settings, bookmarks, and the like from one computer to another—presumably as long as all those computers were running Windows 7.

When is it coming? Microsoft has set a target date of January >>

2010 for the release of Windows 7, and the official date hasn't slipped yet. However, rumor has the first official beta coming out before the end of this year (see *Forward*, page 16).

USB's First Upgrade in Nearly a Decade

The USB connector has been one of the greatest success stories in the history of computing, with more than 2 billion USB-connected devices sold to date. But in an age of terabyte hard drives, the once-cool throughput of 480 megabits per second that a USB 2.0 device can realistically provide just doesn't cut it any longer.

What is it? USB 3.0 (sometimes called "SuperSpeed USB") promises to increase performance by a factor of 10, pushing the theoretical maximum throughput of the connector all the way up to 4.8 gigabits per second, or processing roughly the equivalent of an entire CD-R disc every second. USB 3.0 devices will use a slightly different connector, but USB 3.0 ports will be backward-compatible with current USB plugs and vice versa. USB 3.0 should also greatly enhance the power efficiency of USB devices, while increasing the juice (nearly one full amp, up from 0.1 amps) available to them. That means faster charging times for your iPod—and probably even more bizarre USB-connected gear like the toy rocket launchers and beverage coolers festooning people's desks.

When is it coming? The USB 3.0 spec is nearly finished, with consumer gear now predicted to come in 2010. Meanwhile, a host of competing high-speed plugs—DisplayPort, eSATA, and HDMI—will soon become commonplace on PCs, driven largely by the onset of high-def video. Even FireWire is looking at an imminent upgrade of up to 3.2 gbps performance. The port proliferation may make for a baffling landscape on the back of a new PC, but you will at least have plenty of high-performance options for hooking up peripherals.

The End of Stand-Alone Graphics Boards

When AMD purchased graphics card maker ATI, most industry observers assumed that the combined company would start working on a CPU-GPU fusion. That work is further along than you may think.

What is it? While GPUs get tons of attention, discrete graphics boards are a comparative rarity among PC owners, as 75 percent of laptop users stick with good old integrated graphics, according to Mercury Research. Among the reasons: the extra cost of a discrete graphics card, the hassle of installing one, and its drain on the battery. Putting graphics functions right on the CPU eliminates all three issues.

25 YEARS OF PREDICTIONS: Our Greatest Hits—

PREDICTING THE FUTURE isn't easy. Sometimes *PC World* has been right on the money. At other times, we've missed it by a mile. Here are three predictions we made that were eerily prescient—and three where we may have been a bit too optimistic.

1983 **What we said:** "The mouse will bask in the computer world limelight... Like the joystick before it, though, the mouse will fade someday into familiarity."

We hit that one out of the park. Mice are so commonplace that they're practically disposable.

1984 **What we said:** "Microsoft Windows should have a lasting effect on the entire personal computer industry."

"Lasting" was an understatement. Windows has now amassed for Microsoft total revenues in the tens of billions of dollars and is so ubiquitous and influential that it has been almost perpetually embroiled in one lawsuit or another involving charges of monopoly and of trademark and patent infringements.

1988 **What we said:** "In the future you'll have this little box containing all your files and programs... It's very likely that eventually people will always carry their data with them."

What we failed to foresee: For most people, that little box is now also their MP3 player or cell phone.

Chip makers expect the performance of such on-die GPUs to fall somewhere between that of today's integrated graphics and stand-alone graphics boards—but eventually, experts believe, their performance could catch up and make discrete graphics obsolete. One potential idea is to devote, say, 4 cores in a 16-core CPU to graphics processing, which could make for blistering gaming experiences.

When is it coming? Intel's imminent Nehalem chip includes graphics processing within the chip package, but off of the actual CPU die. AMD's Swift (aka the Shrike platform), the first product in its Fusion line, reportedly takes the same design approach, and is also currently on tap for 2009.

Putting the GPU directly on the same die as the CPU presents challenges—heat being a major one—but that doesn't mean those issues won't be worked out. Intel's two Nehalem follow-ups, Auburndale and Havendale, both slated for late 2009, may be the first chips to put a GPU and a CPU on one die, but the company isn't saying yet.

Recharge Without Wires

Wireless power transmission has been a dream since the days when Nikola Tesla imagined a world studded with enormous Tesla coils. But aside from advances in recharging electric toothbrushes, wireless power has so far failed to make significant inroads into consumer-level gear.

What is it? This summer, Intel researchers demonstrated a method—based on MIT research—for throwing electricity

And Biggest Misses

1987 **What we said:** "When you walk into an office in 1998, the PC will sense your presence, switch itself on, and promptly deliver your overnight e-mail, sorted in order of importance."

The reality: When we arrive in our office, the computer ignores us, slowly delivers the overnight e-mail, and puts all the spam on top.

1994 **What we said:** "Within five years... batteries that last a year, like watch batteries today, will power [PDAs]."

Perhaps our biggest whiff of all time. Not only do these superbatteries not exist (nor are they even remotely in sight), but PDAs are pretty much dead too.

2000 **What we said:** We wrote about future "computers that pay attention to you, sensing where you are, what you're doing, and even what your vital signs are... Products incorporating this kind of technology...could hit the market within a year."

While many devices now feature location-sensing hardware, such a PC has yet to come to pass. And frankly, we'd be glad to be wrong about this one.

a distance of a few feet, without wires and without any dangers to bystanders (well, none that they know about yet). Intel calls the technology a "wireless resonant energy link," and it works by sending a specific, 10-MHz signal through a coil of wire; a similar, nearby coil of wire resonates in tune with the frequency, causing electrons to flow through that coil too. Though the design is primitive, it can light up a 60-watt bulb with 70 percent efficiency.

When is it coming? Numerous obstacles remain, the first of which is that the Intel project uses alternating current. To charge gadgets, we'd have to see a direct-current version, and the size of the apparatus would have to be considerably smaller. Numerous regulatory hurdles would likely have to be cleared in commercializing such a system, and it would have to be thoroughly vetted for safety concerns.

Assuming those all go reasonably well, such receiving circuitry could be integrated into the back of your laptop

screen in roughly the next six to eight years. It would then be a simple matter for your local airport or even Starbucks to embed the companion power transmitters right into the walls so you can get a quick charge without ever opening up your laptop bag.

In Your Living Room and Beyond

Point—Don't Bother Clicking

We love our mice, really we do. Sometimes, however, such as when we're sitting on the couch watching a DVD on a laptop, or when we're working across the room from an MP3-playing PC, it just isn't convenient to drag a hockey puck and click on what we want. Attempts to replace the venerable mouse—whether with voice recognition or brain-wave scanners—have invariably failed. But an alternative is emerging.

What is it? Compared with the intricacies of voice recognition, gesture recognition is a fairly simple idea that is only now making its way into consumer electronics. The idea is to employ a camera (such as a laptop's Webcam) to watch the user and react to the person's hand signals. Holding your palm out flat would indicate "stop," for example, if you're playing a movie or a song. And waving a fist around in the air could double as a pointing system: You would just move your fist to the right to move the pointer right, and so on.

When is it coming? Gesture recognition systems are creeping onto the market now. Toshiba, a pioneer in this market, has at least one product out that supports an early version of

the technology: the Qosmio G55 laptop, which can recognize gestures to control multimedia playback. The company is also experimenting with a TV version of the technology, which would watch for hand signals via a small camera atop the set. Based on my tests, though, the accuracy of these systems still needs a lot of work.

Gesture recognition is a neat way to pause the DVD on your laptop, but it probably remains a way off from being sophisticated enough for broad adoption. All the same, >>

SOON YOU'LL BE able to simply point at your television and control it with hand gestures.





REALDVD'S DRM-free format makes taking flicks on the road easier. This is the future of entertainment.

year, and Chicago and Denver will be the first markets with the live technology. Does Tru2way have a real shot? Most of the major cable companies have signed up to implement it, as have numerous TV makers, including LG, Panasonic, Samsung, and Sony. Panasonic began shipping two Tru2way TVs in late October, and Samsung may have sets that use the technology available in early to mid-2009.

its successful development would excite tons of interest from the “can’t find the remote” crowd. Expect to see gesture recognition technology make some great strides over the next few years, with inroads into mainstream markets by 2012.

Radical Simplification Hits the TV Business

The back of most audiovisual centers looks like a tangle of snakes that even Medusa would turn away from. Similarly, the bowl of remote controls on your coffee table appeals to no one. The Tru2way platform may simplify things once and for all.

What is it? Who can forget CableCard, a technology that was supposed to streamline home A/V installations but that ultimately went nowhere despite immense coverage and hype? CableCard just didn’t do enough—and what it managed to do, it didn’t do very well. Enter Tru2way.

Tru2way is a set of services and standards designed to pick up the pieces of CableCard’s failure by upgrading what that earlier standard could do (including support for two-way communications features like programming guides and pay-per-view, which CableCard TVs couldn’t handle), and by offering better compatibility, improved stability, and support for dual-tuner applications right out of the box. So if you have a Tru2way-capable TV, you should need only to plug in a wire to be up and running with a full suite of interactive cable services (including local search features, news feeds, online shopping, and games)—all sans additional boxes, extra remotes, or even a visit from cable-company technicians.

When is it coming? Tru2way sets have been demonstrated all

Curtains for DRM

Petrified of piracy, Hollywood has long relied on technical means to keep copies of its output from making the rounds on peer-to-peer networks. It hasn’t worked: Tools to bypass DRM on just about any kind of media are readily available, and feature films often hit BitTorrent even before they appear in theaters. Unfortunately for law-abiding citizens, DRM is less a deterrent to piracy than a nuisance that gets in the way of enjoying legally obtained content on more than one device.

What is it? It’s not what it is, it’s what it isn’t—axing DRM means no more schemes to prevent you from moving audio or video from one form of media to another. The most ardent DRM critics dream of a day when you’ll be able to take a DVD, pop it in a computer, and end up with a compressed video file that will play on any device in your arsenal. Better yet, you won’t need that DVD at all: You’ll be able to pay a few bucks for an unprotected, downloadable version of the movie that you can redownload any time you wish.

When is it coming? Technologically speaking, nothing is stopping companies from scrapping DRM tomorrow. But legally and politically, resistance persists. Music has largely made the transition already—Amazon and iTunes both sell DRM-free MP3s that you can play on as many devices as you want.

Video is taking baby steps in the same direction, albeit slowly so far. One recent example: RealNetworks’ RealDVD software (which is now embroiled in litigation) lets you rip DVDs to your computer with one click, but they’re still protected by a DRM system. Meanwhile, studios are experimenting with bundling legally rippable digital copies of their films with packaged DVDs, while online services are tiptoeing into letting downloaders burn a copy of a digital movie to disc.

That’s progress, but ending all DRM as we know it is still years off. Keep your fingers crossed—for 2020. ➤➤

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from only two
speakers this small.



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system to deliver faithful low note reproduction and musical accuracy, despite its small size. Dennis Barker says in *Digital TV DesignLine* that "after a listening test, I was quite impressed with this tiny pair of speakers."

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Google's Long March Onto the Desktop

In case you haven't noticed, Google now has its well-funded mitts on just about every aspect of computing. From Web browsers to cell phones, soon you'll be able to spend all day in the Googleverse and never have to leave. Will Google make the jump to building its own PC operating system next?

What is it? It's everything, or so it seems. Google Checkout provides an alternative to PayPal. Street View is well on its way to taking a picture of every house on every street in the United States. And the fun is just starting: Google's early-beta Chrome browser earned a 1 percent market share in the first 24 hours of its existence. Android, Google's cell phone operating system, is hitting handsets as you read this (see page 28), becoming the first credible challenger to the iPhone among sophisticated customers.

When is it coming? Though Google seems to have covered everything, many observers believe that logically it will next attempt to attack one very big part of the software market: the operating system.

The Chrome browser is the first toe Google has dipped into these waters. While a browser is how users interact with most of Google's products, making the underlying operating system somewhat irrelevant, Chrome nevertheless needs an OS to operate.

To make Microsoft irrelevant, though, Google would have to work its way through a minefield of device drivers, and even then the result wouldn't be a good solution for people who have specialized application needs, particularly most business users. But a simple Google OS—perhaps one that's basically a customized Linux distribution—combined with cheap hardware could be something that changes the PC landscape in ways that smaller players who have toyed with open-source OSs so far haven't been quite able to do.

Check back in 2011, and take a look at the not-affiliated-with-Google gOS (www.thinkgos.com) in the meantime.

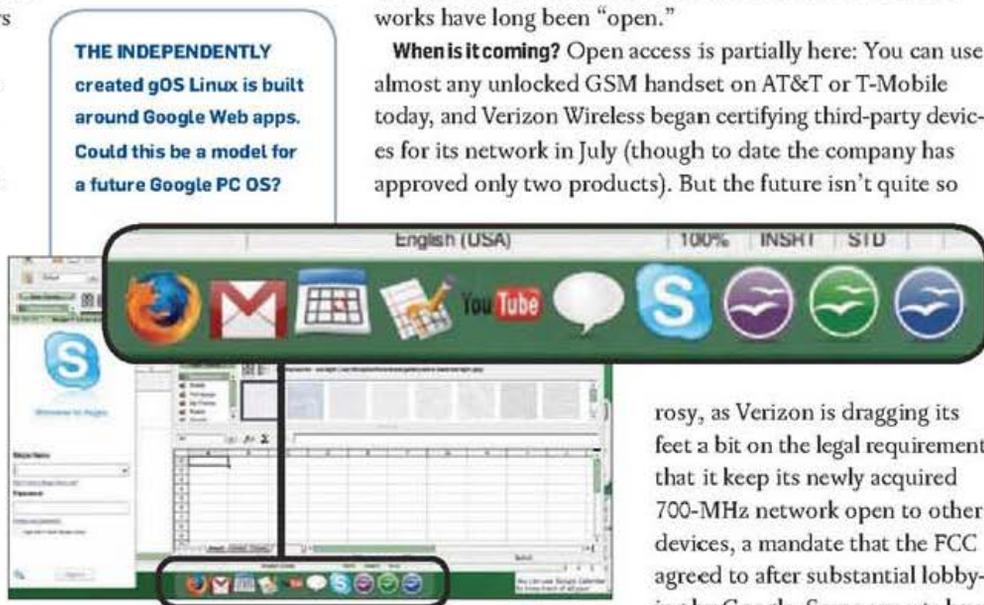
Use Any Phone on Any Wireless Network

The reason most cell phones are so cheap is that wireless carriers subsidize them so you'll sign a long-term contract. Open access could change the economics of the mobile phone (and mobile data) business dramatically as the walls preventing certain devices from working on certain networks come down. We could also see a rapid proliferation of cell

phone models, with smaller companies becoming better able to make headway into formerly closed phone markets.

What is it? Two years is an eternity in the cellular world. The original iPhone was announced, introduced, and discontinued in less than that time, yet carriers routinely ask you to sign up for two-year contracts if you want access to their discounted phones. (It could be worse—in other countries, three years is normal.) Verizon launched the first volley late last year when it promised that “any device, any application” would soon be allowed on its famously closed network. Meanwhile, AT&T and T-Mobile like to note that their GSM networks have long been “open.”

When is it coming? Open access is partially here: You can use almost any unlocked GSM handset on AT&T or T-Mobile today, and Verizon Wireless began certifying third-party devices for its network in July (though to date the company has approved only two products). But the future isn't quite so



rosy, as Verizon is dragging its feet a bit on the legal requirement that it keep its newly acquired 700-MHz network open to other devices, a mandate that the FCC agreed to after substantial lobbying by Google. Some experts have

argued that the FCC provisions aren't wholly enforceable. However, we won't really know how “open” is defined until the new network begins rolling out, a debut slated for 2010.

Your Fingers Do Even More Walking

Last year Microsoft introduced Surface, a table with a built-in monitor and touch screen; many industry watchers have seen it as a bellwether for touch-sensitive computing embedded into every device imaginable. Surface is a neat trick, but the reality of touch devices may be driven by something entirely different and more accessible: the Apple iPhone.

What is it? With the iPhone, “multitouch” technology (which lets you use more than one finger to perform specific actions) reinvented what we knew about the humble touchpad. Tracing a single finger on most touchpads looks positively simian next to some of the tricks you can do with two or more digits. Since the iPhone's launch, multitouch has found its way into numerous mainstream devices, including the Asus Eee PC 900 and a Dell Latitude tablet PC. Now all eyes are turned back to Apple, to see how it will further adapt multitouch (which it has already brought to its laptops' touchpads). Patents that Apple has filed for a multitouch tablet PC have many people expecting the company to dive into this >>

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vived by stressed out IT
manager, unprotected serv-
er, overloaded network,
with no way to
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This year, an estimated 3.6 million UPSs will reach the end of their lives.

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When you bought your APC UPS, you chose it, and us, for our Legendary Reliability®...because you wanted the best product available. So as the industry leader and your chosen partner, it's our job to inform you that an aging UPS battery puts your network reliability and your peace of mind at risk. If you are converging and consolidating your networks, upgrading your equipment, or deploying new servers, be warned: an older UPS simply cannot handle the increased loads and criticality — putting your entire network at risk of costly downtime, unsafe shutdowns, and data and equipment loss.

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neglected market, finally bringing tablets into the mainstream and possibly sparking explosive growth in the category.

When is it coming? It's not a question of when multitouch will arrive, but how quickly the trend will grow. Fewer than 200,000 touch-screen devices were shipped in 2006. iSuppli analysts have estimated that a whopping 833 million will be sold in 2013. The real guessing game is figuring out when the old "single-touch" pads become obsolete, possibly taking physical keyboards along with them in many devices.

Cell Phones Are the New Paper

Log in to your airline's Web site. Check in. Print out your boarding pass. Hope you don't lose it. Hand the crumpled pass to a TSA security agent and pray you don't get pulled aside for a pat-down search. When you're ready to fly home, wait in line at the airport because you lacked access to a printer in your hotel room. Can't we come up with a better way?

What is it? The idea of the paperless office has been with us since Bill Gates was in short pants, but no matter how sophisticated your OS or your use of digital files in lieu of printouts might be, they're of no help once you leave your desk. People need printouts of maps, receipts, and instructions when a computer just isn't convenient. PDAs failed to fill that need, so coming to the rescue are their replacements: cell phones.

Applications to eliminate the need for a print-out in nearly any situation are flooding the market. Cellfire (cellfire.com) offers mobile coupons you can pull up on your phone and show to a clerk; Tickets.com now makes digital concert passes available via cell phone through its Tickets@Phone service. The final frontier, though, remains the airline boarding pass, which has resisted this next paperless step since the advent of Web-based check-in.

When is it coming? Some cell-phone apps that replace paper are here now (just look at the ones



NEXT YEAR, YOU can drop paper boarding passes and event tickets and just flash your phone at the gate.



for the iPhone), and even paperless boarding passes are creeping forward. Continental has been experimenting with a cell-phone check-in system that lets you show an encrypted, 2D bar code on your phone to a TSA agent in lieu of a paper boarding pass. The agent scans the bar code with an ordinary scanner, and you're on your way. Introduced at the Houston Intercontinental Airport, the pilot project became permanent earlier this year, and Continental rolled it out in three other airports in 2008. The company promises more airports to come.

Where You At? Ask Your Phone, Not Your Friend

GPS is taking off, as phone makers, carriers, and service providers have realized that consumers generally have no idea where they are, ever. A location-based service (LBS) takes raw GPS data that pinpoints your location and enhances this information with additional services, from suggesting nearby restaurants to specifying the whereabouts of your friends.

What is it? LBS was originally envisioned as simply using old-school cell-phone signal triangulation to locate users' whereabouts, but as the chips become more common and more sophisticated, GPS is proving to be not only handy and accurate but also the basis for new services. Many startups have formed around location-based services. Want a date? Never mind who's compatible; who's nearby? MeetMoi (www.meetmoi.com) can find them. Need to get a dozen people all in one place? Both Whrrl (www.whrrl.com) and uLocate's Buddy Beacon (www.ulocate.com) tell you where your friends are in real time.

Of course, not everyone is thrilled about LBS: Worries about surreptitious tracking or stalking are commonplace, as is the possibility of a flood of spam messages being delivered to your phone.

When is it coming? LBS is growing fast. The only thing holding it back is the slow uptake of GPS-enabled phones (and carriers' steep fees to activate the function). But with iPhones selling like Ben & Jerry's in July, that's not much of a hurdle to overcome. Expect to see massive adoption of these technologies in 2009 and 2010. ●

RIGHT NOW, ONLY a handful of devices sport GPS service. In the near future, it will be the norm.



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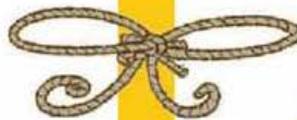
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passwords
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20 Tech Habits That Will Change Your

These powerful tools and quick tweaks to your everyday routine will help you stay on task, find what you need, and get things done more easily.



Life

BY GINA TRAPANI
ILLUSTRATION BY EDWIN FOTHERINGHAM

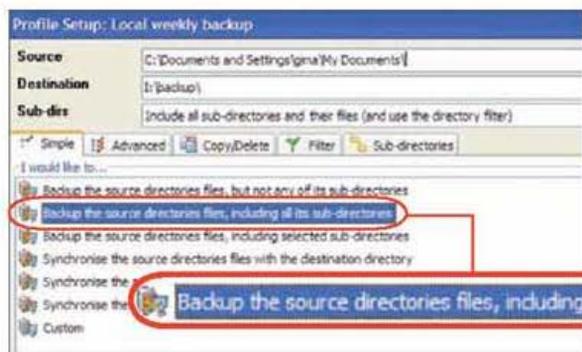


Technology is supposed to make life easier, but it doesn't seem that way when you're struggling to wrangle 289 new e-mail messages, dealing with a hard-drive crash, or suddenly realizing that you left an important file on the office computer. Thankfully, plenty of tools can help. We'll tell you which ones are worth trying, and we'll also suggest some practices that you can incorporate into

your workday to use tech tools more effectively and efficiently. You can also find the online version of this story, complete with links to all the relevant Web sites, at find.pcworld.com/61763.

Control Your Office PC From Home

1 You can work at home—and yet have complete access to the computer in your office—through free versions of remote-control software such as LogMeIn (find.pcworld.com/61762) and TightVNC (find.pcworld.com/61764). With such apps, you can view the remote com-



BACK UP YOUR data for free with 2BrightSparks' SyncBack. An enhanced \$30 version offers faster file synchronization and more encryption options.

puter full screen, launch and close programs, read e-mail, copy and paste text between PCs, and access any files you left behind. Save money on gas, claim home equipment on your taxes, and convince your boss that you'll be more productive without leaving your house. Even the iPhone has some VNC clients, such as Mocha VNC and Teleport.

If you don't need full remote control but you do require access to your office or home files, set up Microsoft's free syncing tool, FolderShare (find.pcworld.com/61765). Your files will always be up-to-date, no matter where you're working or where you last updated them.

Schedule Automatic Hard-Drive Backups

2 Backing up your critical files is as exciting as purchasing home insurance, but it's just as important, too. Don't risk losing irreplaceable photos by making empty promises that you'll burn a couple of DVDs every few months. Instead, set up software and services to do the job for you while you concentrate on more-exciting projects.

First, avoid an "OMG my hard drive crashed!" catastrophe, by using a program such as the free SyncBack (find.pcworld.com/61766), which can schedule

regular backups to your favorite external storage device—external hard disk, thumb drive, or network drive. (If you have FTP-server access, most apps can automatically back up to that as well.)

Of course, local backup isn't enough. To protect your data against fire, lightning, theft, or other disasters, you need

WESABE IS A free and secure Web-based money manager that makes tracking personal finances, such as your bank account transactions, easy.



to back up to a remote server over the Internet. Both Carbonite (www.carbonite.com) and Mozy Home (www.mozy.com) offer affordable unlimited server space and utilities that quietly back up your data in the background while you work.

Work More Efficiently Without a Mouse

3 Streamline your computer work by teaching yourself keyboard shortcuts for your most frequent actions, such as <Ctrl>-S to save, <Ctrl>-T to open a new tab in Firefox, <Ctrl>-C to copy, and <Ctrl>-V to paste. Then, become a keyboard master with help from a keyboard launcher such as the free Launchy (Windows; find.pcworld.com/61767) or Quicksilver (Mac; find.pcworld.com/61768). You can start programs, open documents, and even perform advanced actions such as resizing images and moving files without moving your hands from the keyboard.

You can also assign key combinations that automatically type out common phrases—like user names, passwords, addresses, and e-mail signatures—with a utility such as TypeItIn (Windows; find.pcworld.com/61769) or TypeIt4Me (Mac; find.pcworld.com/61770).

Lose Weight, Get Fit, Save Money, and Increase Your Mileage

4 A crop of social self-improvement sites can help you monitor how much you've eaten, exercised, and spent, to motivate you to stay on track.

Web services like FitDay (www.fitday.com) and WeightWatchers.com log and guide your personal diet and fitness regimen.

For finances—if you find Quicken or Microsoft Money too complicated to update—track your spending, balance your checkbook, and chart expenditures versus income at a personal-finance sites like Mint.com or Wesabe (www.wesabe.com).

Additionally, you can squeeze maximum mileage out of every expensive tank of gas with a miles-per-gallon tracker like Fuelyly (www.fuelyly.com) or My Mile Marker (mymilemarker.com). Entering your information into such sites gets you personalized suggestions, comparisons, and a community of like-minded people who can offer support.

Clear Your Inbox Daily

5 Beat e-mail overload once and for all by emptying your inbox completely and keeping it that way. The “Inbox Zero” philosophy (43folders.com/izero) says that e-mail messages are just calls to action—not clutter that we need to hang on to. Create three folders or labels in your e-mail client: Action, Later, and Archive. Each day when you check your e-mail, make a decision and do something with every new message you’ve received until you’ve moved them all out of your inbox and reduced your message count to zero. Ruthlessly delete the messages you don’t need to preserve, on the spot. Respond to the ones that you can answer in less than 2 minutes each. File messages that you want to keep for future reference in the Archive folder; put those that will take longer than 2 minutes to reply to in Action (and add those to-do items to your list); and move messages that you need to follow up on at a subsequent date (such as Amazon shipment notifications) in Later. Then breathe a sigh of relief when you see that glorious declaration: “You have no new mail.”

Clear Cable Clutter

6 When you have a tangled mess of dust-coated cords knotted into a bundle under your desk, discon-



USE ID PILOT labels to avoid pulling the wrong plug. The \$6 Electronics pack includes 16 computer-oriented sticky labels.

necting a laptop or setting up a new printer can be impossible. The cords used for power, USB, speakers, and FireWire all look the same. A set of simple labels can help you avoid accidentally killing your entire rig by pulling one wrong plug. Print out your own with a label maker, or buy a prefab pack of ID Pilot labels (idpilotlabels.com) to stick on your home-office or living-room plugs. When the cat knocks one out or it’s time to rearrange, you’ll be glad you did. Then, get those cords up off the dusty floor with an under-the-desk cable tray like the ones that Ikea sells for about \$10. To keep gadget and laptop cords from falling off the back of your desk when they’re not plugged in, affix a simple cable catcher (or a binder clip) to the edge of your desk to hold them. Finally, plug your workstation and your collection of peripherals into a single power strip or UPS so you can shut down the energy hogs with a single switch when you’re not using them.

Stay on Task With the Right To-Do List

7 The key to staying on track with the stuff you need to get done is to write it down and systematically check it off—whether you do so online, on your desktop, on your smart phone, or in a plain-text file. *PC World*

has tried various online task managers, and Remember The Milk (www.rememberthemilk.com) is our favorite. It provides all of the features you’ll ever need in a to-

do list online, on your desktop, and on your phone. RTM offers task categories (such as Work and Home), file attachments, notes, priorities, tags, due dates, and even “honey do” items (you can send tasks to other RTM users, such as your spouse or assistant). RTM also has a Firefox extension that integrates the service with your Gmail inbox, so you can turn e-mail messages into tasks. Of course, no matter how good your software is, nothing can replace the visceral satisfaction of crossing off a line on your paper to-do list with the stroke of a regular old ballpoint pen.

Replace a Laptop With a Thumb Drive or iPod

8 Instead of lugging a laptop on your next trip, save your aching back by taking your computer’s desktop with you on a thumb drive or iPod. Portable Windows software offerings such as MojoPac (mojopac.com) and U3 (U3.com) put a full desktop on your USB thumb drive (or on your disk-use-enabled iPod), letting you run applications such as Microsoft Outlook and save documents on that drive. All you need is a host PC: You can plug the MojoPac drive into your in-laws’ system or a >>

coffee-shop workstation, for instance, to access your documents and applications without leaving a trace behind. Alternatively, you can save and run free portable applications—such as the Firefox browser, Pidgin IM client, and Sumatra PDF reader—from your thumb drive. Download those and other programs for free at PortableApps.com.

Also read: “23 Things to Do With a Thumb Drive” (find.pcworld.com/61771).

Use Your Camera Phone as Your Digital Photographic Memory

9 Almost every cell phone model now includes a built-in camera, and they’re good for more than just snapping pics of your buddies’ bar shenanigans to blackmail them with later. You can use your phone’s camera and memory card to capture the spot where you parked, the label on a bottle of wine your spouse loved, the price of a new gadget to look up online, or an amazing meal that you’d like to try to cook at home. A new crop of Web services can turn digital photos of whiteboards and documents into searchable PDF files, too. E-mail your camera-phone shot of a whiteboard or document to Qipit (www.qipit.com), and the service will recognize the text and e-mail you the resulting searchable PDF.

Also read: “Six Things You Never Knew Your Cell Phone Could Do” (find.pcworld.com/61772).

Create Your Own Price-Protection System

10 Deal search engines, such as RetailMeNot.com and Search-AllDeals.com, and social sites

EMAIL'S BUILT-IN Mail Fetcher can retrieve messages from up to five external e-mail accounts using the POP3 standard.

like BeatThat (beatthat.com) are great at finding the best prices before you buy, but Price Protectr (www.priceprotectr.com) and similar services will save you some money afterward by monitoring more than 130 stores that maintain price-protection policies. If the price goes down after your purchase, that store might owe you money, but knowing whether the price went down is the trick. You can take advantage of Amazon’s 30-day price guarantee by going to RefundPlease.com, or by using the

is both an e-mail host and an e-mail client. Use Gmail’s built-in Mail Fetcher to retrieve messages from up to five external e-mail accounts that use the POP3 standard. In Gmail’s Settings area, click the *Accounts* tab to set up your external e-mail addresses. After you’re done, you’ll receive all of your mail in one roomy inbox. You can even send mail from your non-Gmail addresses via Gmail’s Compose screen, too.

Also read: “Get Organized in Gmail” (find.pcworld.com/61773).



QIPIT CAN TURN a photo of a whiteboard into a searchable PDF document.

free Amazon Price Watch software (nukeprice.com). Travel sites Farecast (farecast.live.com) and Orbitz (www.orbitz.com) also have price-protection systems and e-mail alerts for when prices reach a certain low point.

Access Multiple E-Mail Addresses via Gmail

11 You have more e-mail addresses than you do pairs of socks—so it makes sense to keep them all in one drawer. If you have mail coming to your ISP’s account, your work address, your school address, and your throwaway Yahoo account from 1998, and you’re having difficulty juggling everything, it’s time to consolidate all of those messages into a single inbox. Google’s free Web-based Gmail service

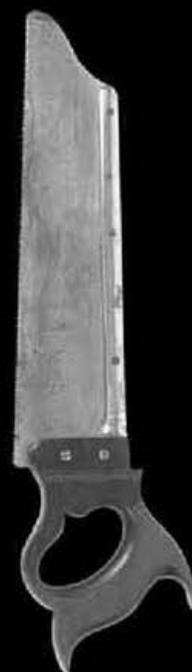
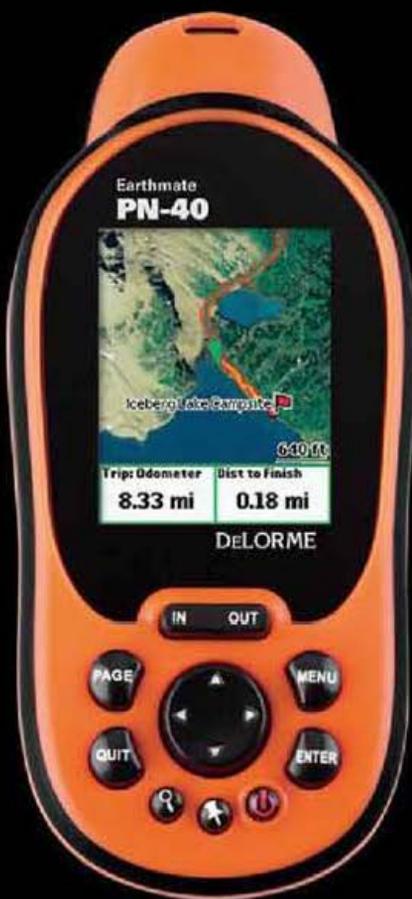
Never Forget Another Important Date Again

12 If you’re tired of scrambling to send Mom flowers at the last minute every year, set up a scheduled e-mail reminder for her birthday—and for any other long-term recurring events or tasks. Google Calendar will then send automatic alerts via SMS (“Pick up the dry cleaning at 3 p.m. today”) or e-mail (“Schedule a hair appointment; it’s been six weeks!”). Most Web-based calendars (like Google Calendar) and task managers (like Remember the Milk), as well as sites such as HassleMe (www.hassleme.co.uk) and Sandy (iwantsandy.com), support scheduled e-mail alerts of this type.

Also read: “26 Tricks to Help You Tame Google Calendar” (find.pcworld.com/61774).

Never Forget Your Passwords Again

13 Your Web browser can save your user name and password for sites that you often log in to, but you still have lots of other passwords to remember—Wi-Fi network >>



Serious Tool.

Seriously. Only DeLorme provides handheld GPS with high-quality aerial imagery, topo maps, street maps and nautical charts all integrated into one rugged waterproof GPS. See why the Earthmate PN-40 is the only choice for everything from serious Arctic explorations to geocaching, hiking, kayaking and biking excursions. getserioustool.com



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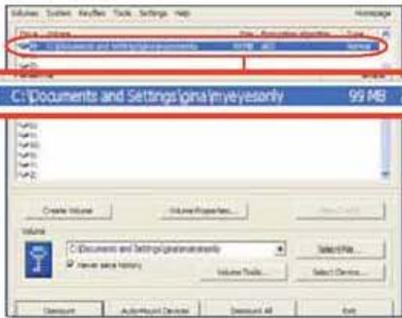
names and passwords, computer log-ins, PINs and passphrases, and even security questions and answers.

Instead of writing everything down on sticky notes slapped onto your computer monitor, lock up your store of sensitive passwords in a secure, encrypted password database. The free KeePass (find.pcworld.com/61775) works with Windows, Mac, and Linux, and assigns one master password to your database. Park your passwords, PINs, and software serial numbers in your personal secure database, and save yourself the hassle of having to call the IT department for the umpteenth time to reset your password.

Also read: "15 Great, Free Privacy Downloads" (find.pcworld.com/61776).

Encrypt Private Files

14 Everyone has a folder or two of private files that thieves, children, competitors, coworkers, or casual passersby should



TRUECRYPT is a simple and free way to encrypt and hide all of your sensitive data.

never see. Whether you want to secure your stealth start-up's business plan or some personal photos, the free, cross-

platform TrueCrypt encryption software (find.pcworld.com/61777) is ideal for storing sensitive files in a password-protected virtual container. Only someone armed with the master password can open that container and read or write the files within; to everyone else, it's merely a nondescript single file full

KEEPASS Password Safe is a free and secure application that helps you stay on top of all of your passwords.



of jumbled-up junk. TrueCrypt can secure a single folder on your hard drive, or an entire disk—it's great for a thumb drive holding precious data that could be exposed if the drive were lost or stolen.

Stream Content From Your PC to Your Tivo or Video Game Console

15 You don't need yet another box under your TV in the living room in order to enjoy digital music and videos. If you own a game console or TiVo box, you are ready to start streaming media from your PC today—no Apple TV or set-top media box needed. Find out how to get started at find.pcworld.com/61778.

Also, Microsoft has announced that by this holiday season, Xbox 360 owners who are Netflix subscribers will be able to stream "thousands of movies" using just their game console. In the meantime, you can stream Netflix movies from your PC to your Xbox 360 with the vncNet-Flix plug-in (find.pcworld.com/61779).

Get Your TV and Music Fix Online

16 Forget basic cable—there's a bonanza of free TV programming available for viewing on-

line. If you don't want to catch your favorite shows at the originating networks' own Web sites, visit episode collection sites such as Hulu (www.hulu.com), Joost (www.joost.com), and Comcast's Fancast (www.fancast.com) to get your TV fix. Also: Stream music for free to your computer from Deezer (www.deezer.com), Slacker (www.slacker.com), Last.fm, or Pandora (pandora.com); the last two are available on the iPhone.

If you're on the road and missing your TiVo, use a place-shifting device such as Sling Media's Slingbox or Sony's LocationFree (find.pcworld.com/61781) to watch your own DVR recordings over the Internet.

Also read: "The Best TV on the Web" (find.pcworld.com/61782).

Search Faster With Firefox Keywords

17 You probably hit the same Web sites and search engines several times a day. Here's how to get to those pages as quickly as possible: First, go to a site that has search capabilities, such as Wikipedia, right-click the site's search field, and select *Add a Keyword for this Search*. Next you'll need to name the shortcut and give it an easy-to-remember keyword, such as the letter *w*. To search Wikipedia for George Washington, for example, you now need only to key up to Firefox's address bar (<Ctrl>L), type >>



FIREFOX keywords enable you to run searches on your favorite sites directly from the URL address bar.

Do More.

Travel Less.



Don't waste any more time, money and energy traveling to meetings. With GoToMeeting you can hold unlimited online meetings with anyone, anywhere — right from your desk. Whether you need to present, demonstrate, collaborate or train, GoToMeeting makes it easy. Spend less time on the road and more time improving the way you do business. Do more and travel less with GoToMeeting.

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w George Washington, and press <Enter>.

You can actually associate a keyword with any bookmark—even with pages that don't involve searches. Just enter a short, functional keyword in any bookmark's Properties dialog box. For example, try setting up the **compose** keyword to open a new Gmail message. Once you've set up a few keywords, you can use your Firefox address bar as a powerful, customized command line.

Also: Sync your Firefox bookmarks across your home, office, or laptop computers, using the Foxmarks extension (find.pcworld.com/61803); this will keep your keyword vocabulary up-to-date wherever you're working.

Also read: "15 Undocumented Firefox Tips" (find.pcworld.com/61780).

Tweak and Extend Your Wireless Network

18 Extend your router's signal, throttle your bandwidth, review usage charts, and perform other useful tricks with an open-source router-firmware upgrade. The free DD-WRT (dd-wrt.com) and Tomato (polarcloud.com/tomato) firmware offer advanced features for managing your wireless network, including bandwidth monitors, quality-of-service graphs, and router overclocking to extend the signal.

Want to make your Wi-Fi router's signal reach the attic and the basement, the low-tech way? Some people say that they've achieved gains by fashioning a foil "windsurfer" parabola and attaching it to the router antenna. (Browse to find.pcworld.com/61783 for our how-to guide.)

Master Advanced Search Techniques

19 You can drill down through millions of search results for popular Google search terms by mastering advanced search operators. Enclose phrases and proper names in quotes (as in "Don't tase me bro" or "Michael Phelps") to bring up exact-phrase matches. Use the + and - signs



IMPROVE YOUR searches by using advanced search operators.

to specify meaning, especially for words that have more than one definition (for example, **salsa-dance**), and use the **filetype:** operator to find certain kinds of documents (as with **budget filetype:xts**).

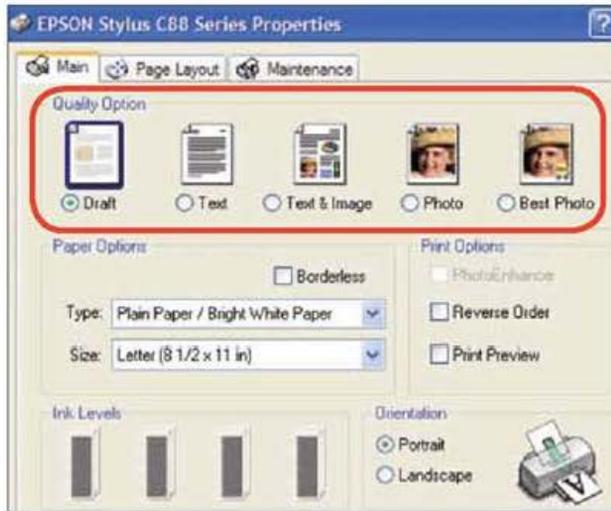
If you need help figuring out what to have for dinner tonight, you can even search for all the ingredients in your fridge, preceded by the word **recipe**.

Then, take your search chops to your desktop, where you'll find that organizing files in an elaborate folder scheme is no longer necessary. Use Windows

Reduce Your Ink and Paper Printing Costs

20 You've already paid an arm and a leg on ink refills for your printer, so get into some smart printing habits to save money on ink and paper. Wherever possible, preview your document before you print, and shrink the selection down to fewer pages, or print only the pages that you need in the document. Set your printer to the lowest quality (draft mode) when possible, and opt for double-sided printing or print several pages per physical page (when

you're printing out PowerPoint slides, for example). Before printing Web pages, use the Aardvark Firefox extension (find.pcworld.com/61785) to delete big, colorful advertisements and other unwanted, space-wasting elements. When you don't really need a hard copy, opt to print to a PDF document instead. Mac users can do that by default; Windows users need to download a free utility such



Vista's Saved Search folders to build a dynamic store of all the files containing the term "NYC," for instance, or all the digital photos taken on your birthday.

Gmail's built-in e-mail search capabilities are simply outstanding. Just use the from:, to:, and subject: operators to retrieve a specific message you want, as in **from:"Bill Gates" subject:"dinner date"**.

Also read: "Advanced Google: Search Faster, Find More" (find.pcworld.com/61784).

DRAFT-MODE printing is just one way you can begin saving on ink and paper—and costs.

as CutePDF (find.pcworld.com/61786) to print any document as a PDF file.

Also read: "Six Savvy Ways to Get More Prints for Less Money" (find.pcworld.com/61787). ●

The Bose® QuietComfort® 2 Acoustic Noise Cancelling® Headphones.

Think of them as a peaceful getaway from the world around you. Whether it's the engine roar inside an airplane cabin, the bustle of the city or the distractions in the office, Bose QuietComfort 2 headphones help them fade softly into the background with the flick of a switch. You can savor delicate musical nuances without disturbing others. And



when you're not listening to music, you can slip into a tranquil haven – where you can relax and enjoy peace and solitude. Clearly, these are no ordinary headphones. It's no exaggeration to say they're one of those things you have to experience to believe.

"It's as if someone behind your back reached out, found the volume control for the world, and turned it way, way, down," reports *TechnologyReview.com*. Bose QC² headphones incorporate patented technology that electronically identifies and dramatically reduces noise, while faithfully preserving the music, movie dialogue or tranquility you desire. We designed these headphones primarily for airplane travelers. But owners soon started telling us how much they enjoy using them in other places to reduce distractions around them. They're excellent for listening to music whether you're on the go, at home or in the office.

"Forget 'concertlike' comparisons; you'll think you're onstage with the band." That's what *Travel + Leisure Golf*



said when these headphones were first introduced. You'll relish the sound of a bass guitar. Or a flute. Or the delicate inflections of a singing voice. The audio is so clear you may find yourself discovering new subtleties in even your favorite music.

"The QuietComfort 2 lives up to its name, enveloping you in blissful sound in the utmost comfort. It's easy to forget they are on your head." That's what respected



columnist Rich Warren reports. To enjoy peace and tranquility, simply turn them on. To add Bose quality sound, attach the included audio cord and connect them to a laptop computer, portable CD/DVD/MP3 player, in-flight audio system or home stereo. They also offer a fold-flat design for easy storage in the slim carrying case.



Use them as a concert hall – or a sanctuary.

Try the QC2 headphones for yourself, risk free. You really must experience them to believe it. Call toll free to try these headphones for 30 days. Use them on your next trip, in your home or at the office – satisfaction guaranteed. If you aren't delighted, simply return them for a full refund.

Call **1-800-901-0256, ext. Q6949** today. The QC2 headphones are available

directly from Bose – the most respected name in sound. When you call, ask about making 12 easy payments, with no interest charges from Bose.* And discover a very different kind of headphone – QuietComfort 2 Acoustic Noise Cancelling headphones.

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www.Bose.com/QC

BOSE
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*Bose payment plan available on orders of \$299-\$1500 paid by major credit card. Separate financing options may be available for select products. See website for details. Down payment is 1/12 the product price plus applicable tax and shipping charges, charged when your order is shipped. Then, your credit card will be billed for 11 equal monthly installments beginning approximately one month from the date your order is shipped, with 0% APR and no interest charges from Bose. Credit card rules and interest may apply. U.S. residents only. Limit one active financing program per customer. ©2008 Bose Corporation. Patent rights issued and/or pending. The distinctive design of the headphone oval ring is a trademark of Bose Corporation. Financing and free shipping offer not to be combined with other offers or applied to previous purchases, and subject to change without notice. Risk free refers to 30-day trial only and does not include return shipping. Delivery is subject to product availability. Quotes reprinted with permission: *Simon Garfinkel, TechnologyReview.com, 7/9/03; Travel + Leisure Golf, 7/03; Rich Warren, News-Gazette, 5/19/03.*

Expand Your Life

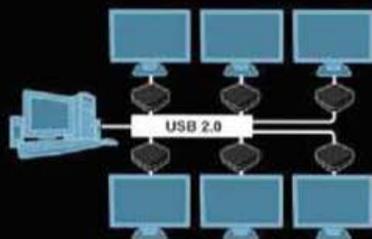
You have many applications open at once, e-mail client, internet browser, media player, chat client... Don't you want to see them all at once?



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- Plug in a USB cable
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- Explore the possibilities



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DisplayLink
certified



COMPUSA

FRY'S

MICRO CENTER
computers & electronics

NCIX.com



TigerDirect.com

Camcorders: High-Def, No Tape

PCW Test
Center

Small, light HD camcorders that don't need miniDV tapes are nearly the norm, but are they ready for marquee status? We look at five flash, hard-drive, and SD Card camcorders and see how they stack up against a top miniDV camera. >>

BY JIM FEELEY

PHOTOGRAPHS BY ROBERT CARDIN



The future belongs to tapeless high-definition camcorders. But the future isn't quite here yet. We evaluated six high-definition camcorders—five storage-based models and one miniDV model—and found that tape remains worthy of consideration for several reasons: ease of archiving, lower camcorder costs, less-processor-intensive editing, and a lack of format compatibility issues.

One major difficulty involves the process of working with the AVCHD (Advanced Video Codec High Definition) format, the most common tapeless high-def output format. Right now, AVCHD isn't as easy to work with as HDV, the output format that most tape-based high-def camcorders support.

You can edit HDV content on a computer with a modest 2-GHz Intel Pentium CPU and 2GB of RAM, and you can use more video editing applications (including Microsoft Windows Movie Maker HD and Apple iMovie). But the power required for AVCHD typically starts with a 2.66-GHz Intel Core 2 Quad system. You also have to work with mediocre bundled software, endure transcoding to another format, or purchase an AVCHD-compatible editing program such as Pinnacle Studio Plus 12 or Adobe Premiere Elements 7.

Nevertheless, AVCHD camcorders provide many benefits.



Canon's light-and-tiny Vixia HF10 flaunts a bright, 2.7-inch LCD and an SDHC card slot to augment its 16GB of flash storage.

For one, you won't have to keep buying tapes (though you will need to maintain plenty of storage space to offload your files). Tapeless models are smaller and lighter than tape-based camcorders, too. And because you don't record to linear tape, you can save time transferring video to your PC by accessing clips at random.

Another major advantage, at least in the near future: AVCHD should make for better-looking HD video. AVCHD allows data-transfer rates of up to 24 mbps, which translates into more recorded data per frame of video and sharper HD footage.

The AVCHD cameras we evaluated, however, choke data capture down to 17 mbps or less, generating video with roughly the same image quality as that from 25-mbps high-definition HDV tape camcorders. That limitation changes with three new AVCHD camcorders released during our testing (too late for inclusion in this roundup): Canon's latest AVCHD camcorders—the Vixia HF11, the HG20, and the

High-Def Camcorders: Tape Edges Out Tapeless

MODEL	PCWRating	Performance	Features and specifications	Bottom line
1 BEST BUY Canon Vixia HV30 \$1000 find.pcworld.com/61836	82 VERY GOOD	<ul style="list-style-type: none"> • Video/still image quality: Good/Good • Battery life: Superior (117 minutes) • Overall design: Very Good 	<ul style="list-style-type: none"> • 10X optical zoom • 24p, 30p, and 60i frame rates • miniDV tape (HDV) • 19.0 ounces 	The Vixia HV30 records bright, high-quality video to old-fashioned tape—and does the job quite well.
2 Sony Handycam HDR-SR12 \$1300 find.pcworld.com/61843	80 VERY GOOD	<ul style="list-style-type: none"> • Video/still image quality: Good/Good • Battery life: Fair (87 minutes) • Overall design: Good 	<ul style="list-style-type: none"> • 12X optical zoom • 60i frame rate • 120GB hard drive, Memory Stick • 22.0 ounces 	The HDR-SR12 can record more than a dozen hours of great-looking AVCHD video onto its 120GB hard drive, but it carries a hefty price.
3 Canon Vixia HF10 \$1100 find.pcworld.com/61844	79 GOOD	<ul style="list-style-type: none"> • Video/still image quality: Good/Good • Battery life: Fair (87 minutes) • Overall design: Very Good 	<ul style="list-style-type: none"> • 12X optical zoom • 24p, 30p, and 60i frame rates • 16GB flash drive, SD/SDHC • 13.4 ounces 	This compact camcorder combines sharp AVCHD video, flash memory, easy and flexible operation, and a reasonable price.
4 Samsung SC-HMX20C \$850 find.pcworld.com/61845	71 GOOD	<ul style="list-style-type: none"> • Video/still image quality: Good/Good • Battery life: Good (103 minutes) • Overall design: Fair 	<ul style="list-style-type: none"> • 10X optical zoom • 30p and 60i frame rates • 8GB flash drive, SDHC and MMC+ • 16.1 ounces 	The flash-based SC-HMX20C has a cool design and records high-definition video of reasonable quality.
5 Panasonic HDC-HS9 \$900 find.pcworld.com/61846	70 GOOD	<ul style="list-style-type: none"> • Video/still image quality: Fair/Fair • Battery life: Very Good (113 minutes) • Overall design: Good 	<ul style="list-style-type: none"> • 10X optical zoom • 24p, 30p, and 60i frame rates • 60GB hard drive, SD/SDHC • 10.6 ounces 	This AVCHD camcorder's lackluster performance is only partially offset by its low price.

CHART NOTE: Prices and ratings are as of 9/25/08.

HG21—have 24-mbps bit rates, and they're available now.

As for the six models we examined in the PC World Test Center (see find.pcworld.com/61842 for details on how we tested them), here's the tale of the tape...and the tapeless.

Canon Vixia HV30

BEST BUY Storage format: miniDV tape

Videotape isn't the newest format on the block, but it is inexpensive, easy to work with, and great for archiving. Canon's Vixia HV30 camcorder (\$1000) takes vibrant HDV video and lays it onto miniDV tapes.

The HV30 encodes video as 1440-by-1080-pixel 25-mbps HDV; that's fewer pixels than most AVCHD models support, but a higher data rate for video capture. Our test footage showed great color and resolution in bright and normal lighting, and decent low-light video.

In our subjective tests of image and audio quality, the HV30 earned a Good overall rating, bettered only by the Sony HDR-SR12, which barely outperformed the Canon in well-lit indoor settings. The HV30 led the group in low-light settings, and its combined standard-light and low-light scores were on a par with the marks of three other top-scoring camcorders: the Sony HDR-SR12, the Canon HF10, and the Samsung SC-HMX20C.

Colors and skin tones in captured footage were accurate in light, dark, and shifting scenes. Low-light video looked quite sharp (though not very smooth), and the built-in microphone recorded acceptable audio. The HV30 can record JPEG still files to a user-supplied miniSD card; the model's still-image quality matched that of the top-rated tapeless camcorders in this roundup.

The HV30 is a simple camcorder to use. Its autofocus is extremely speedy and accurate, its image stabilization is stellar, and its menus are well organized and easy to navigate. The 2.7-inch LCD remains viewable without difficulty in bright sunlight, and it has a wider viewing angle than some other small LCDs. The camcorder's playback controls are sensibly situated just beneath the LCD.

You get a nice range of ports and features, too. The HV30 includes a built-in lens cover, a viewfinder, and headphone and mic jacks, along with HDMI, USB, and FireWire ports. The battery provides about 2 hours of recording time, and you can record at three frame rates: 60i (60 interlaced fields per second) looks like video, 24p (24 progressive frames per second) resembles film, and 30p works well on the Web.

The HV30 isn't perfect. It's bulkier than most new camcorders due to its tape bay; its accessory shoe is proprietary;

and the 10X zoom lens shortchanges the wide-angle end. What's more, the HV30 moves HDV content linearly via FireWire instead of using USB. That's more time-consuming than random-access AVCHD transfers, but it also works with less-robust systems and with many more video editing packages.

Altogether, the HV30's video quality, frame-rate flexibility, and ease of use make it a top choice for home movies and indie filmmaking. It's one of the last tape-based consumer HD camcorders, but it's one of the best HD camcorders, period.

Sony Handycam HDR-SR12

Storage format: 120GB hard drive, Memory Stick

The Sony Handycam HDR-SR12's whopping 120GB hard drive is roomy enough for 14 hours of video at its highest quality setting. Its image quality and storage capacity are



Who said tape is dead? The

miniDV-based Canon HV30 reigned supreme over the tapeless camcorders in this roundup.

impressive, but unless you need to record for hours without a break, those advantages may not justify the camera's price of \$1300.

The 0.33-inch CMOS sensor records 1920-by-1080-pixel AVCHD files. The camcorder offers four data-rate/image-quality settings, spanning 5 mbps to 16 mbps; in PC World Test Center tests, we evaluated the unit's 16-

mbps AVCHD performance. The HDR-SR12 records MPEG-2 standard-definition video and JPEG still images, as well.

Our jury testers rated video captured in standard indoor lighting as Very Good, but they noted that colors were shifted a bit. Low-light footage rated as Fair, due to noticeable inaccuracies in color, sharpness, and motion. In my field tests, the HDR-SR12 captured natural skin tones. My footage showed good dynamic range, too—no crushed blacks and blown-out whites, even when color and contrast fluctuated. The built-in microphone captured good 5.1 surround and two-channel stereo audio during my hands-on testing. >>>

Of the tapeless models we tested, the HDR-SR12 yielded the best overall results, but with limitations. It records only 60i video, skipping the 24p and 30p options useful for video that looks closer to film and Web-bound clips, respectively. The 60i footage looks quite good, but it's unmistakably video.

The HDR-SR12 is a breeze to work with, thanks to an effective autofocus, optical stabilization, and 12X optical zoom. Eleven scene modes cover conditions ranging from Snow to Landscape to Fireworks. The unit offers a viewfinder, microphone and headphone jacks, and a built-in lens cover; outputs include analog standard-def and high-def video, HDMI, and USB. It has a Memory Stick slot for stills and video, too.

I also loved the Sony's helpful controls: A roomy, 3.2-inch touch screen LCD simplifies browsing and searching for clips—a huge convenience considering how much footage the drive can hold. A control dial below the lens offers quick access to manual focus, aperture, and white-balance settings.

The battery life is average, supporting nearly 90 minutes of video per charge. With the battery in place, the HDR-SR12 weighs 1.5 pounds—enough heft to improve hand-held stability, but not enough to tire your arm.

You can transfer video to a computer via USB or a Memory Stick reader. For Windows users, Sony bundles Picture Motion Browser, a basic video editing application. Mac users can use iMovie '08, Apple's latest video editor.

The HDR-SR12 is a very good high-def camcorder, but it costs significantly more than models that offer less (though ample) storage. Sony's HDR-SR11 costs \$200 less, with the same features and imaging engine as the HDR-SR12 and enough room (60GB) for 7 hours of high-quality video. The question for potential buyers is whether massive storage capacity justifies the additional \$200.

Canon Vixia HF10

Storage format: 16GB flash drive, SDHC card

The Canon Vixia HF10 has a lot going for it. Light and compact, this model shoots good video with ease, offers great frame-rate options, works well with both Windows PCs and Macs, and is reasonably priced. But one thing holds the HF10 back: Its video bit rate is below the AVCHD format's maximum of 24 mbps. The HF10 tops out at 17 mbps (the bit rate we used in our tests), whereas three new Canon models—the HF11, the HG20, and the HG21—support 24-mbps capture.

The Vixia HF10 captures footage with a

0.31-inch CMOS sensor, and it can compress video at any of four quality settings, ranging from 5 mbps to 17 mbps. At the highest bit rate, the HF10 encodes AVCHD video to a resolution of 1920 by 1080 pixels, and at lower bit rates to 1440 by 1080 pixels. Its 16GB flash drive holds 2 hours of video at the highest setting, and the camcorder also has an SDHC card slot.

Video shot at the 17-mbps bit rate held up well against video from the other camcorders we tested. Overall, our subjective testers rated the HF10's images almost as highly as images from the tape-based Canon HV30 and the hard-drive-based Sony HDR-SR12, noting great resolution and smooth movement.

In our jury tests, video seemed a bit oversaturated, but the HF10 doesn't pump up colors nearly as much as the salespeople do at your local HDTV emporium. In low light, ➤

DXG DXG-566V: Bargain-Bin 'HD'

- **Storage:** 32MB flash drive, SDHC card
- **Pros:** Extremely inexpensive.
- **Cons:** Terrible video quality.
- **Bottom line:** DXG's \$150 DXG-566V records poor-quality high-def video and mediocre stills.

The strength of the DXG-566V is its \$150 price (as of mid-autumn 2008). Its weaknesses begin with image quality—the poorest by far of any camcorder tested for this story. For \$150, you get a serviceable alternative to a cell phone camcorder, but a laughable alternative to any AVCHD or HDV model. Even a Flip Video camcorder beats this "high-def" offering.

The 0.4-inch CMOS sensor captures 1280-by-720-pixel videos at 30 frames per second, but the DXG-566V received low marks for video quality in normal-light and low-light conditions. Under normal lighting, colors were off, objects looked fuzzy, and motion was jerky. Low-light footage was soft and washed out, as if viewed through several layers of cheesecloth. Audio was thin and harsh.

This model has no image stabilization, no viewfinder, no lens cover, and no headphone jack. The 2X digital zoom produced jerky, blocky movement. Print images at 8 by 10 inches had a yellow tint. You'll get a unique look, that's for sure.

But it's not all bad news. The unit's cleverest feature is its battery compartment, which can hold either the supplied lithium ion battery or four AAA batteries. The camcorder is easy to use, too, partly because it has so few controls. The 3-inch LCD screen is bright and sharp, and the device can capture compact (but still not high-quality) 720-by-480-pixel and 320-by-240-pixel videos. You can also expand its 32MB of on-board storage with SD and SDHC cards.

So what is this camera good for? At 4.3 by 2.5 by 1.5 inches and 9 ounces (including battery), the DXG-566V is compact enough to carry anywhere. That, together with the low price, may make the DXG-566V a viable option for sunny vacation scenes that you plan to share with friends over YouTube. Even then, however, it's essential that you not care in the least about video quality.





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gain noise was visible, but it was evenly distributed and thus not distracting. Stills looked decent—on a par with other HD camcorders, but not as good as a \$150 digital still camera's output.

Bolstering the HF10's easy operation are a 12X optical zoom lens, fast and accurate autofocus, a great optical stabilizer, and an effective automatic mode. The eight scene modes—including sports, night beach, and sunset—work well. The HF10 records at three frame rates, optimized for video (60i), Web content (30p), or a filmlike feel (24p).

To navigate the menus, you use a joystick next to the outer edge of the bright 2.7-inch LCD. The joystick

worked well in adjusting settings, but it caused unwanted camera movement during manual focusing. Playback controls are conveniently located under the LCD, which is the only viewfinder. That omission is amplified by the HF10's so-so battery life of about 90 minutes—average for a tapeless camcorder.

Gripping the lightweight HF10 (15 ounces with battery) is like holding an energy-drink can; despite its compact size (2.5 by 2.9 by 5.1 inches), it's equipped with mic and headphone jacks and a hot-shoe mount. The latter is proprietary, meaning that you can't mount many third-party microphones.

You can link the HF10 to an HDTV via a mini-HDMI connector or to a computer through USB. Editing video requires a fast CPU, and the footage is compatible with AVCHD-friendly software for Windows or Mac. Canon bundles the basic, Windows-only Image Mixer 3 SE with the HF10.

The HF10's balance of benefits and shortcomings tilts so heavily toward benefits that it's our first choice among tapeless HD camcorders. The Sony HDR-SR12 beats this model on image quality, but the Canon Vixia HF10 gives you more options for the eventual look of your video. The HF10's quality also holds promise for its 24-mbps Vixia successors.

Samsung SC-HMX20C

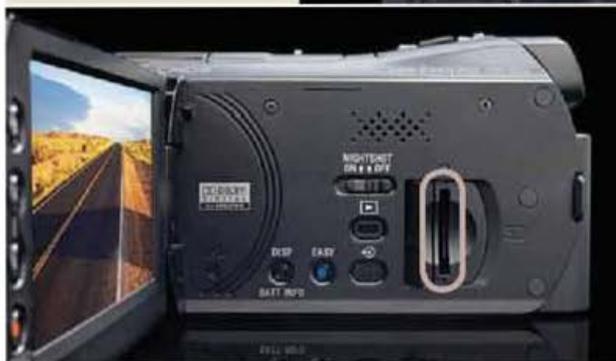
Storage format: 8GB flash drive, SDHC card

The eye-catching, bulletlike Samsung SC-HMX20C (pictured on page 111) is sure to turn heads. But its autofocus and image stabilization are considerably less impressive than its design.

The SC-HMX20C packs a 0.55-inch CMOS sensor, a 10X

The Sony Handycam HDR-SR12

has a 3-inch touch-screen LCD, the best video quality of the camcorders we tested, a 120GB hard drive, and a card slot in case you need even more storage.



optical zoom, 8GB of flash memory (good for about 70 minutes of high-def video recorded at the highest quality setting), and an SDHC or MMC+ card slot to beef up storage capacity. Though this camcorder captures HD video at either 60i or 30p, it doesn't support the filmlike 24p rate. That said, it has

one very cool feature: the ability to record up to 10 seconds of 300-fps high-speed (slow-motion) video at a 448-by-336-pixel resolution—about the size of a large YouTube video.

This camcorder doesn't work with AVCHD; it records high-definition video as 1920-by-1080-pixel H.264/MPEG-4 AVC files at three quality settings: Normal, Fine, and Super Fine. Samsung doesn't publish compression data rates for the SC-HMX20C, but Super Fine (the setting that we used in testing the camcorder) seems to run at about 16 mbps.

Under indoor lights in our PC World Test Center tests, video had good resolution, color, and movement. In low light, video was Fair; footage wasn't sharp or colorful, but on-screen motion was very smooth. Audio recording was merely Fair, too. Overall, the SC-HMX20C's video quality trailed that of the Sony and Canon camcorders, but its still images were a bit better than those of the other models tested for this article.

Navigating menus on the 2.7-inch touch screen LCD was extremely easy, and the clever Quick Menu button allowed fast, context-based access to common modes. If you're recording video, for example, you can press Quick Menu to call up controls for storage, resolution, white balance, focus, exposure, and shutter. Battery life was above average, too: The SC-HMX20C ran for 103 minutes in our lab tests.

Unfortunately, the SC-HMX20C's autofocus feature is slow to lock in on subjects, and its electronic image stabilization is inferior to the optical stabilization on other camcorders. It does have a built-in flash for stills, but no sustained light for video. The camera lacks a viewfinder and a headphone jack, though it does provide a mic jack. Documentation is also a >>>

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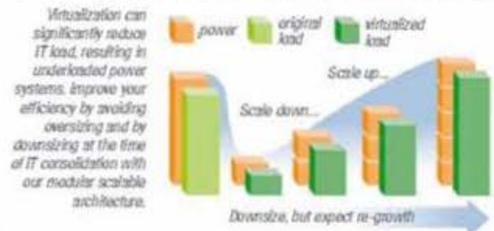


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Need More Tapeless HD?

AT LEAST TWO NEW AVCHD camcorders want a piece of the camcorders we examined for this roundup. Panasonic's HDC-HS100 (left) features a three-CMOS sensor and a 60GB drive. JVC's HD Everio GZ-HD40 offers 120GB of storage and a microSDHC slot. Go to www.pcworld.com for the full reviews.



weak spot: You get a 12-page quick-start guide with the unit, but the full 130-page manual comes only as a PDF on disc.

The camcorder has the standard array of outputs, including HDMI, component analog, and USB. Samsung bundles the adequate CyberLink DVD Suite for editing in Windows.

The SC-HMX20C is a decent camcorder with an appealing design and good still images. It's nicely priced at \$850, but the flash-based Canon Vixia HF10 has better video quality and features—and twice the recording time—for \$250 more.

Panasonic HDC-HS9

Storage format: 60GB hard drive, SDHC card

Three years ago, the \$900 Panasonic HDC-HS9 would have been revolutionary. Today, it's merely an also-ran. It records AVCHD video and JPEG still images to a 60GB hard drive or to a user-supplied SD/SDHC card. Quality settings range from 6 mbps to 17 mbps; we tested the device at 17 mbps. At the HDC-HS9's highest-quality setting, the hard drive holds 7.5 hours of video at a 1920-by-1080-pixel resolution; at the lowest setting, the resolution drops to 1440 by 1080.

For indoor-light video, our jury rated the HDC-HS9's video quality as just Fair; resolution, sharpness, and color accuracy paled in comparison to the competition. Low-light video was downright poor in some conditions, with noticeable noise and ghosting. Still images also received a Fair rating in our jury tests; pictures weren't as crisp or as colorful as those from other tapeless models.

It's too bad that the images didn't come out better, because the camcorder's 10X zoom lens, autofocus, and image stabilization are all great attributes. The HDC-HS9 records at 60i and 24p frame rates, and the built-in microphones record 5.1 surround sound (the camcorder lacks a mic jack and a hot shoe). Battery life is very good; it ran

for slightly less than 2 hours in our lab tests.

The HDC-HS9 lacks a viewfinder, but its 2.7-inch LCD is easy to see in bright sunlight. Menus are well organized, but the navigational joystick resides inconveniently in the LCD well on the camcorder's side.

Auto mode, which optimizes settings for automatic casual shooting, worked nicely in well-lit settings but failed to match the dynamic range and contrast controls of other camcorders. The four scene modes (Sports, Portrait, Spotlight, and Surf & Snow) offer considerably less scene-based optimization than the Canon and Sony models do.

Ports include component and composite video, USB, and HDMI, but the HDMI and DC power ports are crammed behind the battery. Panasonic bundles the bare-bones, Windows-only HD Writer 2.5E video editing package, and you can work with AVCHD-compatible software such as iMovie '08 to edit video on a Mac.

Considering the string of game-changing prosumer and professional camcorders that Panasonic has developed over the years, the HDC-HS9 is a disappointment. This camcorder's mediocre image quality outweighs all other considerations, leaving little reason to recommend this AVCHD model. ●



Panasonic's HDC-HS9

camcorder has a 60GB hard drive and an SDHC card slot, so it can hold plenty of footage. Unfortunately, its video and still-image quality disappoints.

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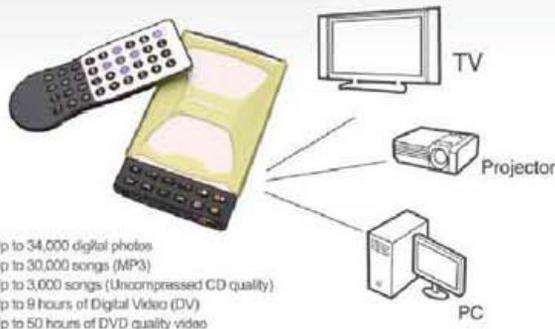


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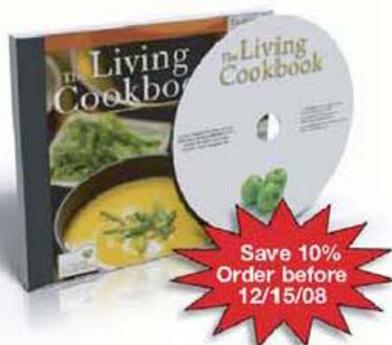
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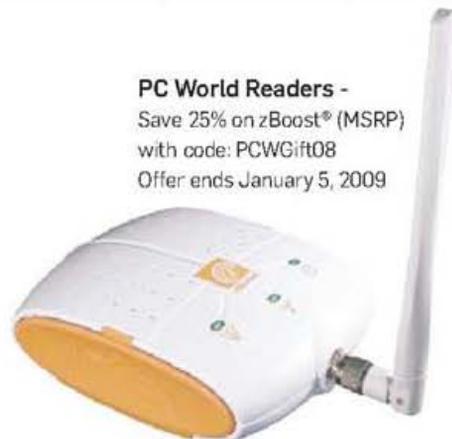
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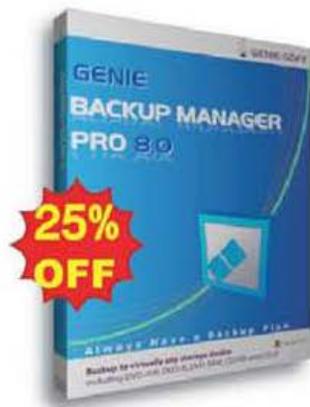
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Here's How

Put an End to Annoying Cell Phone Spam

Stop spammers from intruding on your private mobile life by keeping unwanted text messages, e-mail, and voice calls from reaching your cell phone.

BY ZACK STERN

IT'S A SAD fact that most of us are exposed to an endless flood of unsolicited messages from purported international dignitaries, dubious pharmaceutical salespeople, nonexistent foreign-lottery representatives, and illiterate pornographers—a deluge that invades our PCs each day, and that we've all learned to ignore.

To make matters worse, spam is now infiltrating the mobile phone, too, where it not only wastes your time but also costs you money. Unwanted text messages and bizarre e-mail pitches can consume much of your precious data allowance, and



RECEIVING A TON of unwanted text messages, e-mail pitches, and voice calls on your smart phone isn't merely annoying—it can also be expensive.

annoying sales calls eat away your valuable voice minutes.

The good news is that it doesn't have to be that way. Follow these tips, and you'll eliminate the junk from your cell phone. Whether you receive uninvited text messages, ordinary e-mail spam

on your smart phone, or even obnoxious sales calls from actual human beings, you can stop all of those forms of cellular spam by taking a few easy steps.

Block Unwanted Text Messages

Some people might go years without ever receiving text-message spam, while others are bothered by it frequently. Though mobile spam is usually against the law in the United States, sales pitches might still come to you legally as a result of your buying something over the phone, or in response to your entering your mobile number into an online form.

Illegal messages might appear because a spammer guessed your phone number. And since mobile phone companies allow PCs to send you text messages at a certain e-mail address, often *your_phone_number@your_phone_company.com*, spammers need only make an

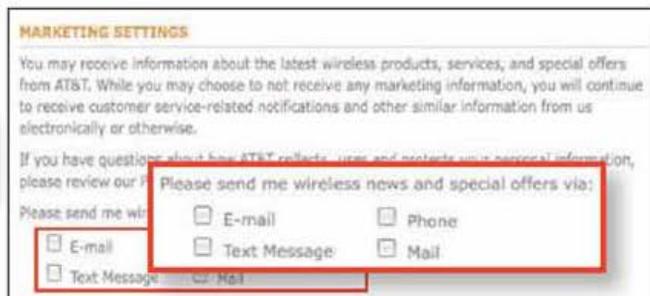
educated guess to come up with thousands of valid addresses in no time.

You can disable or modify your phone's e-mail address to block unwanted messages, while still permitting ordinary text messages from other phones. Text-message blocking methods vary slightly from carrier to carrier, but usually you can find helpful tools on your carrier's Web site. For example, if you're with AT&T, sign in to mymessages.wireless.att.com instead of the main billing site. Click the two check boxes on the Blocking Options screen to block MMS (multimedia message service) picture messages and text messages sent via e-mail.

Additionally, most carriers let you create an alias for your phone's e-mail address, so you can use something other than your phone number. Changing your address will help thwart most text spam that could come from someone guessing, or even



TO STOP NEARLY all mobile spam but still receive texts from other phones, block text messages that originate from computers.



MARKETING MESSAGES FROM your cellular carrier are a common text-message annoyance. Most carriers offer a way to turn them off.

already knowing, your cell phone number. With AT&T, choose the drop-down menu to block messages, and then click *Message Options* to configure your new e-mail address. Click *Submit* to save the changes.

The above examples are specific to AT&T's wireless service, but the same features are available to Verizon Wireless customers at text.vzw.com, to Sprint customers through the My Sprint login at sprintpcs.com, and to T-Mobile wireless customers at my.t-mobile.com. (For a step-by-step walkthrough using Verizon Wireless's spam-control tools, see "Stop Text Spam With Your Carrier's Tools" at right.)

Note that these actions will also block text messages from airlines or other companies you may want to hear from. Be sure to give those companies your updated address, or add their domains to the Allowed list through your carrier's spam-control interface.

Stop E-Mail Spam From Reaching Your Smart Phone

Unlike PC-based e-mail clients such as Microsoft Outlook, most mobile e-mail clients have no way to identify and filter spam on their own. Using a Web-based filter to sort out all your messages before they even reach your cell phone's mail client is a great way to reduce the flow of spam.

Activate the settings through your e-mail host, usually your ISP or Web mail service. With Yahoo Mail, for example, first sign in to

STEP-BY-STEP

Stop Text Spam With Your Carrier's Tools

MOST MAJOR cellular carriers offer online tools that can help you stop unwanted text messages from reaching your phone. These tools tend to be similar from one carrier to another, and they're easy to use once you know where to find them. Here's how to tweak your text settings quickly, using Verizon Wireless's tool as an example.

1. Use your account info to log in to the Verizon text messaging site at text.vzw.com.
2. Click the *Nickname* option in the left navigation menu. Set your account's nickname to something unique that you can remember easily. It doesn't matter much what you choose, as long as you can recall it later.
3. Click the *Text Blocking* option in the left menu to customize what kinds of messages you'd like the network to block for you. At the least, you should set the 'Allow messages sent to my Nickname@vtext.com only' option to *Yes*. That will stop spammers from

The screenshot shows the Verizon Wireless website interface for sending text messages. It includes a navigation menu with options like 'Send a Text', 'Check Text Status', and 'Text Blocking'. The 'Text Blocking' section is highlighted with a red box and a yellow arrow labeled '4'. This section contains options to block messages from e-mail, the web, and specific addresses. A list of blocked addresses is shown, with the first one being 'spammer@macnuculous.com'. Other sections include 'Your Verizon Wireless Nickname is: robert' and 'Message Blocking Preferences'.

texting you simply by guessing your mobile phone's number at random.

4. Also in the Text Blocking menu, you can set specific addresses to block. If you've been getting unwanted messages from a particular address, entering that address here will put a stop to them.

the Web mail site through mail.yahoo.com. Click the *Options* link in the upper right. Click *Spam Protection*

to verify that Yahoo is filtering messages, and click *Turn SpamGuard ON* if it isn't already enabled. Other Web

mail services, such as Gmail, always leave spam filtering active at the server.

If you receive your e-mail through a Web host (your address looks like *your_name@your_domain.com*), visit the host's control panel or setup area. The specific steps to take may vary by host; contact your tech support if you need help.

In my case, I started with my host's bundled Spam-Assassin app instead of

The screenshot shows the SpamAssassin web interface. It features a status bar at the top that says 'SpamAssassin is currently Enabled.' Below this, there are sections for 'Filters' and 'Disable Auto-Quota Spam'. The 'Filters' section also indicates that SpamAssassin is currently enabled.

ENABLE SERVER-SIDE FILTERING with a service such as Spam-Assassin as the main defense against mobile e-mail spam.

adding a paid alternative. I clicked the button to enable the server-side filter, and also enabled the Spam Box option to deliver marked mail to an alternate folder. That way I can occasionally sift through those flagged messages to identify any false positives, but they are not clogging my iPhone's e-mail inbox.

Coupled with an IMAP account, which primarily stores mail on a server instead of in a client, Spam Box saves me from downloading those messages onto my phone, though I still could do so if I wished. If you have e-mail through work, your IT department likely already uses a server-side filter similar to Spam Box; check with your IT manager if you're unsure.

Other actions can prevent junk mail from reaching your phone without involving a filter. Spammers often need your contact information to get in touch, so protect your address. When registering with a bank, cable provider, or other company, scrutinize the forms for opt-out or opt-in mailing lists to keep your address free from solicitations.

Never post your personal e-mail address online, such as in a forum; spammers can find it there to add you to lists. Even for buying things online, consider setting up a secondary e-mail address to keep your main account clean. Additionally, you could cre-



IF YOUR REGULAR e-mail server lacks good spam protection, using a free, spam-protected Web mail service like Yahoo Mail can help.

ate an account exclusively for your mobile phone and be even more restrictive in sharing it than you are with your main e-mail account.

Just as they do for text messages, spammers can hit your e-mail address by sending a huge volume of messages to randomly guessed addresses at major domains. Short addresses at common, popular domains—such as earthlink.net, google.com, or yahoo.com—are likelier to hit a mark. To reduce your chance of being victimized, use eight characters or more, including numbers and punctuation, in your address. Most of all, when you do

receive spam, don't click any links (including any apparent "unsubscribe" links), or even load the images. Both can be ways to verify that your address is active, which will ensure that you get a whole lot more junk.

Block Sales Calls to Your Cell Phone

Telemarketing calls are especially annoying when they reach your mobile phone, costing you money to hear a sales pitch. Be cautious in giving your mobile number to companies, and especially be aware of opting in or out of a company's sharing or selling that information.

If you do give out a mobile number, be sure to tell companies that it's mobile. If someone calls with a pitch, ask them to take you off their list, and also mention that they have called a mobile number. It's illegal for telemarketers to use autodialers to reach mobile numbers, so they'll likely respond quickly if you let them know that they've

reached your cell phone.

The National Do Not Call Registry can add another layer of protection, with caveats. The list is a database of numbers that telemarketers can't dial—but legal loopholes allow calls from political groups, surveys, and companies with which you have established a business relationship. Nearly the same restrictions on sales calls apply by default to all mobile phones; however, if you have started to receive sales calls on your cell phone, then adding your number to the Do Not Call Registry (at www.donotcall.gov) can be the easiest way

to stop them.

If, after registering your number with the Do Not Call Registry, you continue to receive sales calls on your cell phone, don't just hang up in exasperation. Instead, gather as much info about the caller as you can, and file a complaint using the online form at donotcall.gov.



IT'S ALREADY ILLEGAL for telemarketers to use autodialers to call your cell phone, but adding your number to the Do Not Call Registry can offer even more protection.

Clean Your Digital SLR Camera's Image Sensor

IF YOU LOOK closely enough at photos you've taken with a digital single-lens reflex camera that has been used for a while, you will probably see opaque specks—the result of dust and detritus that has settled inside your camera's body.

Even if you never change lenses, dust can drift into a camera body and land on the sensor. And if you do swap lenses, even bigger particles can easily reach the sensor. Some advanced DSLRs now offer auto-cleaning modes that try to shake particles loose. Such features help, but often they can't ensure blemish-free photos. Here's how to clean your DSLR camera's sensor by hand, safely and effectively.

A number of DSLR cleaning products are available. Many of the kits, including those with vacuums, are overkill. I'll show you how to test the sensor with a basic swab-and-fluid kit. I prefer the Photographic Solutions Digital Survival Kit (photosol.com) because of its no-frills approach and low cost. Be sure to pick a kit for your specific camera, because some fluids react badly with certain sensors. Consult the kit maker's Web site to find the appropriate kit. Also verify that the swab size matches your camera, so you don't end up with something too big.

Before you begin, it's important to note that the sensor-cleaning process can damage your camera if you use the wrong tools. But if

Keep your photos spotless by eliminating dust and grime from your digital camera's CCD.

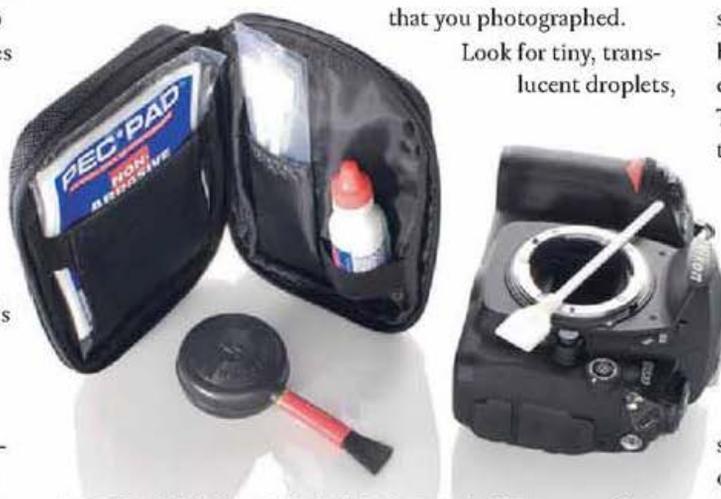
you follow your cleaning-kit instructions precisely, you should easily make it through without trouble.

Don't clean the sensor if the lens is the real culprit. Use a blower to puff any debris off the front of the

ly sets the proper shutter speed. Fire several test photos to use as the precleaning, "before" images.

Open the test images on your computer, and view them at 100 percent. These photos should show the same even, white surface that you photographed.

Look for tiny, translucent droplets,



THE PHOTOGRAPHIC SOLUTIONS Digital Survival Kit comes with all the basics for keeping your camera's sensor in top shape.

lens, and follow up with a nonabrasive cloth. Use the same technique on the inside of the lens, too. Liquid cleaners can damage lens coatings—never use an off-the-shelf household cleaner. If a cleaner is required, apply one that's specially formulated for camera lenses.

Locate the Dust

Now test the sensor before cleaning it. In an area with lots of light, set your camera with as small an aperture as the lens allows. Focus on a blank, white surface such as a sheet of paper, and use the aperture-priority mode so that the camera automatical-

ly sets the proper shutter speed. Fire several test photos to use as the precleaning, "before" images. Open the test images on your computer, and view them at 100 percent. These photos should show the same even, white surface that you photographed. Look for tiny, translucent droplets,

Clean the Sensor

Activate the camera's manual cleaning mode to flip open the mirror, and then remove the lens. Be sure that the battery is fully charged, because the mirror or prism will slam shut if the camera loses power or is turned off.

You can damage the camera's optics if your cleaning tools get in the way.

If you can clearly discern something on the sensor, try to knock it off with air from a squeeze-bulb blower. Pop open a new sensor swab, and add two or three drops of the Eclipse solution (from the Photographic Solutions kit) to the tip. With a little sweeping gesture—gentle, but firm—drag the swab laterally across your sensor. Then drag the swab back in the opposite direction, making sure that its clean side is leading the second pickup. Throw out the used swab.

Reattach the lens, and close the mirror or prism. Shoot additional test photos to see if you successfully cleared out all of the debris. If not, repeat the cleaning steps until you have the sensor shining.

If you're outdoors, save the cleaning for when you're back in a controlled environment to avoid damage.

Keep the Sensor Clean

The best way to keep the sensor as clean as possible is to be mindful when removing and replacing your lenses. Swap the attachments quickly, keeping the camera body and both sides of the lens capped when they're not mounted together. If you have extra body- and lens-socket caps, lock them together in storage to block outside elements. The longer any surface is exposed, the more likely it'll gather grime.

—Zack Stern



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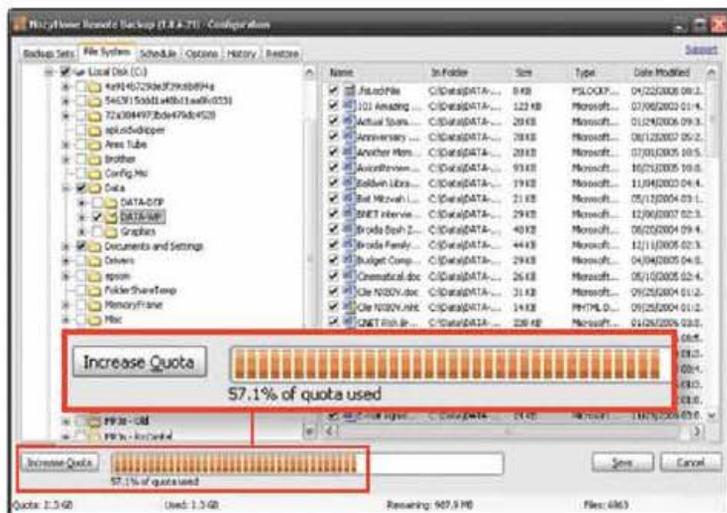
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For this task, look to an online backup service such as IDrive (idrive.com) or MozyHome (mozy.com). Both offer 2GB of free storage and the option to upgrade to unlimited storage for \$5 a month.



ONLINE BACKUPS ARE a great way to copy your data to a safe, off-site location. **MozyHome provides 2GB of free storage or unlimited storage for \$5 a month.**

Mozy relies on client software to help you select, for backup, either common file types or important user-data files for programs like Outlook and Quicken, while IDrive uses an Explorer-style

interface for selecting specific files and folders to preserve. The real advantage to both services is that they work automatically and in the background, uploading new and changed files from

your PC while you work (or at scheduled times, such as in the middle of the night). That kind of set-it-and-forget-it backup reliability is well worth spending a few bucks on every month.

If you'd rather save your pennies and you don't mind taking a more hands-on approach, loads of services allow you to park files online free of charge. For example, ADrive (adrive.com) offers 50GB of free storage. However, no synchronization is involved:

It's up to you to determine which files to upload, and when. You should use these services for files that don't change all that often, such as MP3 and photo libraries.

—Rick Broida

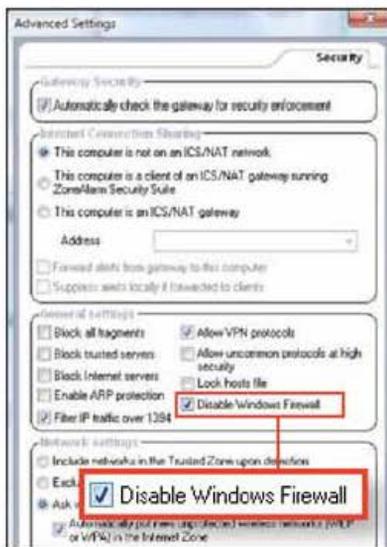
Stop ZoneAlarm From Turning Off Windows Firewall

FROM THE PCW FORUMS THINK WINDOWS Firewall is useless just because you're running the more advanced ZoneAlarm Security Suite? The truth is, allowing Windows Firewall to continue running in combination with ZoneAlarm can increase security without causing problems. In this month's reader-supplied tip, PCW forums member Snorg explains why you should reenable Windows Firewall using ZoneAlarm's settings, and how to do so.

Join our discussion at forums.pcwORLD.com. If we use your tip in the magazine, we'll send you a free PC World T-shirt.

Snorg Says:

By default ZoneAlarm turns off Windows Firewall without your knowledge or consent. That action can lead to some confu-



ZONEALARM LETS YOU enable Windows Firewall (by unchecking the box) to work in concert with ZoneAlarm's own defenses.

sion, and it's potentially dangerous: If you shut down ZoneAlarm, Windows Firewall remains turned off. Just because you have ZoneAlarm doesn't mean you should abandon Windows Firewall.

It may sound odd to run two firewalls simultaneously on your computer, but they actually work well together and complement each other, with Windows Firewall serving as your first line of defense and ZoneAlarm in place as the second line of defense.

Here is how to stop ZoneAlarm from turning off Windows Firewall.

In ZoneAlarm, click *Firewall* and choose the *Advanced* button near the bottom of the Main menu. In Advanced Settings, look under the 'General settings' heading and uncheck *Disable Windows Firewall*. Click *OK* and close.

Five More Essential Registry-Tweaking Tips

EDITING THE Windows Registry has the potential to improve your PC's performance, but making a mistake can destroy the operating system, as I noted last month when I gave you five important pieces of advice for editing your Windows Registry. Here are five more things you need to know to keep your machine alive when you're messing with the Registry.

1. Determining which bad Registry entries to remove or repair can give you a migraine. I suggest inspecting a list of potential problem entries, focusing on things that look familiar, and then making only a few minor changes at first.

After a couple of days, if your PC doesn't do anything

weird or erratic, try another scan, this time allowing the Registry cleaner to do its work more aggressively.

You must, however, examine very carefully entries marked with labels such as 'Caution', 'Extreme Cau-

tion', or some other indicator of risk. Unless you're an advanced user and can clearly identify the scope of the entry, just leave it alone.

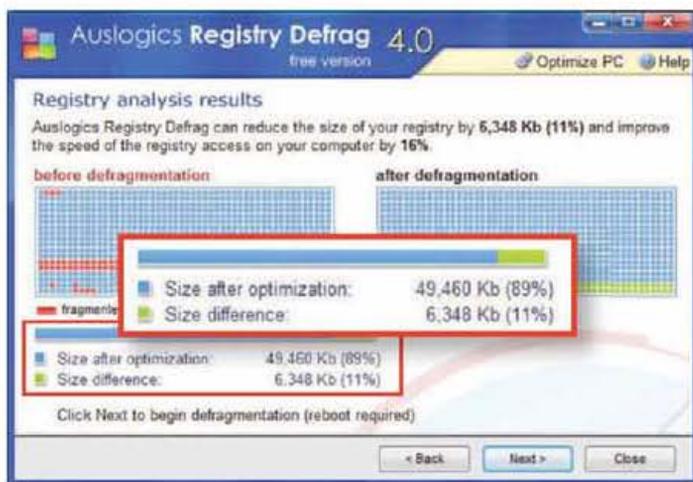
2. Once you give the cleaner the go-ahead and it starts removing Registry entries,

walk away from your PC. Go play with the dog, have some coffee, or watch TV. That way, you won't be making changes to the Registry while it's being cleaned.

3. If you discover a problem (for instance, maybe Excel no longer launches), don't panic. And don't do anything aside from using the Registry cleaner's restore feature, which ensures that only the changes the program just made are reversed. That will likely set things right. To be on the safe side, back up your Registry with ERUNT (find.pcworld.com/61672) while it's still in good shape; then you can restore it quickly if there's ever a problem.

4. You needn't perform a Registry scan more than once a month or so, especially if you don't often make changes to your PC. Scanning more frequently won't hurt anything, but you're unlikely to see a significant performance boost.

5. Are you a techno-fanatic who needs the Registry to be squeaky clean, with absolutely no stray entries and trimmed of all fat? There's no harm in using multiple freebie Registry cleaners—provided you use them one at a time. You might also want to select a Registry cleaner (such as *juv16 PowerTools* or *Registry First Aid*) that includes a defragger, or choose a free defragger such as *Auslogics Registry Defrag* (find.pcworld.com/61809).



WITH THE FREE Auslogics Registry Defrag, you can reduce the size of your Windows Registry and speed up your computer's performance.

ANSWER LINE

ASK YOUR QUESTION AT FORUMS.PCWORLD.COM

Why can't I open Vista's Cookies folder?

Lamar Redmon, via e-mail

IF YOU CLICK *Start*, type **cookies**, and press **<Enter>**, Vista tries to do what XP did: Take you to your Cookies folder, located at `C:\Users\your_logon\cookies`. The problem is that, in Vista, the Cookies folder isn't located where it was in Windows XP. Instead, Vista has a pointer in the old location that tells it where the real Cookies fold-

er can be found. Since Vista apparently doesn't believe you should be privy to this information, it tells you that the folder isn't accessible.

Well, I think you can handle the knowledge, and you deserve full access to your PC. To locate the actual folder, click *Start*, type `C:\Users\username\AppData\Roaming\Microsoft\Windows\Cookies\Low`, and then press **<Enter>**. These steps should take you to the real Cookies folder.

Once you've found the correct folder, you can make it easily accessible: Hold down the right

mouse button while you drag the Cookies folder icon from Windows Explorer's Folder pane to the desktop, the Start menu, or some other convenient location. When you release the button, select *Create Shortcut Here*.



TYPING THE RIGHT command into the Run dialog box will bring up your cookies folder even if Vista doesn't want to show it to you.

—Lincoln Spector

—Steve Bass



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WE'RE LIVING IN the Internet Age, so what good is a music collection that remains trapped in your home PC? Your songs should be able to go wherever you go, be it the office, a friend's home, an airport lounge, or even the backseat of a taxi.

Fortunately, liberating your song library is easier than you might think: You can stream it from your PC or the Web to just about anywhere else. Better still, unlike a new iPod, streaming won't cost you a cent.

Orb is a free service that turns your PC into a media server, streaming songs, video, photos, and TV to almost any Web-connected device. So you can tap into

your media from your laptop, Palm Centro, Nintendo Wii, or iPhone—to name just a few supported gadgets.

The Orb software requires Windows XP or later and a broadband Internet connection. Once Orb is installed, configure it to monitor your media folders. The software will also help you sign up for a free Orb account.

You'll need to leave your host PC on at all times. If it goes into power-saving sleep mode, no problem: Orb can transmit a wake-up command. (You may need to tweak the BIOS or ethernet-adaptor settings to enable the Wake on LAN option.)

To listen to your tunes, fire up a Web browser on a

PC, smart phone, game console, or whatever, and then head over to mycas1orb.com.

The Orb interface varies depending on the device you use to access it; a PC affords the richest experience. Click *Audio-Random* if you just want to shuffle-play your song library, or click the *Open Application* button and then *Audio* for a familiar media-player interface.

Orb is by no means the only option for streaming music from your PC; others include JukeFly, SqueezeCenter, and Vibe Streamer. Like Orb, these services cost nothing to use, but they stream only audio—with no video or photo support—and their support for mobile



JUST ABOUT ANY mobile device with a Web browser, including the iPhone, can give you access to your Orb media library.

devices is limited (or nonexistent). In the end, Orb is a snap to set up and use, making it the obvious choice if you want anytime, anywhere access to your tunes.

—Rick Broida

FACT CHECK ROBERT STROHMEYER



Does Touching Metal Actually Protect Your PC From Static?

FOR DECADES, PC builders have relied on a simple trick to help protect their hardware from static discharge: touching the system's metal case. But does that trick still work on a modern PC? Sadly, no.

Older computers' motherboards were relatively simple compared with today's. When you turned off the power, your motherboard shut down all of its components except for the CMOS clock, which kept chugging via a small battery. You could rely on your PC's connection to the AC outlet in your wall to ground your machine safely and carry small levels of static electricity away from your body.

Modern motherboards, on the other hand, are constantly drawing power as long as the power supply is connected to the wall outlet. To prevent the current in your body from damaging your hardware

The old-school trick doesn't really protect your hardware the way it used to. Here's the best way to perform upgrades safely.

as you work on it, you must unplug the system, though this disconnects the PC from its ground as well as its power source.



AN ESD CORD connected to AC ground is the best defense against static damage.

Since you absolutely must unplug your computer from the wall before handling its components, the current has no exit path from your system case to a proper ground. So, no, touching the case isn't likely to do you much good if you've unwittingly built up a significant static charge in your body. The best way to make certain that you're grounded is to use an antistatic wrist strap connected to an actual ground, such as the AC ground in your home. Such straps and cables can be had for less than \$20 from companies like ESD Systems (esdsystems.com). Properly connected to your AC ground, an antistatic wrist strap is the ultimate protection against electrostatic discharge.

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STEVE BASS'S HASSLE-FREE PC

Fix Problems With Vista Validation, Trojan Horses, and XP Reinstalls

THIS MONTH I tackle Windows validation issues, a fix for a particularly tricky—and recalcitrant—Trojan horse, and a way to zap stubborn boot menus that won't take no for an answer.

Prove Your Vista Is Genuine

The Hassle: Microsoft decided that my copy of Vista is not genuine. Now the only way I can boot is into Safe Mode.

The Fix: Microsoft gives you 30 days to try Vista, and you may still be using a trial installation, even if you own a legitimate copy. So the first step is to make sure Vista is properly activated. If you do have to activate Vista, and it's stuck in reduced-functionality mode or you can't get online, the activation wizard will give you a number to call to activate the OS by phone.

Activation may not be the problem, though. Microsoft uses a tool called Windows Genuine Advantage to determine whether you

Easy solutions for battling Windows Genuine Advantage, outsmarting the Facebook Trojan horse, and fixing a dopey dual-boot setup.

have a legitimate copy of Vista, but the tool could be malfunctioning. Microsoft's diagnostic site (www.microsoft.com/genuine/diag) will check your copy of WGA and, if necessary, repair it.

Click—You're Infected!

The Hassle: I clicked a link on Facebook that promised a Flash upgrade, and now I'm infected, big time. How in the world can I get this pesky Trojan horse off of my PC?

The Fix: This is a mighty tricky Trojan—a buddy of mine got nailed, and I almost clicked on the link, too. Just for kicks, I intentionally infected a test PC with Trojan-Clicker.Win32.VB and tried new versions of two products, both of which I've used before. Malwarebytes' Anti-Malware program (the free version lacks active protection, which checks for dangerous code in real time) and Sunbelt's 15-day trial of CounterSpy both removed the Trojan horse.

Leave your antivirus software on your system, but if you already have antispyware software, uninstall it and reboot. Then grab a copy of either Malwarebytes (find.pcworld.com/61807) or the fully functional trial of CounterSpy (find.pcworld.com/61808), install it, reboot, and run the scan. Once the Trojan horse is removed, reboot and repeat the scan, just to be sure that everything is gone.

Disable a Wayward Boot Menu

The Hassle: I reinstalled Windows XP. Now when I boot the system, it shows a menu asking me to select the operating system I want to start. I get two identical choices, and the first works fine (it's the one that's automatically chosen after 30 seconds). How do I get rid of the second choice and the annoying screen on boot-up?

The Fix: It sounds as if a second boot entry worked its way into your boot.ini file when you did the reinstall. The fix is easy, but play it safe and make a copy of the .ini file first. Go to the root of C: and make a copy of the boot.ini file, renaming the copy **boot.saf**.

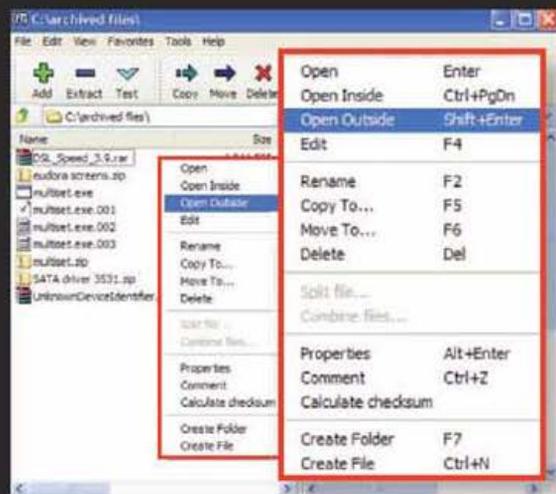
Next, click **Start**, select **Run**, type **msconfig**, and click **OK** to open the System Configuration Utility. Choose the **Boot.ini** tab and then click the **check all boot paths** button. You'll be asked which one to delete by way of a message window that reads: 'It appears that line: [a number will appear here] in BOOT.INI does not refer to a valid operating system. Would you like to remove it from the BOOT.INI?' Click **Yes**, **OK**, and **Restart**.

When your system reboots, the System Configuration Utility box will appear, and you'll need to click **Don't show message on start up box...** If you have trouble, read my article "Fun With Troubleshooting" (find.pcworld.com/61817). And if you want to learn more about the boot.ini file in XP, visit Daniel B. Sedory's Boot.ini page (find.pcworld.com/61793). ●

TOOL OF THE MONTH

7-Zip Archiver

SURE, WINDOWS CAN open a .zip file just fine, but what about .rar archives or .cab files? 7-Zip, an open-source freebie, handles just about any type of archive file. From the tool's Explorer-like interface, you can easily archive or extract .zip files right into another folder. 7-Zip packs .zip files tightly (a little better than the original WinZip utility does), and it lets you password-protect files, split archives into specific sizes (great for uploading to file sharing sites), and add a whole array of 7-Zip options to right-click context menus. Grab a copy from find.pcworld.com/61828.



7-ZIP HANDLES A slew of exotic file types, and boasts a host of features you won't find in Windows' built-in zip utility.

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End of the Line: Same as It Ever Was

THIRTEEN YEARS AND nine months. That's how long this column has been in business. It started in April 1995 with a jape about "Microsoft Sex"—a mythical product that I proposed as a follow-up to the company's amazingly awful Microsoft Bob. Since then, you, I, and my other reader have whiled away the years watching PC hardware, software, and services miraculously evolve from expensive, complex, and buggy to cheap, complex, and buggy.

But with this issue, *Full Disclosure* is shutting its doors for good. Since everything must go, we're clearing the shelves of material that somehow never found its way into print, and a fake interview is the easiest way to knit it all together. So here goes:

I: *What changes have you seen in your 25 years of covering personal technology?*

Me: In the old days, tech geniuses anonymously spent their time trying to improve people's productivity and enjoyment. Now they're full of themselves and spend their time figuring out new ways to get you to watch ads.

I: *You've railed for years about software quality. Have you noticed any major improvements?*

Me: iTunes for Windows progressed from bricking your computer to merely producing Blue Screens of Death. Vista keeps your machine from running too darned fast. And public relations people seem better than ever at helping to hide massively screwed-up corporate and governmental programming projects from stockholders and citizens.

I: *How about artificial intelligence? Any breakthroughs there?*

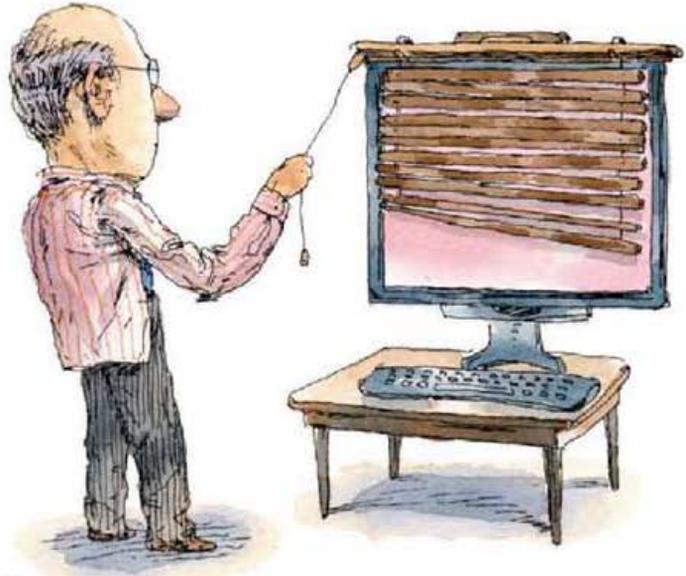
Me: My printer is so clever about predicting ink shortages that it warns me about them several weeks before it actually runs dry. And my smart phone—oh, sorry, I think it dropped the call. You still there?

I: *Never mind. How has the Internet improved people's lives?*

Me: You can get bug fixes and security updates in mere minutes. And when they don't work, you can instantly google the error messages to help figure out what went wrong.

I: *That's it?*

Me: Well, you can also find hundreds of bloggers earnestly regurgitating one another's opinions about which disposable gadget or company is currently the coolest. And no matter how crackpot your ideas about anything may be, you can find



Through nearly 14 years of *Full Disclosure*, hardware and software haven't changed as much as they should have.

fellow idiots online who strenuously espouse them with the same impassioned fervor and bad spelling. Oh, yeah, almost forgot: pirated music and movies.

I: *What's your favorite new electronic gadget?*

Me: My latest ATM card.

I: *Hey, wasn't that Sony TZ-2000 laptop you rhapsodized about a couple of months ago recalled for a potential overheating problem?*

Me: Yes, though Sony's special Web site initially couldn't figure out whether mine needed the fix, and the company's phone lines were so slammed, I gave up. But their repair folks have finally promised to come to my house and make the fix—nearly a month and a half from now. That burns me as much as the product ever could.

I: *Haven't clever new technologies enabled significant enhancements in customer service?*

Me: Thank you being for an estimable such value consumer. Please to now rebooting machine and installation the Windows system operating anew.

Us: And thanks to you, reader, and to my other one. May we meet again soon, preferably not on a complaint forum. ●



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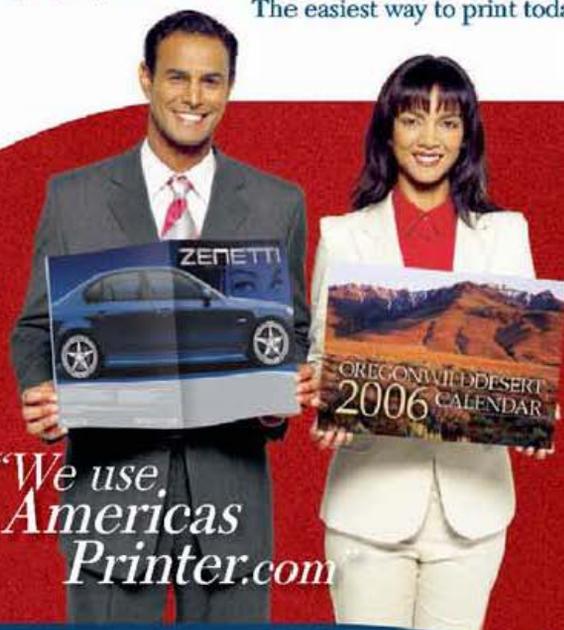


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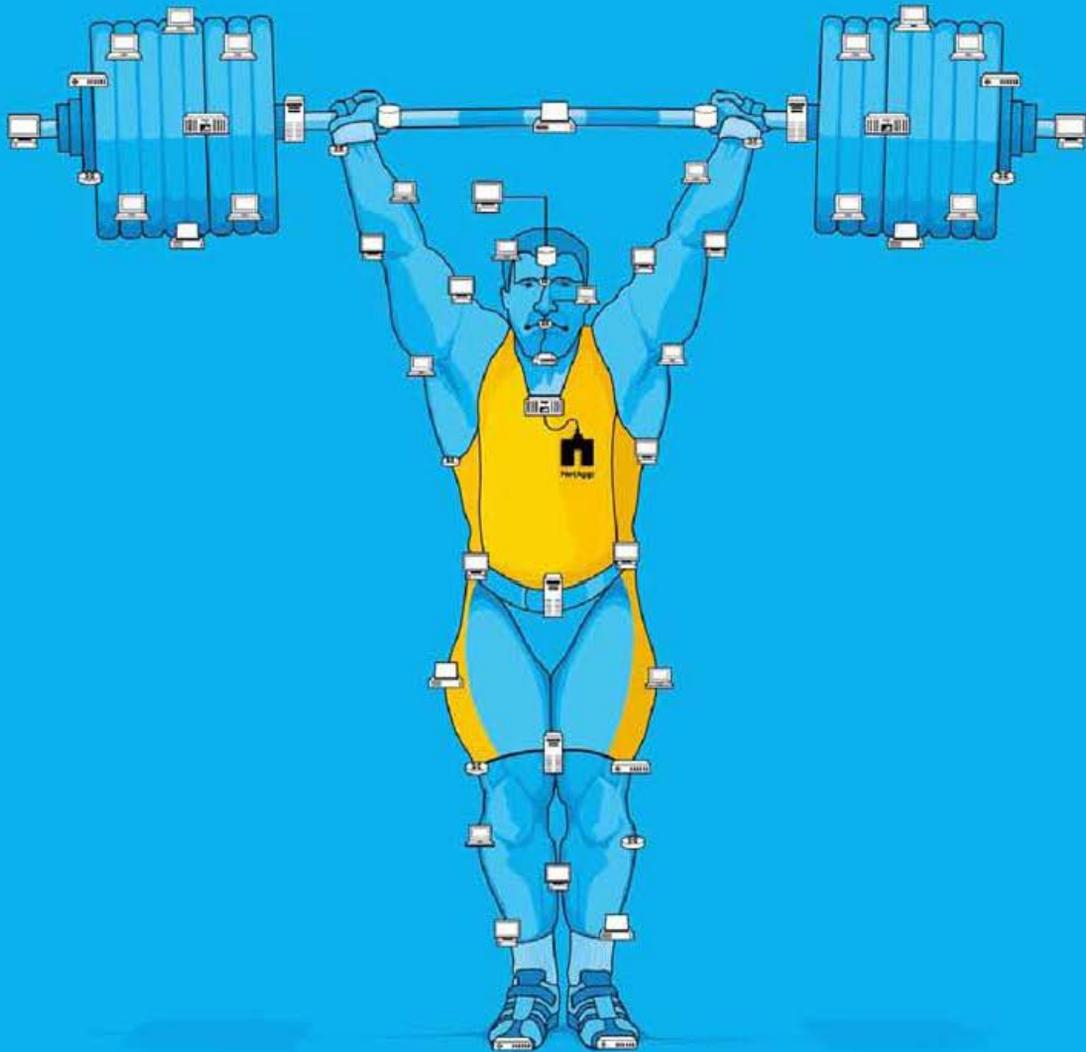


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