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# **20 FEATURES** WINDOWS SHOULD HAVE

...and how to get them!



Long Lenses, Low **Prices: The Top** Megazooms p.101

**Exclusive Tests:** Cheap vs. Pricey Printer Ink p.92



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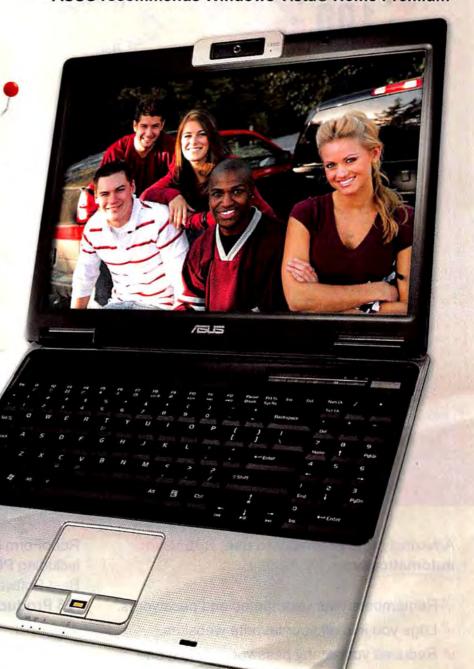
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ASUS recommends Windows Vista® Home Premium

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#### » FEATURES

#### 80 20 Features Windows Ought to Have (And How to Get Them)

Linux, Mac OS X, and other OSs sport some cool functions that Windows has never offered. But with the help of outside tools, you can add such features, in a flash.

#### 92 Cheap Ink: Will It Cost You? Printer manufacturers say their inks are the only safe ones to use; third-party vendors say theirs are just as good for a fraction of the cost. Our tests sort out the truth.

#### 101 Dawn of the Megazooms

High-optical-zoom digital cameras, known in some quarters as megazooms, are great alternatives to pricey single-lens reflex models. We looked at the current crop to help you find the best one.



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EDITORS Edward N. Albro, Ramon G. McLeod MANAGING EDITOR Kimberly Brinson ART DIRECTOR Barbara Adamson **EXECUTIVE EDITOR** Alan Stafford



#### CONTACT INFORMATION

415/243-0500

415/442-1891

E-MAIL: letters@pcworld.com

MAIL PC World Editorial 501 Second St. #600 San Francisco, CA 94107

STAFF E-MAIL ADDRESSES: To contact any PC World staff member, simply format the address as follows:

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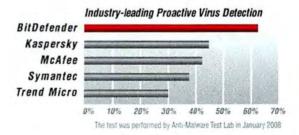
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# Jim Curtis just stopped a vicious malware attack... between bites.

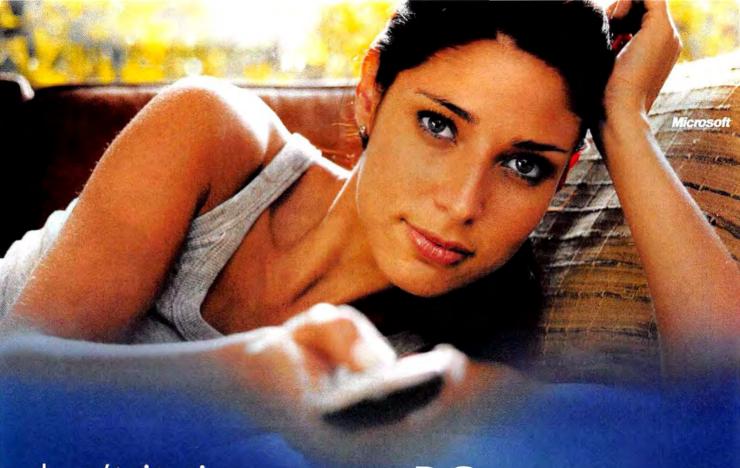


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# Isn't it time your PC got to know your TV?





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# Windows, Mac, or Linux: It's All PC to Me

THIS MAY SOUND heretical coming from a PC World editor, but I don't care what kind of computer I use. As long as it's fast and can run a modern OS, one PC is about the same as another to me.

I realize that being platform-agnostic puts me in the minority. In fact, the devotion of hard-core users to one operating system or another has seldom been more evident than while I was working on this month's cover story, "20 Features Windows Should Have (And How to Get Them)," which you can find on page 80.

In pointing out that other OSs have some great features that Windows lacks, I inadvertently stepped on a whole lot of toes. Minutes after my initial post on this topic at PCWorld.com, our forums heated to a boiling point, with Windows and Mac users blazing away at each other-and at me. Even Linux devotees jumped into the mix.

OS allegiances are nothing new, of course. There was a time when I would have sooner smelted a Mac for the metWith all three major operating systems now sharing a single hardware platform, it's time to call a truce in the OS wars.

als it contained than booted it up and used it. And though I've been fascinated with Linux since I first installed it in 1994, I began to find it truly dependable only a few years ago.

But the world of PCs is evolving. Linux has been a mainstay in server rooms for years, and is now seeing commercial success on consumer systems, too-particularly on subnotebooks. Meanwhile, Apple switched to a Unix-based OS in 2001, and has been shipping systems with Intel processors since January 2006, letting users install any OS of their choosing on their Mac. So from a hardware perspective, the difference between a PC and a Mac is now mostly a matter of branding.

#### Rise of the Underdogs

Judging by the latest data from Net Applications, which tracks tech market share, a clear trend is emerging: Linux

and Mac OS are gaining ground. As of this writing, Windows had dropped to about 91 percent of the market, down from more than 95 percent just two years ago. The Mac OS, meanwhile, grew from about 4 percent to nearly 8 percent. Linux is making small but meaningful gains on the desktop, rising from 0.38 percent to 0.68 percent.

While none of those numbers signify an impending shift in the OS pecking order, a look at the historical marketshare chart reveals a fairly constant, steady progression in which Windows surrenders slightly more of the pie to its rivals month after month.

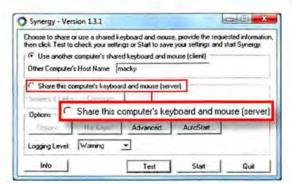
For users-even those who work only with Windows-the gradual uptick in market share for alternative operating systems has been a good thing. The competitive marketplace has spurred Microsoft to improve Windows' security, while innovation in Linux and the Mac OS has fostered a demand for increasingly advanced features in Windows. Some of those additions have come from Microsoft directly, while others have been created by third-party developers-and many of them are showcased in this month's cover story.

Even if you can't stand Windows Vista, most of the new features that Microsoft has integrated into the OSranging from Aero and Flip 3D to Photo Gallery and Windows Calendar—go to demonstrate beyond a doubt that Microsoft is responding to pressure from outside competition. And if the early buzz surrounding Windows 7 is any indication, that pressure isn't likely to let up anytime soon.

Senior Editor Robert Strohmeyer oversees PC World's how-to coverage.

#### PICK OF THE MONTH

IF, LIKE ME, you have multiple PCs with different operating systems running side by side on your desk, you're probably tired of all the keyboards and mice cluttering up your workspace. With a freebie called Synergy (find.pcworld. com/60972), you can kiss most of those input devices good-bye and



CONTROL SEVERAL PCs from one keyboard and mouse.

use the keyboard and mouse from one PC to control the systems around it, even across platforms. So you can work on your Windows PC, move the mouse pointer off the edge of the screen, and watch it appear on your Mac or Linux box (or another Windows computer) as your keyboard and mouse take control of the other machine. On my desk, Synergy is controlling all three of my systems, which run Vista, Leopard, and Ubuntu.



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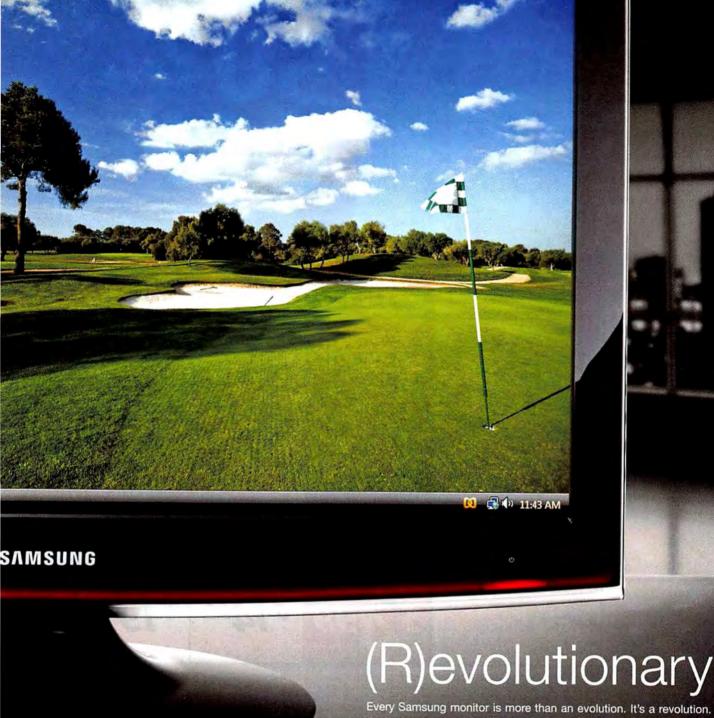
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# **PCW Forum**

Our review of Ubuntu Linux 8.04 caused a splash. Some readers have switched from Windows and even revived old hardware with it. Others found the installation 'unsatisfactory'. Tell us what you think of 'Hardy Heron' by going to find.pcworld.com/ 60950 and clicking 'Comment'.

#### Ubuntu Linux 'Hardy Heron'

I read "New Ubuntu Version Is Improved Under the Hood" by Neil McAllister [Forward, June] with interest. Installing Ubuntu into one Windows Folder using Wubi is a great idea, but it left my hard drive very fragmented. This made the installation unsatisfactory. Thankfully, the uninstalling went smoothly, and now I have a computer that functions at optimum capacity.

Tom Holland, Savannah, Georgia

I purchased a new computer that came preinstalled with Vista. I now use Ubuntu the majority of the time. Thank you for bringing this wonderful operating system to my attention.

Roger C. Nelson, Atlanta, Georgia

I'm really excited to see this version, especially because of the installation. No need to repartition your drive or anything, and then you can just uninstall it like any other Windows application. Pretty amazing if you ask me.

zboner, from the PC World forums

The real news here is just how mature an OS Ubuntu has become. With Windows Vista being the disappointment it is, and with news of Dell going outside

its normal channels to continue distributing XP, perhaps now more people will consider Ubuntu as a real alternative. It's a robust operating system, and it's cost-effective too-often breathing new life into hardware that in reality isn't obsolete when you get right down to it. Just because an older machine won't run that obese monstrosity known as Vista doesn't mean it's time to throw it in the eWaste pile.

Ninaaoki, from the PC World forums

#### Subscription Renewals

I have solved the problems of subscription renewals ["Take the Sting Out of Subscription Services," Consumer Watch, June]. I have a credit card that uses FIA Card services. This card lets me create a temporary card number and specify a dollar limit and expiration date. I always get e-mail notices near the end of a subscription telling me my card has expired, so I can decide if I want to renew.

Bill Runkle, Glendale, Arizona

#### **UAC Nails Rootkits**

I just read "Vista's Despised UAC Nails Rootkits, Tests Find" [find.pcworld.com/ 60949], and I must say it makes me feel good about my decision to leave UAC [Microsoft's User Account Control] always turned to on! And UAC's prompts have never bothered me one bit.

Adama, from the PC World forums

The rootkit test described in this article succeeded because it involved computer professionals testing a known issue. The average user, however, would very likely allow these rootkits to go right on through, even with UAC.

Stpbw, from the PC World forums

#### 10 Most Annoying Habits of Technology Companies

[find.pcworld.com/60947 and July] It's annoying to visit a "Support" site that dumps you into a forum with other people with the same problem. That is not support; rather, that is a company that doesn't want to pay for support.

Free2speak, from the PC World forums

I thought I was the only one who considered Newegg's boxes too big! And the product sits on top of the packing

UAC is about as useful as my TV asking me if I'm sure I want to change the channel. RNR19952, from the PCW forums

material, with nothing between it and the top of the box. Talk about asking for something to be broken!

Kilme, from the PC World forums

If vendors didn't get millions of dollars from companies to install this junk, your \$600 laptop would cost you \$900. Is it worth the extra savings?

George 1979, from the PC World forums

#### **Identity Theft**

Your article on identify theft protection was excellent, albeit distressing ["Identity Protectors: Who Can You Trust?" June]. Here I was, tiptoeing through the tulips, thinking that LifeLock

## **PCW Forum**

had me covered. However, as you say, following the 12-step do-it-yourself ID theft defense program would require time and effort-so much so that it's too daunting for many people. For the time it would take to follow the DIY program, I might be able to pay for your top-rated Identity Guard. Thanks for a very informative analysis.

Ellen Camner, Fairfax County, Virginia

Some services for the protection of your identity can be found on the Net

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for free. You must be aware of what they are doing and also be aware of their surroundings. No one product will protect your identity 100 percent.

Yourjoemo, from the PC World forums

#### **Trusting Health Records to** Google and Microsoft

Should I trust my health records to Microsoft [Privacy Watch, June]? Yeah, right! With Ballmer's "Yahoo Ultimatum" fresh in my mind, and the Vista fiasco? Or WGA validation and activation? Baby, these dudes are straight out of George Orwell's 1984!

Mine, 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 (find.pcworld.com/55165). Send email to letters@pcworld.com.

#### CORRECTIONS

IN JUNE'S "Macs Can Fit Well in Your PC-centric Office" (Business Center), we should have said that Keynote is part of Apple's iWork suite, not part of iLife.

June's Skeptical Shopper column on unlimited cell phone voice plans should have noted that people who use DSL for broadband no longer need a landline to receive voice service, as many phone companies now sell DSL service that isn't tied to voice-call service.

In July's "46- and 47-Inch HDTVs: Spend Less, Get More" (Reviews and Rankings), the chart should have said in the specs column that the Vizio VO47F does have primary color controls.

PC World regrets the errors.

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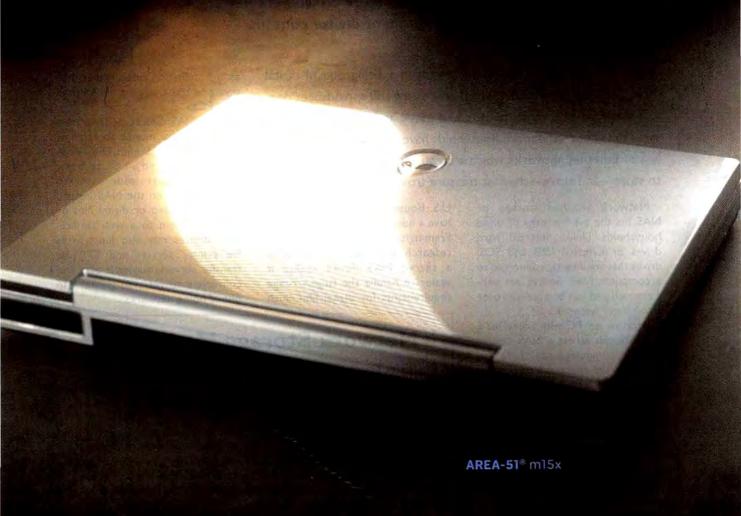
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# FILE THIS: NAS at Home

Network Attached Storage is becoming a household name as more consumers find the need to store vast amounts of digital content.

onsumer PC users are awash in a rising tide of digital content, including word processing and spreadsheet documents, digital photos, and music and video files. At the same time, more and more households have multiple PCs and wireless or Ethernet networks, which is creating demand for better ways to store—and share—the vast treasure trove of digital information.

Network attached storage, or NAS, fits the bill for many of these households. Unlike internal hard drives or external USB and SCSI drives that are directly connected to a computer, NAS devices are self-contained and can be accessed over a computer network.

Because any PC with access to a network can access a NAS device, multiple computers can share the same storage space simultaneously. And because these systems operate on their own power with an embedded operating system, they don't need a host PC to be powered up in order to function.

Consumers are storing an increasing amount of video content generated by portable digital devices, recorded with a TV turner, or downloaded from the Internet. "As these households accumulate an ever-growing amount of digital content, they will seek solutions to store, archive, and back up such content at a central location," says market research firm Park Associates.

By the end of 2012, two-thirds of

U.S. households are expected to have a home network, according to Framingham, Mass.-based market research firm IDC. So utilizing a shared NAS device makes it easier to handle the large storage requirements for digital files, such

as high definition video, rather than trying to track down a file on multiple PCs.

Some NAS devices incorporate a web server that may be accessed by remote family or friends. This allows you to simply send a URL to family and friends that leads them to images stored on the NAS instead of emailing video or digital files or uploading them to a web service. NAS devices may also function as file printer servers and FTP file transfer servers, making it easy and convenient to get even greater use out of home networks.

### **Network Storage Made Easy**

**Buffalo Technology,** a leading worldwide provider of innovative network solutions for the home and business, and the global leader in consumer network storage products, takes an innovative approach to shared network storage.

That approach is evident in its LinkStation family of network attached storage devices featuring a rich library of applications, including backup software, built-in DLNA media servers and USB print servers. In an age of resellers and contract manufacturing, it's refreshing to find a company that still does all its own development, engineering and manufacturing.

Buffalo has created a Web Access feature that makes it easy to access your files through a web browser. Plus, the systems can be upgraded after purchase with new applications as they become available.

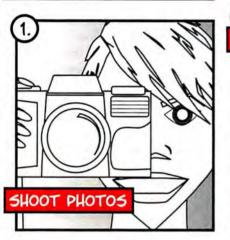
Incorporating blazing fast Serial ATA drives and featuring gigabit Ethernet connections, Buffalo's NAS products are ideal for homes and

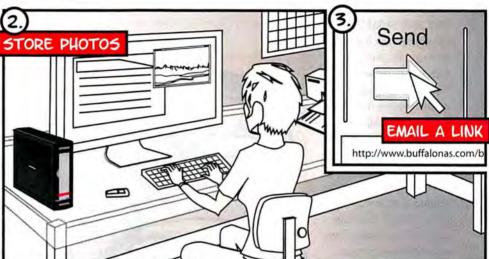
small offices that need easy-touse centralized storage for photos, music and videos, as well as the ability to play them back from anywhere on the network.





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# ILLUSTRATION: DOUGLAS FRASER

# Forward

# Olympics Video: Streaming to a PC Near You

MELISSA J. PERENSON

THE 2008 SUMMER Olympics, which begin on August 8, will captivate audiences worldwide: No other sporting event captures the spirit of sportsmanship and athleticism quite like this quadrennial gathering. But the Olympics can be a source of frustration for remote watchers: A complex schedule that mimics a 14-ring circus often makes following your favorite sports difficult. That is, until now.

**NBC** Universal hopes to transform your Olympics viewing experience via an ambitious Web strategy that includes more than 2200 hours of live streaming video (with the option of viewing up to four streams at once) and interactive data to help you move smoothly between text such as athletes' biographies and video of their performance.

#### Seeds Planted in 2006

Besides streaming live video, NBC plans to post some 3500 hours of recorded video online at the conclusion of each event, for the duration

NBC plans to take streaming video to new heights with its detailed, wide-ranging Web coverage of this summer's Olympic Games in Beijing, China.



of the Olympics. Previously, NBC's only streaming-video presentation during an Olympics was a single hockey game, which it streamed live during the 2006 Winter Games in Torino, Italy.

"We're delivering more video content for this Olympics than in the last three Olympics combined," says NBC's Perkins Miller, senior vice president of NBC Sports and Olympics. The

goal, he says, is to deliver "the most complete Olympics possible," in part by paying closer attention to sports that previous broadcast coverage typically ignored.

All of the digital content will be available at no cost, but it will be accessible only to viewers in the United States. By the terms of NBC's deal with the International Olympics Committee, its Web streaming rights mirror its broadcast rights, which are limited to the United States.

#### Viewing Online: What to Expect

NBC's media playerbased on Microsoft's Silverlight technologysupports three interactive modes: Enhanced. Live Control Room, and Popup. Enhanced mode is playable in wide-aspect ratio, at full screen (1060 by 600 pixels) or at small screen (848 by 480 pixels).

The player will use the highest bit rate that your PC allows-up to 650 kbps for live events and up to 1.5 mbps for on-demand (that is, recorded) events, as determined by a combination of

Watch the Olympics online, and you'll see interesting new interactive features. But to get the best experience, read our tips for optimizing your hardware and your connection, at find.pcworld.com/60993.

your bandwidth, your PC's components, and your choice of live or ondemand video. Enhanced mode also gives you access to extra features like expert commentary and live blogging that will appear in an accompanying text window-a handy option if you are catching the competition while at work and can't listen to the audio action.

"Our research [shows] that everybody is diving for the mute button when the video comes up, so we tried to integrate that into our design," says NBC's Miller.

Live Control Room mode may be the most appealing option for true Olympics junkies. It lets you view up to four live streams of video at once, via one primary window and three smaller picture-in-picture windows. The primary video in this mode is presented at 320by-176-pixel resolution, with a 350-kbps video stream; picture-in-picture views are presented at 128by-96-pixel resolution, with a 50-kbps video stream.

Presenting multiple simultaneous video streams in the Live Control Room is a twofold technical challenge, says Matthew Rechs, chief technology officer at Schematic, the company that built the NBC player and that has also worked on presenting interactive content on HD DVD movie discs. "When we have multiple video images on the same screen, we have to add up the bit rates to see how much bandwidth it will take to display all of that video simultaneously, with-



IN THE NBC player's Enhanced mode, you can read expert commentary and monitor live blogging feeds associated with the video in text windows.

out impacting the system's performance," says Rechs. "You want to intelligently manage the total bandwidth available and distribute that across the various images. There are different modes for video playback, and each mode has different bit rates available to it."

The third mode, Popup. has a smaller interface that you can keep next to open work documents while you are at the office. The basic Popup player runs at 592by-336-pixel resolution, with a 650-kbps stream for live events and a 1.1-mbps stream for on-demand events.

Silverlight's ability to handle text data and video helps the NBC player break with the standard design of media players that display video in your browser window. For example, with YouTube, you have a media player in one quadrant of the browser and supplemental info in other quadrants; the sections are not necessarily integrated or tied together. "Silverlight will make the player look more like a TV experience, and less like a data experience," Miller promises.

With the NBC Olympics

player, the user interface leaves the Web browser window and enters the player itself, as navigation icons and extra content

appear within the player window. You can obtain additional info-for example, athlete biographies tied to the competition you're watchingfrom within the player.

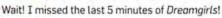
In all, eight video streams will be available for live video and six for on-demand video. And according to Rechs, the possible player and video stream permutations are so numerous that video

can't be encoded natively for each scenario; instead, a video stream may be delivered at a resolution different from the one that the

#### PLUGGED IN ALAN STAFFORD



STAPLES BRINGS BACK the selfdestructo DVD: Crack the seal, and you have 48 hours to watch the movie.







COMCAST THROTTLES HEAVY users' bandwidth: For now, it's enforced only in parts of Pennsylvania and Virginia, but it

may spread. Hey, that's Commcaaaaastic.





RIAA AND MPAA are behind denialof-service attack against legitimate online video company: Apparently,

they think it's illegal to share your own stuff.





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not looking at a screen will be the barista.





DELL FOUND GUILTY: Charges included fraud, false advertising, deceptive business prac-



tices, abusive debt collection. Dude, you're getting hosed!



AT&T UPGRADES ITS 3G WIRELESS NETWORK: Download speeds for mobile data now approach 1.7 mbps.

First-generation iPhone users: not for you!



## Forward

playback window is designed to use. "In these cases, we are shrinking or stretching the video slightly at playback time, but we have done extensive testing to ensure the integrity of the video image," says Rechs. The Silverlight player will automatically pick the right stream to present, given your bandwidth and your viewing choice.

According to NBC, the video available for playback will hail from a mix of sources, including feeds from the International Olympic Committee's international pool of broadcasts, NBC's cameras, and NBC's studio commentary operations in Stamford, Connecticut, and at its New York City facilities.

Though the player application was still under develop-



NBCOLYMPICS.COM WILL POST highlights from a wide range of Olympic events on its Web site at the conclusion of each round of competition.

ment two months before the start of the Games, NBC officials described some of the more-impressive plans for the project. After a competition concludes, for example, you'll be able to click on the name of an athlete listed in the competition results and then view the athlete's performance at your leisure.

"We're assigning metadata

with all of the video, so as the athletes perform, we're syncing up the metadata of their results with the time code of the video," says Miller. For example, while watching a recorded gymnastics video, you'll be able to navigate to the winning moment even while scrolling through athletes' biographies or through competition results. The same approach will be used to assemble the on-demand reels of highlights.

Naturally, NBC's hopes that these digital highlight reels-along with expanded profiles of the athletes-will attract new viewers to these sports, as well as encouraging fans to tune in to more coverage online or on TV.

Given the immense scale of this project, NBC has taken various precautions with regard to server infrastructure to ensure that it's prepared to handle the anticipated load of online viewers. "We've spent a great deal of time with Microsoft and their networking teams, since they're hosting our video," says Miller.

#### Mobile Streaming Video Planned

Access to NBC's multimedia streaming won't be limited to desktop PCs. NBC will have a dedicated live-streaming mobile channel, NBC-to-Go, that will carry feeds from NBC's television networks. However, the channel will be available only on AT&T cellular phones. Don't have an AT&T phone? Then you won't be able to watch live feeds-but you can access video highlights of various events via a WAP (Wireless Access Protocol) version of NBCOlympics.com on any WAP-enabled cellular phone.

Also in the works as of press time: NBC Olympics On-the-Go, which is designed to enable you to take prerecorded video content with you for viewing on your laptop when you travel.

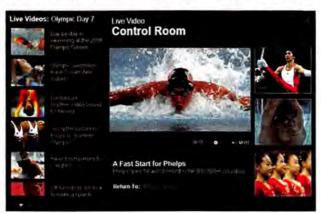
#### SYSTEM REQUIREMENTS

### Beefy Broadband Needed for Olympics Viewing

WANT TO ENJOY the Olympics online? You'll need a broadband pipe that's big enough to meet the demands of NBC's Silverlight video player. According to Schematic, which designed the player for NBC, the Popup mode (a small pop-up screen that coexists with your spreadsheets and Word docs) will require a 512kbps broadband connection plus either a PC with a 2.4-GHz Pentium 4 CPU

and 512MB of RAM or an Intel-based Mac PC.

The player's Enhanced mode and Live Control Room mode-for viewing content and multiple video feeds, respectively-require a 768kbps broadband connection, a spec that lies



THE PLAYER'S LIVE Control Room mode, which can display up to four video feeds, will require a 768-kbps broadband connection to view.

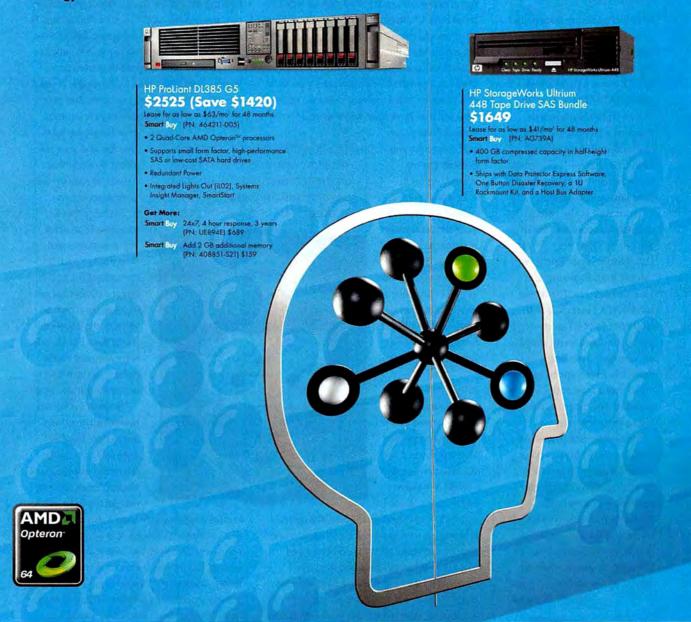
beyond the reach of many lower tiers of DSL and even some cable broadband services. To use these modes, you must also have a PC equipped with a 3.2-GHz Pentium 4 processor and 1GB of memory, or an Intel-based Mac.

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\*Based on IDC, Worldwide Quarterly Server Tracker, February 2008. In calendar 4Q07, IDC reported worldwide HP ProLiant server shipments at 681.445 units, well ahead of Dell PowerEdge's 499,715 units at #2. IDC also reported ProLiant factory revenue at \$2,743 million vs. \$1,580 million for Dell's PowerEdge family. Prices shown are HP Direct prices; reseller and retail prices may vary. Prices shown are subject to change and do not include applicable state and local taxes or shipping to recipient's address. Offers cannot be combined with any other offer or discount and are good while supplies last. All featured offers available in U.S. only. Savings based on HP polished list price of configure-to-order equivalent (\$3945 - \$1420 instant savings = SmartBuy price of \$2,555.1. Financing available through Hewlett-Packard Financial Services Company (HPFS) to qualified commercial customers in the U.S. and subject to credit approval and execution of standard HPFS documentation. Prices shown are based on a lease of 48 months in terms with a fair market value purchase option at the end of the term. Rates based on an original transaction size between \$3,000 and \$25,000. Other rates apply for other terms and transaction sizes. Financing available on transactions greater than \$349 through July 31, 2008. HPFS reserves the right to change or cancel these programs at any time without notice. AMD, the AMD Arrow logo, AMD Opteron, and combinations thereof are trademarks of Advanced Micro Devices, Inc. © 2008 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

# Samsung to Ship Fast SSD Drive

SAMSUNG Electronics plans to launch a flash-memorybased solid-state disk (SSD) drive this year that has a 256GB capacity and a highspeed SATA II interface. The drive's dimensions match those of a standard 2.5-inch (and 9.5-millimeter-thick) hard-disk drive; it's designed to be a drop-in replacement for a laptop hard drive.

Samsung's is the second recently announced 256GB SSD drive. The other, from U.S.-based Super Talent, is thicker than Samsung's, at 12.5 millimeters. That drive has a SATA I interface with read speeds of 65 megabits per second and write speeds of 50 mbps. Samsung's SSD drive has a read speed of 200 mbps and a sequential write speed of 160 mbps, according to the company.

Solid-state disk drives use flash memory chips in place of the spinning magnetic disks that hard-disk drives use. The chips make the drives sturdier and (typically) faster, but the per-gigabyte cost is much higher, too. The Samsung drive should appear by the end of the year. -Martyn Williams



SAMSUNG'S next solid-state disk drive will connect via SATA II.

### GADGET FREAK DAN TYNAN

# Living the Well-Connected Life

I DIDN'T ATTEND prep school with the Kennedys or schmooze my way into high society. But these days I'm feeling extremely well connected, thanks to mobile devices like Amazon's Kindle e-book reader and the Dash Express GPS.

What's unique about these gizmos is that they maintain a constant Internet connection, so I don't have to load a browser, wait for a connection, and then hunt down information on a tiny

screen. They simply pull down data and present it to me when I ask for it.

In a few years, I believe, all mobile devices will be constantly connected. But I hope that the manufacturers of those devices will take appropriate steps to avoid some of the kinks found in the Dash Express and the Kindle.

#### Kindling Desire

Even voracious readers don't need a constant bookstore feed. So while you can use the WhisperNet connection of Amazon's Kindle (find.pcworld.

com/60997) to download e-books, the device's real value is as a mobile blog and news reader. You can subscribe to nearly 350 blogs and more than 30 newspapers and magazines readable on the Kindle, sans advertisements. But at \$1 to \$2 a month per blog and up to \$14 a month for selected articles from publications like the New York Times, the bill totes up fast.

The \$359 Kindle also functions as a mobile Internet browser, though Amazon makes almost no mention of this important feature. You can call up virtually any Web site (including ones that charge a subscription fee), but they don't always display well, and my connection was inconsistent and slow (your mileage may vary). When it did work, it was great.

#### Dashing Hope

Like the iPhone, the Dash Express GPS device (find.pcworld.com/60954) automatically logs on when you're near a Wi-Fi hotspot, but it uses a cell connection when you're not. Among other things, this two-way connection transforms your car into a real-time traffic gauge. If you run into a snarl, the unit transmits that data to the Dash servers, which swiftly recalculate

> how long it will take you and everyone else crawling along that stretch of road to reach your destinations.

In theory, this arrangement provides more-accurate realtime traffic data than the content from MSN Direct or ClearChannel. which depend on road sensors and historical traffic data. But the info is only as good as the number of Dash drivers on the road at one time.

The Dash's other big Net-centric feature is live search. Most GPS units rely on a static (and often woefully outof-date) "points of interest" database for info on

local restaurants and shops. Dash augments that content with Yahoo Local Search, so you can search for things like "sushi" or "contact lenses." But the results are hit or miss. For example, a search for "books" found 16 stores but missed a Barnes & Noble 3 miles from my home. On the Web, Yahoo Local displays 38 stores, including the Barnes & Noble near me.

It's too soon to tell whether the Dash is better than a standard GPS device. It will cost you \$399 plus \$10 to \$13 a month to find out.

Like most products on the front edge of technology, the Dash and the Kindle exhibit great promise, inconsistent execution, and high prices. But they lead toward a future in which we're all well connected-regardless of our pedigree.



Net-powered devices like the

Amazon Kindle and the Dash

wave in mobile gadgetry. But

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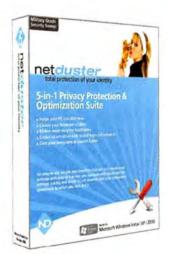
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## Forward

# How Can a New, Improved iPhone Be So Cheap?

WONDERING WHY the new iPhones are priced so much lower than the original versions were? The latest ("nextgeneration") iPhones, which come equipped with 3G and GPS capability as well as better battery life, sell for \$199 (for models with 8GB of memory) and \$299 (for models with 16GB of memory).

That's a \$200 discount from the most recent prices of previous-generation iPhones: \$399 for the 8GB version and \$499 for the 16GB version. And of course Apple charged \$599 for its top-of-the-line 8GB iPhone at launch more than a year ago-three times what the new 8GB model costs.

Price drops on technology products aren't unusual, but they are less frequent when new performance-improving features are added to the mix. However, experts say several factors are making the new low prices possible.

#### Price and Quality

Tina Teng, an analyst specializing in wireless communications for market research firm iSuppli, believes that



THE NEW iPhone's back will be made of plastic instead of metal.



Everyone knew that Apple planned to introduce an iPhone with mobile broadband support—but for less than \$200? Here's what's happening.

the 3G and GPS radios included in the new models probably did add cost to the new iPhone, but she points out that prices for other components (most notably memory) are declining.

According to Gartner vice president Ken Dulaney, even the iPhone's 3G radio technology likely costs considerably less now than it might have a year ago, since most companies that make chips for cell phones are converting to the faster technology anyway. Increased supply means lower prices.

Another factor that may be contributing to the lower costs of the new iPhones is Apple's willingness to introduce some cost-cutting design changes, including its decision to use plastic instead of metal on the phone's case. Will that decision significantly degrade the product's quality? At this writing, it's too soon to tell. "For users, what matters [are] the durability and the functionality," Teng says. "I'm sure [Apple] did a lot of stress tests to make sure the materials they are using now are still going to be durable."

#### More Than Just Hardware Sales

But Dulaney says that the price cut involves more than just manufacturing math, pointing to the intricacies of phone-sale subsidies. On the same day that Steve Jobs announced the updated iPhone, AT&T-which is the exclusive iPhone carrier in the United States-told investors how its 2007 deal with Apple would change. AT&T said that it would take an initial hit on revenues from sales of the 3G iPhones but hoped to reap increased profits down the line from data services offered to what the company anticipates will be a huge customer base.

Translation: AT&T is reverting to the traditional model for U.S. handset sales, paying Apple up front to keep

the cost of the iPhone down for consumers in order to get lots of customers to sign two-year deals. The carrier will pay Apple a subsidy for each phone sold, in order to bring the price of the hardware down. AT&T did not specify the amount of the subsidy, but subsidies of \$200 to \$300 are common in the cellular industry.

The new phone's data plan will cost individuals \$10 a month more than the original model's \$20, but the start price for business data plans will hold at \$45 a month.

The iPhone 3G requires buyers to sign a two-year service contract with AT&T, just as its predecessor did. Shiv Bakhshi, director of mobility research for IDC, predicts that Apple will recoup any drop in its own margins for device sales "(a) through volume, and (b) through services I think iTunes will offer." According to Jobs, the iPhone sold 6 million units during its first year.

This business model would not have been possible even a year ago, Bakhshi notes. "When the iPhone was launched, it was with one operator in one country. Now it's launching in 22 countries as a 3G phone, going to 70 countries by the end of the year."

The new iPhone ships July 11. Besides debuting in the United States, it will be available initially in much of Western and Northern Europe as well as in Australia, Canada, Hong Kong, Japan, Mexico, and New Zealand.

-Yardena Arar

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# nVidia Launches CPUs for Pocket-Size Computers

GRAPHICS GIANT nVidia has jumped into the chip business with a processor family called Tegra that will compete primarily against Intel's Centrino Atom chips, released in April. Tegra and Atom are designed to power mobile Internet devicespocket-size computers suitable for Web browsing and other activities.

"This is a complete computer on a chip. It has CPU, graphics, GPU-all the imaging and all the peripherals necessary to build a mobile Internet device," says Michael Rayfield, general manager of nVidia's Mobile Business group. Devices that require ultralong battery life, strong Web browsing, and high-quality video are likely candidates to use the chips, according to Rayfield.

Members of the Tegra line include the 800-MHz Tegra 650, the 700-MHz Tegra 600, and the APX 2500 for cell phones and smart phones.

The heart of a Tegra chip is its Arm11 processor core. The chip also contains a Ge-Force graphics core, a highdefinition video decoder, and other components, so it can perform functions normally carried out by several different chips.



THE TINY TEGRA will compete with Atom chips from Intel.

Since a single chip has all of these capabilities, system makers can produce smaller devices that use less power, for longer battery life.

To illustrate Tegra's spacesaving virtues, nVidia demonstrated an Asus Eee PC with its motherboard removed and replaced with a Tegrabased board measuring 43 millimeters square. The only other component that the computer needed to be fully functional was a battery.

The Arm processor core relies on a different set of instructions than do Intel x86 processors, so software written for a PC or laptop can't run an Arm-based computer. But Arm processors have long been used in mobile devices (including Apple's iPod Touch and Nokia's N800) and generally consume far less power than x86 processors, making them ideal for small, portable devices.

-Sumner Lemon

### BETA WATCH EDWARD N. ALBRO

#### Findhow: Search for Instructions

SOME PEOPLE THINK that they know how to do everything, but no one actually does. For those who are willing to admit their occasional ignorance, FindHow.com makes it easy to locate authoritative instructions on cars, careers, home improvement, relationships and other topics. All of the articles are from big-name brands-in some cases, the same companies that are selling you the stuff you need for your project. So far, there's virtually no help offered for tech projects on this free site. findhow.com

#### Slingpage: Link Sharing Evolved

WHY LIMIT YOURSELF to sending a link when you can send the whole page? That's the philosophy behind Slingpage, a browser toolbar that lets you send pages, annotated if you wish, to other Slingpage users. You can also set up a blog of sorts by making your choices of pages public. The free toolbar works only in Internet Explorer for now, and the requirement that the recipient must be a registered user limits the service's usefulness. Company officials say that they're working on fixing both drawbacks. slingpage.com

#### Scribd iPaper: PDF-Style Attachments

SCRIBD'S IPAPER IS an interesting solution, but I'm not sure whether there's a corresponding problem. When you send someone an e-mail attachment in a Microsoft Office, OpenOffice.org, or PDF format, you can add ipaper@scribd.com as a cc: line recipient.



WITH SLINGPAGE, INSTEAD of sending your friends a link to a page, you can send them the page itself—with your notes superimposed.

Your primary recipient will then get a second e-mail message that contains links they can click to view your attachments as iPapera sort of online PDF alternative. This arrangement could save your correspondents the trouble of a download, but iPaper documents are not editable and they aren't always faithful representations of the original. Oh well, at least it's free. scribd.com/ipaper@scribd



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# **Future** Clears for Cloud Gaming

CLOUD COMPUTING is a technique that harnesses the power of many computers to share the processing workload for tasks such as running Web-based Google apps and conducting cancer research. Now the cloud concept is scudding toward a new vicinity: games.

The Sci Fi Channel recently announced an agreement with new game publisher Trion World Network to create a cross-platform, cross-media entertainment franchise. The partners plan to develop a dynamic, connected video game franchise that Trion will publish and a TV show that the Sci Fi Channel will air. The platforms will share content and use the same fictional universe.

With an army of powerful PCs sharing the heavy lifting, a game can work well and look good on even a modestly powered laptopas long as you have a solid broadband connection.

Trion cofounder Jon Van Caneghem says that his fledgling company is developing games that will work on the PlayStation 3 and, probably, the Xbox 360. Though Trion's projects are unlikely to reach the market before 2009 at the earliest, its joint endeavor with the Sci Fi Channel could make for a very interesting new take on upcoming TV seasons.

-Darren Gladstone

### GEEKTECH TOM MAINELLI



### How to Build a Superfast, Superguiet PC, Part 2

LAST MONTH I discussed the death of my desktop computer and my desire to build a fast, affordable, and-most important-superquiet new PC. I discussed my choices for processor (Intel E8400), CPU cooler (Scythe Ninja Plus), motherboard (Gigabyte GA-P35-DS3L), and graphics board (ECS N8800GT). Total cost at the time of purchase (before \$60 in pending rebates): \$632. Now let's finish the build.

RAM: Should I buy 2GB of high-performance DDR2 1066 RAM, or 4GB of basic DDR2 800 RAM for roughly the same amount of money (\$70, ultimately). In the end, I went with 4GB of MWave RAM. Only 3.5GB of memory shows under System Properties, owing to the 0.5GB on my video card and to the way my operating system addresses memory. But that's plenty, and this PC could eventually see a 64-bit OS. so stocking up on RAM makes sense.

Hard drive: I briefly considered a 1TB drive, just for kicks, but settled on a more economical



500GB model instead. I'm a big fan of Western Digital's superquiet drives, which have never failed on me. I picked up the \$100 WD Caviar SE16, a SATA drive that carries a 16MB

cache; it appears on PCW's Top 10 Internal Hard Drives chart (find.pcworld.com/60733).

Chassis: So far I've upgraded with newer, faster, quieter parts. For the case, though, I decided not to mess with a good thing, and reused my Antec Performance P150 midsize tower with its 430-watt Neo HE power supply. These days,



Antec refers to this case as the Sonata Designer 500; it retains the Performance P150's quiet 120mm case

fan, its sounddeadening interior panels, and

its unique hard-drive quieting suspension system. The company has, however, added blue exterior accents and upgraded the power supply to a 500-watt EarthWatts version. Total cost: \$150.

Sound card and speakers: Even if you're happy listening to low-

A great desktop is only as good as the sum of its parts, so picking the right RAM, hard drive, sound card, and speakers is key.

bit-rate MP3s, you shouldn't settle for motherboard sound. For an outstanding audio experience, invest \$90 in Creative's Sound Blaster

X-Fi ExtremeGamer. and pump the sound out to something like Audioengine's A2 powered speakers. These \$199 gems





offer superb clarity and imaging, and powerful bass-all without a space-hogging subwoofer.

Optical drive: I'm not interested in purchasing a Blu-ray drive (not at their current prices, anyway), but I did want to get a new DVD-RW drive. I chose Lite-On's LH20A1L06 (\$40), the SATA cousin of the IDE-based Lite-On drive currently ranked third on PCW's Top 5 Internal DVD Drives chart (find.pcworld.com/60734).

Operating system: I have yet to install Vista on any PC in my house, and it won't go on this PC, either-for various reasons. For one thing, Windows XP works, Sure, it has a million patches, but for the most part it's stable, all of my hardware plays well with it, and I know it like the back of my hand. I have yet to hear a compelling reason to move to Vista, which has nagging driver issues and generates too many stories like that of PCW's own Jon Jacobi (find. pcworld.com/60735). XP it is (OEM pricing: \$135).

This round of parts cost \$784. With last month's total of \$632 factored in, the final cost is \$1416-not cheap, but not bad for the fastest, quietest, and best PC I've built to date.

#### CHECKLIST

RAM: MWave DDR2 800 (4GB)	
Hard drive: Western Digital Caviar SE16 (500GB)	
Chassis: Antec Sonata Designer 500	
Sound card: Creative Sound Blaster X-Fi Extreme	
Speakers: Audioengine A2 Desktop Speakers	
Optical drive: Lite-On LH20A1L06	
Operating system: Windows XP Pro (OEM)	\$135
TOTAL	\$784



## Forward

# **New Mini-Laptops and Mobile Internet Devices**

LOW-COST AND lightweight (2 pounds or so) mini-laptops great for Web browsing, e-mail, word processing, and similar tasks-will appear later this year. A slew of Taiwanese vendors unveiled models at June's Computex expo, but rival products from big brands like Dell are on the way, too. Many use Intel's

power-efficient Atom CPU along with solid-state disk (SSD) drives, for better battery life, boot times, and shock resistance. Visit find.pcworld.com/60995 for more information. Meanwhile, handheld mobile Internet devices (MIDs) will focus more on providing Internet from anywhere. -Danny Allen



#### Acer Aspire One

Though the \$399 (and up) Linux-based Aspire One arrives in July, you'll have to wait until August for the pricier Windows XP model. Both have an 8.9-inch (1024by-600-pixel) screen and either an 80GB hard drive or an 8GB solid-state drive.



#### MSI Wind U100

Available in white, black, or pink, the \$499 Windows XP-based Wind has a 10-inch (1024-by-600-pixel) display, an 80GB hard drive, a 1.6-GHz Intel Atom CPU, 1GB of RAM, and 802.11b/g Wi-Fi. A \$399 Linux-based model is due in late summer.



#### Asus Eee PC 1000

The largest of the Eee PCs boasts a 10.2inch (1024-by-600-pixel) screen, a 1.6-GHz Atom CPU, up to 2GB of RAM, and 802.11n Wi-Fi. The \$649 1000 model runs Linux and has a 40GB SSD drive: the \$699 1000H opts for XP and a 80GB hard drive.



#### Gigabyte M528 Mobile Internet Device

This Linux-based MID has a 4.8-inch (800-by-600-pixel) touch screen, a 4GB SSD drive, 512MB of RAM, and terrific connectivity: Bluetooth, Wi-Fi, HSDPA, and GPS. The M528 uses an 800-MHz Atom CPU and should cost \$800 if-if-offered here later this year.



#### BenO S6 Mobile Internet Device

BenQ plans to launch the S6 globally by midsummer, but it hasn't set pricing yet. Known specs to date: a 4.8-inch (800-by-480-pixel) touch screen, a 2-megapixel Webcam, Linux, support for Intel's Atom CPU, solid-state storage, Bluetooth, Wi-Fi, and HSDPA.

# Record Everything Your Employees Do On The Internet

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

#### **Internet Abuse is Costing Your Business**

Whether shopping, reading news, sports or gossip sites, gambling or visiting adult-themed web sites, when your employees are playing, they are NOT working.

Consider this: Employees waste MORE THAN 1 HOUR a day using office computers to play on the Internet. That translates to more than \$5,000 lost per year for each employee with Internet access.

How do you catch guilty employees who have perfected the art of stealing your company's valuable time?

#### Spector CNE Investigator to the Rescue

Monitor any employee anywhere on your network with Spector CNE Investigator. Now, every word they type, every click they make, every email, chat, instant message, every site they visit — all are recorded and saved into a tamper-proof location, for your review.

Unlike other overpriced filtering and blocking solutions, Spector CNE Investigator shows you everything they do, step by step, in exact visual detail. You have absolute proof that goes way beyond just knowing they visited a bad web site, because you see everything they did before, during and after that visit.

Imagine a video camera pointed directly at their desktop or laptop, filming away. That is what you get with the easiest, most powerful investigation software available today.

#### The Leader in Monitoring and Investigation Software

More than 50,000 businesses are actively using SpectorSoft solutions to crack down on Internet abuse by their employees, and saving thousands of dollars a month in lost productivity.

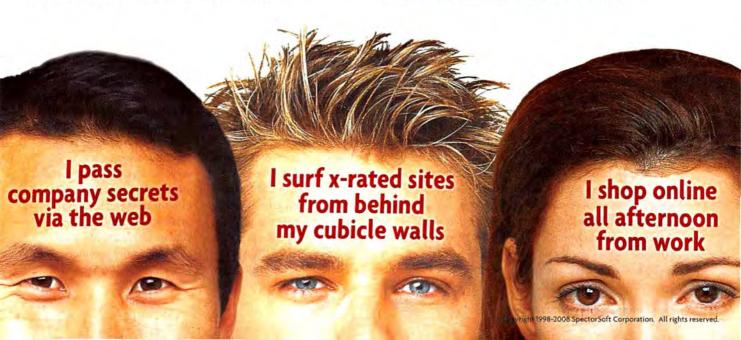
# **Spector CNE** Investigator

PC and Internet Monitoring Software

#### **Get Started Today!**

To learn more visit **SpectorCNE.com** or call us toll-free at **(888) 598-2788** 

Isn't it time you put an end to the Internet abuse that is harming your business?



## Forward

# Sony Embraces Cable-Without-the-Box Technology

SONY ELECTRONICS is the latest consumer electronics company to embrace Tru-2Way technology, which enables televisions, digital video recorders, and other devices to receive encrypted cable signals without the need for a set-top box. Sony joins LG Electronics, Panasonic, and Samsung, which had previously announced their support for Tru2Way.

Tru2Way is the successor to CableCard, which showed up on some TVs for a couple of years after its introduction but has virtually disappeared in the past year or so. Both technologies rely on a small PC Card-type module, which you obtain from your cable company and insert into the back of your TV or other device. CableCard allows only one-way communication: Devices that use it can't display program guides or receive on-demand programming-and as a result, cable companies didn't want to support it. In contrast, Tru2Way uses two-way communication to support those services, and the cable industry is on board.

Neither CableCard nor Tru-2Way yet works with satellite or fiber-optic television services, though the cable industry has said that it is open to making the technology available to companies providing those services.

Besides eliminating a cable box, Tru2Way lets vendors other than your cable company offer products that can unlock encrypted channels. Samsung began shipping a Tru2Way DVR in May, and

The consumer electronics giant puts its weight behind Tru2Way, which uses a small card in the TV to communicate with your cable provider.

Panasonic began shipping a portable DVR in July (initially only Comcast will offer the device; Panasonic says that its DVR will eventually be available in stores and will work with any Tru2Wayenabled cable system).

The TiVo Series 3 and TiVo HD digital video recorders use CableCards, which allow them to decrypt and record

vice president for government affairs, says that the company will have two Tru2-Way televisions in stores for the 2008 holiday season: a 42-inch plasma set and a 50inch plasma set. Both will be high-end, 1080p TVs, but Fannon expects Tru2Way to trickle down to other sets and other TV manufacturers.

"Now that there is certainty <hru2way>



cable programming. Jim Denny, vice president of product marketing for TiVo, confirms that existing TiVos won't work with Tru2Way cards, but he says that his company is "looking into" using Tru-2Way technology.

Since Sony is one of the largest television manufacturers, its acceptance of Tru-2Way could encourage other companies to embrace the technology. Sony declined to say when it would introduce Tru2Way-enabled products, however.

Peter Fannon, Panasonic

that the vast majority of cable customers will have access to a Tru2Way system, we can all build products that we can sell with confidence at retail," says Fannon.

LG Electronics demonstrated a Tru2Way television at the Consumer Electronics Show in January; its first implementation of the technology will likely be a TV due to arrive in 2009, says spokesperson John Taylor. As yet no other manufacturer has announced when it expects to offer Tru2Way TVs.

CableLabs, the cable indus-

try organization that developed Tru2Way, says that it has invited other companies to join the "memorandum of understanding" that LG, Panasonic, Samsung, and Sony agreed to; at press time, however, CableLabs had not released details of the agreement because other companies were still in the process of reviewing its terms.

Budget-TV maker Vizio isn't hopping on the Tru-2Way bandwagon yet. "Unlike Sony, Vizio is not going to endorse Tru2Way unless the cable industry can convince us that it will save our customers money and not just increase cable's profitability," says Vizio spokesperson Jim Noyd.

In the past, CableCard TVs cost hundreds of dollars more than comparable sets without the technology, but prices on TVs have plummeted in the past couple of years, so the premium may have shrunk. Of course, the greater the number of TV manufacturers that use the new tech, the lower the cost. "[Tru2Way] will certainly add to the cost," LG's Taylor says. "The question will be, will it add to the price?"

Panasonic's Fannon acknowledges that Tru2Way TVs will debut at a premium price, just as one-way Cable-Card models did a few years ago. "But we expect over a very short period of time, as more and more vendors get into the market, the competition will expand and the volume will increase," thereby reducing the premium.

-Alan Stafford



July/August 2008



# Ferrari 111717 Unique Innovation



Ferrari 1100-5457

- AMD Turion™ 64 X2 Dual-Core Mobile Technology TL-66
- Genuine Windows Vista® Ultimate
- Microsoft® Office Professional 2007 (60-day trial)3
- 4GB DDR2 667 SDRAM
- 250GB¹ hard drive
- Integrated slot-loaded Super-Multi drive (DVD+R, DVD-R, DVD-RAM)
- 5-in-1 card reader

- 12.1" WXGA (1280 x 800) TFT display, Acer CrystalBrite Technology
- ATI Radeon™ Xpress 1270 graphics
- Integrated Acer OrbiCam camera
- Dolby Home Theater®
- 802.11n WLAN, gigabit LAN, V.92 modem, Bluetooth®, Bluetooth® VoIP phone
- Wireless optical mouse
- Fingerprint reader
- One-year limited warranty<sup>2</sup>

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



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# Acer® Aspire® 5520



mpowering technology

#### Acer Empowering Technology

One touch of the Empowering Key and you can easily take control of your notebook's security, performance, settings and communications.

- AMD Athlon™ 64 X2 dual-core processor for notebook PCs
- Genuine Windows Vista® Home Premium
- 1GB DDR2 667 SDRAM
- 120GB1 hard drive
- Integrated Super-Multi drive (DVD+R, DVD-R, DVD-RAM)
- 5-in-1 card reader
- 15.4" WXGA (1280 x 800) TFT display, Acer CrystalBrite Technology
- NVIDIA® GeForce® 7000M graphics
- 802.11b/g WLAN, gigabit LAN, V.92 modem
- One-year limited warranty<sup>2</sup>



Acer Aspire 5520-5908 **\$569** 

AMD Athlon™ X2 Dual-Core Processor for Notebook PCs TK-55
Genuine Windows Vista® Home Premium
(LX.AJ70X.027)









#### Acer X263Wbi

- 25.5" wide-screen TFT LCD
- 1920 x 1200 maximum resolution
- 3000:1 dynamic contrast ratio
- 170° horizontal viewing angle
   160° vertical viewing angle
- VGA, HDMI (HDCP) signal connectors
- 350 cd/m<sup>2</sup> brightness
- 5ms gray-to-gray response time
- Internal power adapter
- Three-year limited warranty

#### Acer B243W bdr

- 24" wide-screen TFT LCD
- 1920 x 1200 maximum resolution
- 3000:1 dynamic contrast ratio
- 160° horizontal viewing angle
- 160° vertical viewing angle
- VGA, DVI (HDCP) signal connectors
- 400 cd/m² brightness
- 5ms response time
- · Internal power adapter

#### • -5° ~ 15° tilt

- 35° swivel
- · 110mm height adjustment
- 90° pivot
- Detachable foot stand
- . Three-year limited warranty

#### \$399

(ET.FB3WP.001)

#### Acer V223 Wbd

- 22" wide-screen TFT LCD
- 1680 x 1050 maximum resolution
- 2500:1 dynamic contrast ratio
- 170° horizontal viewing angle
- 160° vertical viewing angle
- VGA, DVI (HDCP) signal connectors
- 300 cd/m1 brightness
- . 5ms response time
- Internal power adapter
- Three-year limited warranty

\$249

(ET.EV3WP.001)

(ET.GX3WP.001)

# Acer® Aspire® 7520

- AMD Turion™ 64 X2 Dual-Core Mobile Technology
- Genuine Windows Vista® Home Premium
- 2GB DDR2 667 SDRAM
- 250GB¹ hard drive
- Integrated Super-Multi drive (DVD+R, DVD-R, DVD-RAM)
- 5-in-1 card reader
- 17.0" WXGA+ (1440 x 900) TFT display, Acer CrystalBrite Technology
- NVIDIA® GeForce® 8400M graphics
- 802.11b/g WLAN, Bluetooth®, gigabit LAN, V.92 modem, integrated webcam
- One-year limited warranty<sup>2</sup>







#### Acer QuickCharge

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

**AMD** 



#### Acer DASP

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



#### 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.



#### 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 Aspire 7520-5907 **\$939** 

AMD Turion™ 64 X2 Dual-Core Mobile Technology TL-60 Genuine Windows Vista® Home Premium (LX.AM40X.151)



# Acer® LCDs



#### Acer B223W bdmr

- 22" wide-screen TFT LCD
- 1680 x 1050 maximum resolution
- 2500:1 dynamic contrast ratio
- 170° horizontal viewing angle
- 160° vertical viewing angle
- Two 1.0W integrated speakers
- VGA, DVI (HDCP) signal connectors
- 300 cd/m<sup>2</sup> brightness
- · 5ms response time
- Internal power adapter
- -5° ~ 15° tilt
- 35° swivel
- 110mm height adjustment
- 90° pivot
- · Detachable foot stand
- Three-year limited warranty<sup>2</sup>

#### \$269

(ET.EB3WP.002)



#### Acer B203W bdmr

- 20" wide-screen TFT LCD
- 1680 x 1050 maximum resolution
- 2500:1 dynamic contrast ratio
- · 160° horizontal viewing angle
- 160° vertical viewing angle
- Two 1.0W integrated speakers
- VGA, DVI (HDCP) signal connectors
- 300 cd/m2 brightness
- 5ms response time
- Internal power adapter
- -5° ~ 15° tilt
- 35° swivel
- 110mm height adjustment
- 90° pivot
- Detachable foot stand
- Three-year limited warranty<sup>2</sup>

#### \$249

(ET.DB3WP.002)



#### Acer B193 bdmh

- 19" TFT LCD
- 1280 x 1024 maximum resolution
- 2000:1 dynamic contrast ratio
- 160° horizontal viewing angle
- 160° vertical viewing angle
- Two 1.0W integrated speakers
- VGA, DVI (HDCP) signal connectors
- 300 cd/m<sup>2</sup> brightness
- · 5ms response time
- Internal power adapter
- -5° ~ 15° tilt
- 35° swivel
- · 80mm height adjustment
- Three-year limited warranty<sup>1</sup>

#### \$249

(ET.CB3RP.002)



#### Acer B193W bdmh

- 19" wide-screen TFT LCD
- 1440 x 900 maximum resolution
- 2000:1 dynamic contrast ratio
- 160° horizontal viewing angle
- 160° vertical viewing angle
- 160° Vertical Viewing angle
- Two 1.0W integrated speakers
   VCA DVI (NDCR) signal segments.
- VGA, DVI (HDCP) signal connectors
- 300 cd/m² brightness
- 5ms response time
- Internal power adapter
- -5° ~ 15° tilt
- 35° swivel
- 80mm height adjustment
- Three-year limited warranty<sup>2</sup>

#### \$229

(ET.CB3WP.002)



#### Acer V193 b

- 19" TFT LCD
- 1280 x 1024 maximum resolution
- . 2000:1 dynamic contrast ratio
- 176° horizontal viewing angle
- 176° vertical viewing angle
- VGA signal connector
- 300 cd/m² brightness
- 5ms response time
- Internal power adapter
   Three-year limited warranty



(ET.CV3RP.001)



#### Acer V193W b

- 19" wide-screen TFT LCD
- 1440 x 900 maximum resolution
- 2000:1 dynamic contrast ratio
- 176° horizontal viewing angle
- 176° vertical viewing angle
- VGA signal connector
- 300 cd/m' brightness
- 5ms response time
- Internal power adapter
   Three-year limited warranty
- \$199

(ET.CV3WP.002)

# Acer® Aspire® 4530

- AMD Athlon™ X2 Dual-Core Processor for Notebook PCs
- Genuine Windows Vista® Home Premium
- Microsoft<sup>®</sup> Office Home & Student 2007 (60-day trial)
- 2GB DDR2 667 SDRAM
- 120GB¹ hard drive
- Integrated Super-Multi drive (DVD+R, DVD-R, DVD-RAM)
- 5-in-1 card reader
- 14.1" WXGA (1280 x 800) TFT display, Acer CrystalBrite Technology
- NVIDIA® GeForce® 9100M G graphics
- 802.11b/g WLAN, gigabit LAN,
   V.92 modem, integrated webcam
- One-year limited warranty<sup>2</sup>



Acer Aspire 4530-5267 **\$599** 

AMD Athlon<sup>®</sup> X2 Dual-Core Processor for Notebook PCs QL-60 Genuine Windows Vista<sup>®</sup> Home Premium (LX.AREOX.048)



#### 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 CrystalBrite

A technology that delivers enhanced video performance for brilliant images, making it ideal for sophisticated applications such as HDTV and digital games.

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





# Acer® Veriton® L410

AMD Athlon™ X2 dual-core processor

Genuine Windows Vista® Business or
 Genuine Windows® XP Professional

1GB DDR2 SODIMM

• 160GB1 SATA hard drive

 Super-Multi drive (DVD+R, DVD-R, DVD-RAM)

• ATI Radeon™ Xpress 1250 graphics

• 802.11b/g WLAN, gigabit LAN

• USB keyboard and mouse

• 2.4" W x 9.8" D x 7.9" H

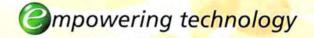
One-year limited warranty<sup>2</sup>



Display sold separately.

#### Acer Veriton L410 \$499

AMD Athlon<sup>™</sup> 64 X2 4200+ dual-core processor Genuine Windows Vista<sup>®</sup> Business Microsoft<sup>®</sup> Office Professional 2007 (60-day trial)<sup>3</sup> and CD with Genuine Windows<sup>®</sup> XP Professional<sup>4</sup> (VL410-UD4201C) or Genuine Windows<sup>®</sup> XP Professional Microsoft<sup>®</sup> Office Professional 2007 (60-day trial)<sup>3</sup> (VL410-UD4201P)



#### Acer V173 b

- 17" TFT LCD
- 1280 x 1024 maximum resolution
- . 2000:1 dynamic contrast ratio
- 176° horizontal viewing angle
- 176° vertical viewing angle
- VGA signal connector
- 300 cd/m<sup>2</sup> brightness
- 5ms response time
- Internal power adapter
- Three-year limited warranty



(ET.BV3RP.001)



#### Acer X173Wb

- 17" wide-screen TFT LCD
- 1440 x 900 maximum resolution
- 1000:1 dynamic contrast ratio
- 140° horizontal viewing angle
- . 130° vertical viewing angle
- VGA signal connector
- · 250 cd/m' brightness
- 8ms response time
- Internal power adapter
   Three visits of the control of the
- Three-year limited warranty



(ET.BX3WP.002)



# AMD Phenom X4

# Acer® Veriton® M410

- AMD Phenom™ X4 processor
- Genuine Windows® XP Professional
- Microsoft® Office Professional 2007 (60-day trial)³
- DVD-Dual drive (DVD+/-RW)
- ATI Radeon™ X1200 graphics
- Gigabit LAN
- PS/2®-style keyboard and mouse
- One-year limited warranty<sup>2</sup>

#### Acer Veriton M410 \$699

AMD Phenom™ X4 9600 quad-core processor Genuine Windows® XP Professional 3GB DDR2 SDRAM and 320GB¹ SATA hard drive (VM410-UF9600P)

#### **Acer Empowering Technology**



#### Acer eLock Management

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



#### Acer ePerformance Management

Acer ePerformance Management optimizes performance to make the most of your computer's power.



#### Acer eRecovery Management

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



#### Acer eSettings Management

Acer eSettings Management provides easy access to boot options, security or general system information.



#### Acer eDataSecurity Management

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

# Acer Veriton M410 \$599

AMD Phenom<sup>11</sup> X4 9500 quad-core processor Genuine Windows<sup>11</sup> XP Professional 2GB DDR2 SDRAM and 250GB<sup>11</sup> SATA hard drive (VM410-UF9500P) Prices shown are estimated street prices and do not include tax o shipping. Retailer or reseller prices may vary.

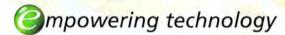






# Acer® TravelMate® 5520





- AMD Turion™ 64 X2 Dual-Core Mobile Technology
- Genuine Windows Vista® Business
- 1GB DDR2 667 SDRAM
- 120GB¹ hard drive
- Integrated Super-Multi drive (DVD+R, DVD-R, DVD-RAM)
- 5-in-1 card reader
- 15.4" WXGA (1280 x 800) TFT display
- ATI Radeon™ Xpress 1250 graphics
- 802.11b/g WLAN, gigabit LAN, V.92 modem
- Fingerprint reader
- One-year limited warranty<sup>2</sup>









Acer TravelMate 5520-5929 **\$699** 

AMD Turion™ 64 X2 Dual-Core Mobile Technology TL-60 Genuine Windows Vista® Business Microsoft® Office Professional 2007 (60-day trial)3 and CD with Genuine Windows® XP Professional4 (LX.TKU0Z.005)

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

#### Choose an Acer Notebook Service Upgrade for Added Protection

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

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

\$99

Prepays freight from Acer repair depot. Excludes extension of International Traveler's Warranty It's a tough world out there, and accidents do happen-sticky spills, dangerous drops, nasty knocks-which is why you should consider the Total Protection Upgrade. It runs concurrently with the limited warranty<sup>2</sup> and limited warranty extension and covers the cost of a replacement unit if your covered notebook cannot be repaired

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

\$199

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

- 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 viser-accessible capacity may vary depending on operating environments.

  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.
- The 60-day trial of Microsoft" Office Professional 2007 is available with Genuine Windows Vista" Business only, not with Genuine Windows XP Professional.

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

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# Consumer Watch

# Microsoft Axes XP—But Here's How to Get It

BY PRESTON GRALLA

WINDOWS XP IS dead...long live Windows XP. You may have heard that as of June 30, you're no longer able to buy the operating system or get support for it. But that isn't

quite the case. In fact, you'll be able to buy XP on certain mainstream PCs at least until January 31, 2009, and possibly beyond. And some ultralow-cost desktops and notebooks will sell with XP until June 2010. As for technical support, that has a lot of life left as well-officially, Microsoft will provide at least some forms of support until 2014.

Given the confusion, we decided to lay out all your options for buying and getting support for Windows XP beyond the sunset date.

#### Not Dead Yet

Microsoft's public statement is that "Windows XP will no longer be available for purchase from Microsoft for general retail and OEM partners as of June 30, 2008."

But retailers and PC makers

can still sell stockpiled copies of the OS that they purchased before June 30. If a retailer stocked up on copies of XP before June 30, it can sell XP for as long as those supplies hold out. The same holds true for PC manufacturers.

An even bigger loophole—something called downgrade rights-will allow people to get Windows XP on new PCs, even after computer makers' stock of Windows XP licenses disappears. An OEM such as Dell can sell you a PC that starts out with Vista Business or Vista Ultimate on it, and then

downgrade the operating system to Windows XP Professional before shipping the machine out to you. In the box, you will receive discs for Vista, XP, Vista drivers, and XP drivers. That way, if you decide you want Vista after all, you can use the installation disc and drivers to upgrade to that OS.

Microsoft may be sunsetting XP, but you'll still be able to buy it on some new systems-and support isn't going away for several years.



But you can do this only with Vista PCs for which the OEM has decided to offer downgrade rights. A Dell spokesperson says that the company will provide the option for its XPS gaming PCs (the XPS M1730 laptop, XPS 630 gaming desktop, and XPS 730 gaming desktop), its Vostro small-business PCs, and PCs for enterprise customers. Dell won't offer the choice indefinitely-only through January 31, 2009.

HP also offers a downgrade option on its business desktops, notebooks, and workstations, and will continue to do so until at least July 30, 2009, says a company spokesperson. As with Dell PCs, when someone buys a system, it will have XP Pro installed, and will come with discs for both XP and Vista.

January 31 of next year is also the last date that you'll be able to buy XP on a machine from a "system builder"-a company that builds no-brand custom PCs from components and that purchases Microsoft software from a distributor rather than directly from Microsoft itself.

If you buy an ultra-low-cost PC-which Microsoft describes as a notebook with "limited hardware capabilities" intended for entry-level buyers or people seeking an inexpensive second system-you're in luck. Such laptops, including the

Confused about the differences between an ultraportable, a minilaptop, and a UMPC? Columnist James A. Martin takes stock of expanding options for small laptops at find.pcworld.com/60971.

# Consumer Watch

Asus Eee PC, will sell with XP until June 2010. To qualify, they must have small screens and low-power CPUs.

The same cutoff date applies to very low-cost desktop computers-so-called nettops-that do not have high-end processors, a great deal of RAM, or separate graphics processors. Acer, Asus, and Dell are among the vendors expected to offer such systems with XP.

#### Post-Cutoff Support

After June 30, obtaining support for XP will be easier than trying to buy it. For starters, you will have access to what Microsoft calls "mainstream support" for XP until April 14, 2009. Mainstream support includes the release of bug fixes and security patches, so you'll still be receiving updates for the operating system. You can pay Microsoft for help, as well, and the company will also honor all warranty claims until then.

After that date, and until April 8, 2014, Microsoft will offer so-called extended support for XP: The company will continue to issue security patches, but it won't release public bug fixesmeaning only businesses with Microsoft support contracts will be able to get bug fixes, and no one else will.

Paid support will still be available, but warranty claims won't be honored. Microsoft says XP customers will have to take up such claims-even if they relate to software-with the PC manufacturer at that point.

Whether your PC's manufacturer will provide support may depend on how you got XP. For example, Dell will support XP on your system as long as Dell installed it-perhaps via the downgrade option-or prior to June 30. But if you bought a Vista PC and then installed XP yourself, Dell won't support it.

#### Where to Find More Details

Looking for more information about support for Windows XP? Check out Microsoft's Windows Life-Cycle Policy pages (find.pcworld.com/60875) and the Microsoft Support Lifecycle Blog (find. pcworld.com/60876).

# SKEPTICAL SHOPPER YARDENA ARAR



## SmartyPig: A Savings Site With Strings

YOU DON'T NEED to be a finance whiz to recognize that the least painful way to pay for a big-ticket item-a

new car, say, or a dream vacation-is to save small amounts toward it, week by week, month by month, paycheck by paycheck. But how many of us are disciplined enough to take that approach?

SmartyPig (www.smartypig.com) promises to help you save toward a goal and also to make it simple for family members and friends to contribute-and, in many cases, the service might even help make the goal itself cost less. But the service has a few notable gotchas.

Basically, Smarty-Pig gives you a sayings account with a competitive annual percentage yield (the site's banking partner is West Bank of Des Moines.

and at this early-June writing the APY was 3.9 percent), to which you must set up regular, automatic monthly transfers from an existing bank account. (SmartyPig plans to offer nonautomated funding so people can use the service for wedding registries and the like.)

Each account must be tied to a goal with a dollar figure that you can change at any time. If you make your goal public, people can contribute toward it by visiting SmartyPig-but unless they use their own SmartyPig funding accounts, the site will charge a fee of 2.9 percent for creditcard donations (first cotcha-I'd just mail a check). You can encourage gifts by putting a SmartyPig widget on your blog or on community sites such as Facebook.

Adults can set up SmartyPig accounts for minors by designating the children as co-owners who can then track their progress toward, say, a longed-for Wii or Xbox.

More caveats: SmartyPig accounts are free, but when you reach your goal (or

might toss in a discount when you buy. need the money), SmartyPig would rather

SmartyPig automates deposits to a

savings account to fund a goal—and

help you buy something than get cash. If any of SmartyPig's retail partners (which include such blue-chip outfits as

Amazon.com, Apple Tours, Best Buy, Gap, Home Depot, and Lowe's) is selling whatever you were saving for at a price you like, you can have your savings converted to a gift card for that retailer. You'll save a

> little extra, too, since all these retailers add a couple of

percentage points-up to

5 percent-to the face value of the gift card. Gift cards, however, often have their own drawbacks-time limits on their use. for example. It's up to you to investigate these on the retailer's site.

You can also have your savings and interest converted into a SmartyPig debit MasterCard, which you can use to make purchases or ATM withdrawals wherever MasterCard is accepted. However, most ATMs don't let you withdraw more than a few hundred dollars on a given day, and ATM fees may apply (unless you use the Shazam network, which has ATMs in 27 states; check for locations at www.shazam.net).

#### Check by Snail Mail

If you must have cash, SmartyPig will cut you a check, but you'll have to wait a week or so for it to arrive via snail mail. (SmartyPig says it plans to support electronic transfers soon.)

You could accomplish a lot of what SmartyPig does on your own without sacrificing the ability to withdraw cash on a moment's notice. But if SmartyPig helps wean you off of financing big-ticket items with credit cards, it might be worth a try.



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# Consumer Watch

# ON YOUR SIDE AMBER BOUMAN

EARLIER THIS YEAR I ordered a MagicJack Voice-over-IP USB phone hub from MagicJack's Web site, planning to use it with a Mac laptop. The unit came with a 30-day no-risk refund policy, so when it did not work as advertised with my Mac. I obtained a return merchandise authorization on the site and sent the product back via UPS. A month later, with no refund in sight, I contacted via online chat a customer service rep, who confirmed that the unit had been received and assured me that the refund would be forthcoming. To date, I have gone through five tech chats, and each representative has promised to take my problem to the next level of support. Anything you can do to help? Bob Green, Los Angeles

OYS Responds: MagicJack told us that at least some of the confusion stemmed from the presence in its database of several customers surnamed Greencompounded by the fact that the reader had used two different e-mail addresses and switched between "Robert" and "Bob" when contacting the company. Green had kept no records of his chat sessions, either. A MagicJack rep eventually found Green's account and issued a refund.

MagicJack says it recently upgraded its RMA system to use bar codes, which should help to avoid problems identifying customers with similar names. However, we recommend that you be consistent in identifying yourself to vendors, including using the same name and e-mail address. Keep copies of online chat sessions, too; some firms will e-mail such records to you, but just in case, you should copy each chat, paste it into a text document, and save it before closing the chat window.

#### Mint.com Terms of Service

James D. Wick of San Leandro, California, wrote in about the terms of service for one of our Most Innovative Products of the Year (find.pcworld.com/60911), the financial-aggregation site Mint.com.

Wick, an attorney, was concerned about its combination of a requirement that users grant Mint.com limited power of attorney and agent status, and a \$500 limit on liability. User terms for Mvelopes and Quicken Online, services that also aggregate financial info, don't make such demands. "Although those [terms] are both one-sided agreements drafted to protect the drafter and strictly limiting



liability, neither requires the granting of power of attorney," Wick wrote.

Anton Commissaris, vice president for revenue and business development at Mint.com, says the company believes it is "prudent and appropriate" to insist on power-of-attorney authority in order to access information on financial institution sites on the consumer's behalf.

"The power of attorney is not authorization to defraud the consumer," Commissaris says. He adds that should Mint.com abuse this power to commit fraud, "the Mint.com consumer would be protected by federal antifraud banking law," so the \$500 liability limit would be moot.

Eric Goldman, assistant professor and director of the High Tech Law Institute at the Santa Clara (California) University School of Law, says Mint.com's power-ofattorney requirement might address bans on password sharing in some onlinebanking agreements. But he understands Wick's concern. "This might not be the right service for some," he says.

Yardena Arar contributed to this story.

# **ISP Draws** Fire for Plans to Target Ads

FIFTEEN U.S. AND Canadian privacy and consumer groups have called for a congressional investigation into a major cable company's plans to deliver advertisements to its broadband customers in a way that raises privacy concerns.

St. Louis-based Charter Communications has said that it plans to track users' Web activity so as to deliver moretargeted ads (find.poworld.com/60945).

In asking the U.S. House of Representatives' Energy and Commerce Committee to investigate the Charter plan, the 15 privacy and consumer groupsincluding the Center for Democracy and Technology (CDT), the Center for Digital Democracy, the Consumer Federation of America, the Electronic Frontier Foundation, the Privacy Rights Clearinghouse, and Public Knowledge -said it represented a "major privacy threat." Other Internet service providers are also investigating targeted-ad deals, the groups claimed.

The groups said they were concerned about Charter's plans to share its users' Web-surfing habits with a behavioraladvertising company, NebuAd. But Charter, on its Web site, says that the targeted-ad service will benefit its customers while protecting their privacy.

"The enhanced service we are bringing to you was created with your privacy in mind and was designed to collect and store only anonymous information that cannot be used by anyone to identify you," Charter says.

The privacy groups expressed particular concern about a technology called deep packet inspection, which allows ISPs to gather all information coming out of a user's computer before it hits the Internet, and turn it over to advertisers. "Congress needs to bring this practice under closer scrutiny," said Ari Schwartz, CDT's vice president.

-Grant Gross





By Wi-Ex

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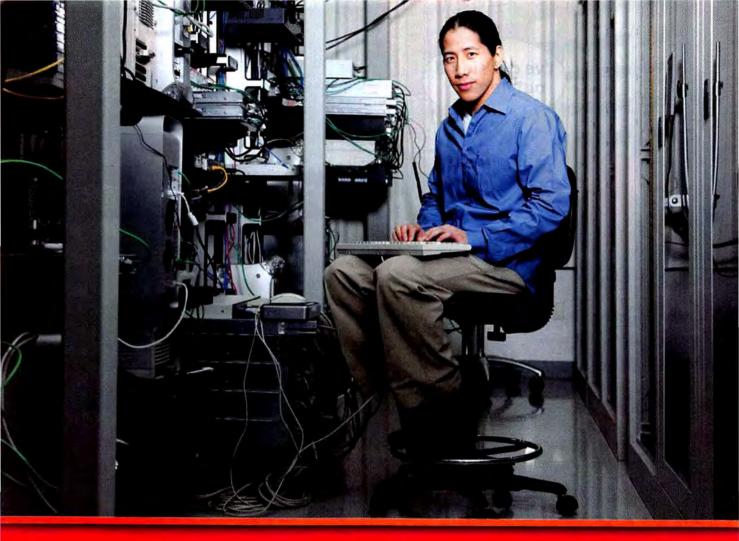
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# **Business Center**

# Small-Business Broadband Options Multiply

BY BECKY WARING

IF YOU'VE BEEN using the same business broadband provider for years, now may be a good time to cut your costs or increase your bandwidth by jumping ship. Today competition between cable

and telephone companies for business broadband customers is red-hot. As of 2006, more small businesses had DSL (35 percent) than cable (25 percent), but that balance is shifting as cable companies ramp up the speed of their service and push business-oriented broadband/phone packages at very competitive prices.

According to Brian Washburn, network services research director for Current Analysis, business DSL plans used to be more attractive because they "bundled in a voice line, unlimited local/long-distance plans, and wireless options, while cable was broadband Internet and not much else." Now, however, "cable bundles [for small businesses] are starting to look

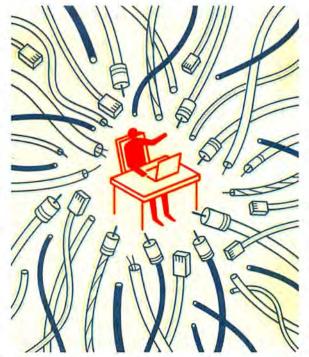
like the long-established T1 integrated voice/data services from the telco side."

Forrester Research agrees. In a 2006 survey, it found that more than 75 percent of small businesses are buying or plan to buy bundled telecommunications packages thanks to better pricing, convenience, and service. Comcast and Time Warner, for example, offer "Business Class" packages, and Comcast

Fierce competition among broadband providers to sign up smallbusiness customers is pushing speeds up and prices down.

advertises a \$99 triple play of broadband, TV, and unlimited local and longdistance calling for small businesses.

In addition, Washburn says, cable can



add extra phone lines for a small incremental cost. He sees a sweet spot for cable of 8 to 12 lines, which he calls "a weak point for traditional telcos, where the subscriber must either buy a bunch of analog voice lines with DSL or resort to that costly T1 line." T1 lines typically cost \$300 to \$400 per month for 1.5 megabits per second of constant, dedicated bandwidth, which can be used for Net access and multiple phone lines.

DSL has been catching up with cable in data transmission speed. A leading business DSL provider, Speakeasy.net,

> offers 8-mbps ADSL2 service for \$150 per month, including eight static IP addresses, domain e-mail, and around-theclock support with a servicelevel guarantee (meaning that if Speakeasy doesn't fix outages within a set short period of time, it will refund fees on a pro-rated basis). Such guarantees are critical for many online businesses and in the past have been available only with T1 lines. Speakeasy also has plans providing speeds of up to 15 mbps downstream and 1 mbps upstream, along with 10-mbps symmetrical (downstream and upstream) service in some of its markets.

#### New High-Speed Options

Meanwhile, alternatives such as Verizon FiOS and AT&T's U-verse are making inroads with small business in the limited areas where they are available, thanks to blazing speeds and low prices. Verizon's 50-mbps download/ 20-mbps upload business plan, for example, costs \$200 per month with a two-year contract; the service's 15-mbps download/2-mbps upload option costs as little as \$60 per month, or \$100

Visit the Downloads Center at PC World online for an array of free tools designed to measure, monitor, and enhance the speed of your broadband connection (find.pcworld.com/60929).

# **Business Center**

with a static IP address. Verizon promises 24/7 support for business FiOS, but no service-level guarantees.

Cable providers aren't standing still. Soon, next-generation cable service will be available-initially at speeds of 20 to 50 mbps, but eventually rising to better than 100 mbps. The updated offerings should compete directly with FiOS on speed and pricing. Comcast expects to bring service that meets the DOCSIS 3.0 standard to 20 percent of its market area before year's end.

#### Location, Location, Location

Your broadband choices depend on your location. In Newton, Massachusetts, business owners can select from among Comcast and RCN cable, various DSL providers, and Verizon FiOS; in Berkeley, California, the options are limited to Comcast and DSL; and so on.

Though cable prices are easy to check (since most would-be subscribers have only one or two options), DSL prices and service levels vary widely. To research the business DSL offerings in your area, check out several handy comparison sites. Start with Broadband-Reports.com, which posts user ISP ratings for installation, connection reliability, and tech support. Then visit sites such as BroadbandInfo, Buyer-Zone, and EverythingDSL for real-time price quotes tailored to your needs.

Before you shop, decide how much upstream and downstream speed you want to pay for (if you host your Web site, you'll want high upstream speeds).

Once you've narrowed the options, call the companies to quiz them on the details, such as installation time, technical support hours, and router policy (specifically, whether you can use your own). Also decide whether you need a service-level guarantee. If the options in your area don't include service-level agreements, and if uptime is crucial to your business, consider doubling up on inexpensive cable and DSL lines. The redundancy you create should cover the vast majority of service outages, for a lot less money than a T1 line costs.

# NET WORK RICHARD MOROCHOVE



# Acrobat.com: An Agile Doc-Sharing Suite

ADOBE'S Acrobat.com, a Web-based supplement to its popular PDF document creation application,

offers an array of services to help businesses collaborate on documents. These include basic Web conferencing and (in the free public beta) the ability to convert a limited number of documents into PDFs.

In my tests, Acrobat.com worked well with the beta version of Acrobat 9, which

was expected to ship in mid-July along with a new version of the free Acrobat Reader. But even if you don't use Adobe's desktop apps. you can get a lot of mileage from Acrobat.com if you work with others to create documents.

Acrobat.com has four key components: a word processor called Buzzword; online file sharing via Share; a PDF file converter for up to five documents per month free of charge (offered within Share); and ConnectNow for personal Web conferencing.

Word processing: Buzzword, a Flashbased word processor, covers the basics, including formatting, tables, and image importing. Its menus are easy to learn, and its response time is quick.

Buzzword's collaborative features shine. You can decide whether to share a document with anyone who accesses it or to restrict access to specific Acrobat.com users. User rights-assigned by whoever submits the document to Acrobat.cominclude Co-author (full editing privileges), Reviewer (may add comments only), and Reader (may read only). Each participant's comments appear in a different color.

You can save your Buzzword documents to such popular formats as Word (.doc, .docx, or .xml), .rtf, and .txt. You can also export to HTML or to PDF formats.

Document sharing: Share assigns a unique URL to each document you upload (you get 5GB of storage space). To share

useful collaboration tools for businesses. either with or without Acrobat 9.

Adobe's Web service offers a number of

a document, you enter the other person's e-mail address; the service sends that person an e-mail with a link to the document. Another option with Share: Embed public documents on a Web site or blog.

Acrobat.com offers a PDF form-sharing and tabulation service that requires Acro-

> bat 9. It wasn't available for testing, but one way you might use the service is to distribute conference registration forms, collect them, and show results broken down by categories. This Web-based approach could be useful for businesses that currently

must set up a server for such chores.

Acrobat.com lets you add comments to PDF documents and, if you have Acrobat 9, other file types (such as flash video) that the desktop application supports.

Web conferencing: Acrobat.com's ConnectNow supports Web conferencing for three participants (to add more cooks to the broth roundtable, you must upgrade to Connect Pro). You can share your desktop and collaborate on a document in real time. You may also take meeting notes in a notes pod, exchange text chat messages, or communicate via audio by using an optional phone-conferencing add-on from the Vapps service (this costs extra, however).

Once the test period is over (Adobe has not set an end date yet), the company will charge for a premium version of Acrobat. com that includes an unspecified amount of additional storage capacity and other as-yet-unidentified features. A basic version of the service will remain free.

I found Acrobat.com's document collaboration features superior to those of Google Docs and other competitors, and recommend trying it out if you need to work with others to create documents.





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# **Business Center**

# Which Laptop Features Are Worth the Extra Cost?

SOME BUSINESS notebook features are optional; others are must-haves. Here are some candidates to consider.

Draft-nwireless: Transferring large files between draft-n computers or over a business network takes one-third to one-fifth the time it takes over 802.11g. Until 2012, 802.11n will likely be the fastest form of the standard, with updates handled through firmware and driver upgrades. We recommend purchasing draft-n with your next business laptop; the extra \$15 to \$40 buys a big speed boost, and it will future proof your portable for a few years.

Drive encryption: The theft of laptops containing unencrypted credit histories, credit card numbers, Social Security numbers, and other data has been a huge issue recently. An encryption upgrade costs from \$30 to \$100, depending on the drive size. Compare that cost with the legal exposure it can help you avoid, and the choice is clear.



Free-fall sensor: When a free-fall sensor detects sudden motion, the hard drive instantly retracts its read/write heads to prevent them from damaging the internal platters. Afterward, the drive pops the heads back out. The sensor is a standard feature on Apple and Lenovo laptops, and costs \$40 to \$50 as an addon to others. Our take? Well worth it.

Special screen coatings: Dell's TrucLife

coating promises a 10 percent boost in contrast and more vivid colors, but adding it to a 17-inch LCD on a business laptop costs about \$160. Other manufacturers' options, like Gateway's UltraBright, HP's BrightView, and Toshiba's TruBrite, are similar. If you spend hours squinting at your laptop display, the coating may be worthwhile; if not, save your pennies.

Integrated mobile broadband: Having a built-in mobile broadband adapter means having one less thing to carry around. These cards range in price from nothing to \$300, depending on the carrier. But wireless standards like Verizon's EvDO and AT&T's 3G remain in flux. Buying a stand-alone card (USB, perhaps) might save you the hassle of upgrading your internal modem when mobile standards change.

For full discussions of the above features, please visit find.pcworld.com/60930.

-Glenn Fleishman

# **NEC Portable Projector Shines Despite Limitations**

FOR BUSINESS TRAVELERS who want a budget-conscious projector that's suitable for road-show presentations, the 5.3-pound NEC NP100 is a solid choice. At \$499, it's one of the least expensive portable models on the market.

This DLP (Digital Light Processing) projector features a native SVGA (800by-600-pixel) resolution and a brightness rating of 2000 ANSI lumenssufficient for use in small to medium-size rooms with low ambient light. The production model I tested projected a bright, 64-inch-diagonal image at a distance of about 9 feet from the screen,



#### NP100 | NEC

Affordable portable projector is great for delivering basic presentations from a laptop. List: \$499

find.pcworld.com/60909



THE NEC NP100 projected sharp text and vivid colors in simple slide presentations.

fine for typical slide presentations.

In our image-quality tests, the NP100 produced generally good results-with sharp text and well-rendered color graphics-when hooked up either to a notebook PC's VGA port or to a DVD player's composite-video port. Another plus: The NP100's manual zoom lens and focus ring are easy to adjust.

The NP100's credit-card-size remote control has some very practical automatic adjustment, digital zoom, and keystone correction controls. However, the small remote is the only way to access the projector's on-screen menus (for tweaking brightness, contrast, and

other variables), which some users may find confining. The projector comes with a handy storage slot for holding the remote when it's not in use.

To keep the price low, NEC omitted a few features. The NP100 comes without a carrying case (one is sold separately), it lacks mouse support (for slide presentations given from a podium), and its remote has no built-in laser pointer. Despite these minor limitations, the NP100 could be your gear of choice for simple on-the-road presentations.

-Richard Jantz 9

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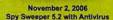


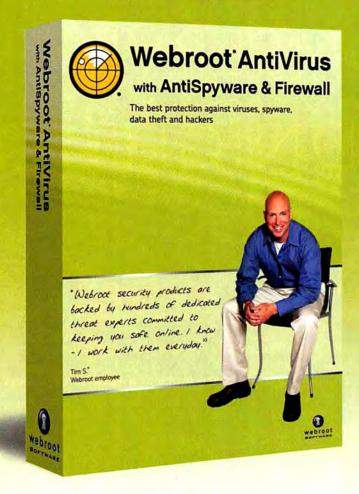












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# **Security Alert**

# Coming: A Change in Tactics in Malware Battle

AS A VAST flood of new malware threatens to overwhelm antivirus software, security companies have begun changing how their programs protect PCs. To avoid being left in the

dust by the crooks, companies plan to turn the tables on them by allowing only known good programs to run.

The technique, known as whitelisting, could help safeguard your computer. But, while some security applications already use this approach (see the next page for our look at a few free downloads), it can also make using your system a huge annoyance.

"Whitelisting is probably at the top of the list for what the industry needs to move towards," says Jeff Aliber, senior director of product marketing with antivirus maker Kaspersky Labs.

For Kaspersky and other antivirus companies, tracking known good software may be easier than trying to keep tabs on all the bad stuff in circulation today. For example, Symantec, which has been

pushing for an industry shift to whitelists since last year, anonymously tracks new applications that appear on PCs participating in its Norton Community Watch program. During one week last November, more than half of the 54,000 new executables it found were malicious, says Carey Nachenberg, a vice president and developer with Symantec Research Labs.

In the face of that sobering reality, Kaspersky this summer will release its first consumer antivirus products that bring in

whitelists from Bit9, a company that maintains a 6.3 billionstrong list of known good applications. The new Kaspersky applications won't automatically block programs that are not found on the Bit9 list, but instead will focus scanning resources on those programs that Bit9 does not recognize.

To keep up with malware-spewing criminals. antivirus companies plan to make a major shift in approach, called 'whitelisting.'



Despite the billions of entries in Bit9's list, however, nobody has a compendium of all good software. So you can't block everything missing from a list without eventually breaking some great but relatively unknown programs.

#### Community Security

Symantec says it's looking at one possible solution, which is to check with its community to see if multiple Norton users have a given program installed. The company reasons that if, say, a hundred thousand people are running a particular app, with no reports to Symantec that it's a threat, then it's likely safe. Nachenberg says the company is experimenting with this kind of system to add to its products over the next few years.

The big question: Who maintains the list? If every antivirus

company maintains its own, as Symantec says it wants to, small developers would have to submit their cool new downloads to at least five different organizations-and gain approval from all of them. An alternative to that prospect is a central list that is available to everyone and that is maintained by a government organization or other neutral group.

"I think a centralized whitelist would be beneficial to everyone," says Kevin Beaver, an independent security consul-

Read about the return of ransomware that holds files hostage at find.pcworld.com/60951, and about a new 'carpet-bombing' threat facing Safari for Windows users at find.pcworld.com/60952.

# Security Alert

tant with Principle Logic and author of books on computer safety.

"The problem is," he continues, "politics will likely get in the way ... I think we'll see something like [a centralized list] within the next few years, but this type of collaboration can't be pulled together overnight."

#### Free Whitelisting Downloads

In the meantime, several free security tools already employ a whitelist to protect PCs. However, in using them you'll typically get many pop-ups that may take lots of technical knowledge to interpret -a hassle that makes clear the challenge to the major antivirus companies.

First, Comodo Firewall Pro Free (find. pcworld.com/60887) offers full whiteliststyle program blocking in addition to its firewall functions; it works on Windows XP and Vista. Once installed, the program displays an alert when an unknown program runs, and you'll have to choose to allow or deny the new application. Comodo already knows about popular apps such as Firefox and won't display alerts for them; it also provides some good information in the pop-ups to help you decide whether to let a program take a particular action.

If you're happy with your firewall and just want a dedicated whitelisting security program, System Safety Monitor Free Edition (find.pcworld.com/60890) makes for both a speedy download (3.25MB) and a quick installation under Windows XP, 2000, 98, and Me. You can set an advanced level of rules for what any given program can or can't do on your system. On the downside. you'll get an alert for almost every program, including common Web browsers, and the information in the pop-ups can be hard for nonexperts to figure out. Changing a mistaken decision, though, is easy and fast.

Finally, the FileAdvisor Windows Explorer extension from Bit9 adds a right-click option to check any given file or program on your PC against the company's own online whitelist. Grab it from find.pcworld.com/60891.

# BUGS & FIXES STUART J. JOHNSTON



## Microsoft's Jet Engine Sputters

YOU WON'T HEAR it screaming through the skies or crashing on the tarmac, but a busted Jet engine may nevertheless be lurking in your Windows computer.

This Jet is a database engine in Windows XP, Vista, and 2000 intended for use by other installed programs, such as Office. It's normally behind the scenes, but a recent bug let bad guys take over vulnerable PCs by targeting a Jet flaw. XP SP2 and Windows 2000 SP4 (and earlier) are at risk; Vista and XP SP3 are safe.

Opening a booby-trapped .mdb file triggers the attack. Before that happens, get the fix via Automatic Updates or from Microsoft at find. pcworld.com/60877.

#### An XP SP3 Readiness Tool

Windows XP SP3 caused major pain for certain Compag Presario and HP Pavilion PCs with AMD processors. Some of those machines will reboot continuously after installation of SP3.

If you have a Pavilion or Presario and haven't yet installed SP3, check out a free tool from Jesper Johansson, a former Microsoft employee and a security expert, at find.pcworld.com/60878. His tool can evaluate your system and fix the problem before it occurs.

If you're already tearing your hair out over an affected PC, head to an HP advisory with instructions on how to resolve the issue at find.pcworld.com/60879. In addition, Microsoft is providing free technical support for XP SP3 installation: Call 866/234-6020 or (for XP Home users) browse to find.pcworld.cam/60880.

#### Protect Your Antivirus

Antivirus utilities today often contain safeguards to forestall attacks against holes afflicting other programs. But what do you do when your antivirus application

Plus: Fix an XP SP3 crash and holes in Adobe Reader, Word, and more.

itself has a flaw? Get the fix, quick.

Microsoft's Malware Protection Engine, which is used by Windows Live OneCare. Vista's and XP's Windows Defender, and several Microsoft corporate security products, suffers from two bugs that could allow an attacker to crash the affected program if you view an infected Web page or open a poisoned e-mail.

The company rates the risk as only moderate, and no attacks have yet been reported, but someone often fig-

ures out how to exploit such

forced crashes. If you use one of these apps, be sure that it's current on its program updates. Or download the fix from find.pcworld.com/60881.

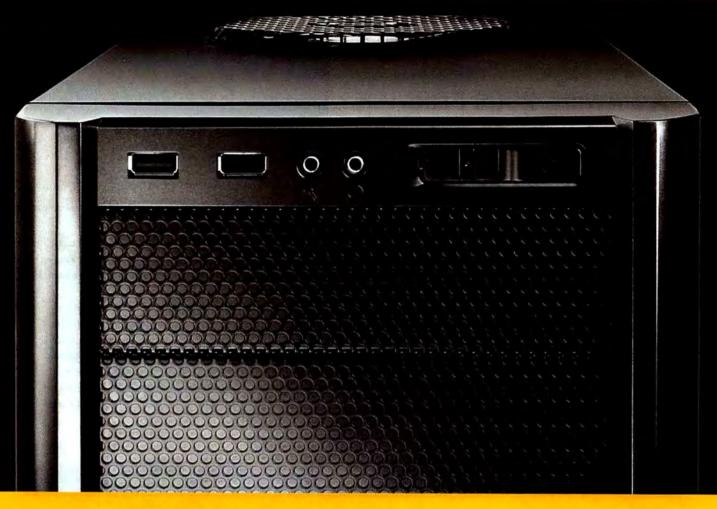
The Microsoft fixes continue with patches for

Outlook, Publisher, and Word. Critical flaws affecting Outlook 2007, Publisher 2000 SP3, and Word 2007 and 2000 SP3 could allow an attacker to completely compromise your PC if you open a malicious file or preview a corrupted HTML message in Outlook. Office 2003 components carry less risk from the bug. Get the fix and more information from find.pcworld.com/60882.

Microsoft isn't the only one releasing patches-Adobe issued eight critical fixes for holes in its Acrobat and Acrobat Reader programs. Crooks love to go after flaws in near-ubiquitous software like Reader, and opening a poisoned PDF could leave you at a cyberassailant's mercy. Get the patches at find.pcworld.com/60883.

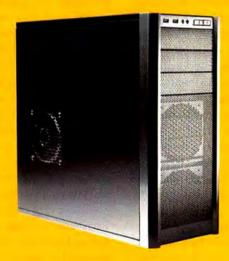
#### BUGGED?

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



#### Challenge your expectations.

Petite and manageable, yet exceptionally spacious. Affordable and accessible, yet unbeatably robust. For anyone looking for an enclosure without compromise, the Antec Three Hundred is the perfect solution, delivering cooling, capacity and convenience that completely surpasses the competition.

























# Security Alert

# Ad-Aware 2008 Free Available for Download

THE NEW VERSION of Lavasoft's flagship antispyware application, Ad-Aware 2008 Free, aims to supplement your existing antivirus protection by detecting spyware and privacy risks.

The feature-limited free version lacks real-time protection, and it will discover security or privacy threats only when you run a manual scan. The program also doesn't automatically update, so before you start a scan, you must click a button on the main window to receive the latest spyware definitions.

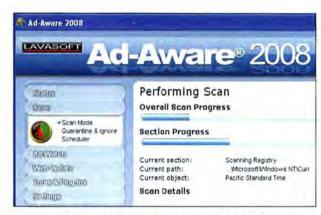
You can choose either a "smart" scan, which focuses on critical parts of your computer, or a full scan that digs

in everywhere.

Besides scans, you can run a "Track-Sweep" to clear browsing history, cache elements, cookies, and other data from Firefox. Internet Explorer,

and Opera (though each browser has a similar feature built in). You'll also see options for Ad-Watch, which actively monitors for threats, and references to other tools and plug-ins, but you have to upgrade to Plus or Pro to use them.

True, your existing antivirus program



THE NEW AD-AWARE 2008 Free offers an extra check for keeping your PC clean, but you'll have to update manually before a scan.

> likely has antispyware features of its own. But if you suspect you might have spyware on your PC and you want to double-check your antivirus program's assessment, download Ad-Aware Free from find.pcworld.com/60901 for an extra spyware and privacy scan. -Erik Larkin



# PRIVACY WATCH ERIK LARKIN

## Yahoo Search Adds Search Scan, a Good Security Step



IF YOU'VE USED Yahoo Search lately, you've likely noticed a welcome new security feature. The embattled Web giant now shows some, but not all, of the site ratings from the popular McAfee SiteAdvisor service to warn of potentially dangerous downloads or spam risks among search results.

SearchScan, as Yahoo calls the feature, is a good move that can help protect users' privacy and security, and one that I'd like to see the company take further. Here's how it works.

SiteAdvisor is a browser plug-in, available as a free download (find.pcworld.com/59517), that displays icons for search-engine results to let you know if sites are deemed problematic. The issues can range from potentially dangerous downloads to spam risks to user reports of possible merchant fishiness.

On Yahoo, some of those warnings will appear automatically, without your having to first download SiteAdvisor. You'll see a red warning at the top of the results page telling you if any potentially harmful sites are among your results, along with another red warning underneath the suspect site link.

SearchScan shows only warnings for dangerous downloads or spam risks, not the full range of SiteAdvisor warnings. Yahoo does use the important SiteAdvisor data about site exploits—attempts

The new feature provides warnings about dangerous sites from McAfee's SiteAdvisor.

to attack your PC through code on an infected Web site-but instead of displaying a warning, it removes the result entirely.

You won't see any warnings for sponsored results because Yahoo simply removes those that would have displayed warnings.

I'm glad to see Yahoo add this feature, since Web attacks and risky downloads are growing ever more common. If you use the SiteAdvisor download, you won't lose its more far-reaching icons for Yahoo results (though they didn't display when SearchScan first began, that's since been fixed). But I'd love to see Yahoo take the tool further, starting with adding the other SiteAdvisor warnings.

A Yahoo spokesperson explained that the company wanted to start with the most clear-cut risk warnings, and then evaluate how best to bring in the other notices. I can see how the company would want to be careful about relying, for instance, on usersubmitted reviews that might not always be completely fair; nevertheless, I would still like to see the full range of warnings. I'll keep using the SiteAdvisor download, but it's nice to know that I can use SearchScan if I'm on a PC without the McAfee add-on.

One final tip: As good as SiteAdvisor is, it doesn't check results in real time, so it can miss brand-new exploits that are infecting benign sites. To scan for current exploits in search results, try AVG's LinkScanner (free version at find.pcworld.com/59518).



# Uses up to 5x less power in normal operation than any other battery backup.

#### Let's protect what's important

What's in your computer? Photos, music, personal files, financial data, broadband access, videos, and more. Your computer has never been more important, and yet it has never been at higher risk for damaging power surges and other disturbances.

So like most people, you need to protect your assets. But like most people, you'd also like to protect the environment. With our new energy conscious products, you can do both. Energy efficient by design, our new smart products protect the power going in your computer, at a cost that is quickly offset by big energy savings. How? Not only do the new Back-UPS ES® and SurgeArrest® use power very wisely, they also boast a master/controlled outlets feature, which automatically powers down idle devices to conserve energy.

APC power protection products are available at:









Office DEPOT

"The pricetag on the new UPS is \$99.99.
While I'm not in the habit of endorsing products in this blog, if you're in the market for a workstation-class UPS, why not opt for the greener option?"

- Heather Clancy

In fact, while protecting your power supply, we're up to 5 times more energy efficient than any other solution. By saving you \$40 a year in energy costs, our Back-UPS ES pays for itself in 2 short years. The high frequency, low copper design has a smaller transformer and environmental footprint. Even the packaging has been carefully selected and manufactured to maximize use of recycled materials and minimize waste.

In this world, every decision you make counts. So protect your power with a battery backup that works to protect the environment. It conserves power, it pays for itself, and it's backed by APC's 20-plus years of legendary reliability. For more information on this or our other great products, or for information about environmentally responsible disposal of your old battery, visit www.apc.com

#### Energy Efficient Solutions for Every Level of Protection:

# Surge Protection

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Guaranteed protection from surges, spikes, and lightning.

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Save \$40 per year on

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Our most energy efficient backup for home computers.

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# Reviews Ranking

The New High-Def Streaming Tools for Your HDTV

SEEMS EVERY DAY brings PCWTest a new gizmo that Center promises to stream high-definition (HD) video from your PC or the Web to your HDTV. Such devices range from specialized appliances to Media Center PCs and extenders, game consoles, and set-top boxes.

To help you make sense of all the options, we've divided the streaming landscape into five distinct regions. We have also limited it to products offering HD playback of at least 720p. Most support up to 1080i or 1080p.

#### Streaming Appliances -For Experts Only

If you're a tech-savvy video hound who likes to download movies through BitTorrent or to rip all your DVDs to hard disk, a new category of streamers is just for you.

These networked devices make a point of supporting nearly every major video codec and streaming transport container, from MPEG-1/2/4, AVI, and H.264 to

DivX, XVid, Matroska (MKS), MOV, and VOD.

Many also support DVR-MS, the file format that Media Center PCs use for recorded TV shows. The devices do not, however, play files that have any form of DRM protection.

We reviewed three new 1080p and HDMI-capable streaming players, all of

which have a 3.5-inch drive bay for laptop-size hard disks and dual external USB ports for adding internal or external storage (or both). The USB ports are handy for playing back files copied to a flash drive from your PC. You can even attach an optical drive to play back video, music, and photo files stored on CDs and DVDs.

A growing range of videostreaming products can expand the content you see on your HDTV. Here's a guick quide to what's available.



#### Popcorn Hour A-100

The A-100 (find.pcworld.com/ 60965) was our favorite in this category, due to its low price (\$179), wide format support, built-in BitTorrent client, and ability to stream from many popular video, photo, and music Web sites such as Flickr, Live365, Metacafe, Picasa, Shoutcast, and YouTube. (But like the Nintendo Wii, it's hard to get.)



#### Mvix MX-780HD and MediaGate MG-450HD

These two models also support many formats, but they cost more than the A-100, lack the BitTorrent client, and can't play Web video. They do add 802.11g Wi-Fi, which the Popcorn lacks, but we don't recommend trying to stream high-def video over 802.11g wirelessusually it's not fast enough.

On paper, the Popcorn, the Mvix (find.pcworld.com/ 60966), and the MediaGate (find.peworld.com/60967) streamers should be great,

with their laundry lists of playback features and their multiple storage options.

But all three were absolute nightmares to set up properly, and they have seriously immature and often-buggy interfaces. With each, we spent hours on the Web reading tutorials and checking user forums for answers to basic questions that should have been covered in a user guide, or obviated by intuitive design in the first place.

Constant firmware updates kept changing the status quo, as well, making it hard to know exactly what the boxes did or did not support. If you're the type who likes to

build Linux boxes and tweak Registry files, you'll have fun with these devices; the plugand-play crowd, however, should look elsewhere.

#### Simpler Streamers

If you expect to stream a lot of movies and videos, or if you want to maintain a central music/photo library, and if you also want deep playback and navigation features, consider a mainstream highdef streamer like the Apple TV Take Two or the Netgear Digital Entertainer HD.

#### Apple TV

The Apple TV Take Two was the top-rated choice in our recent chart of streaming devices (find.pcworld.com/60759), thanks to its easy-to-use interface, internal storage capability, and newfound independence from your PC (see find.pcworld.com/60862).

The Apple TV can play back all your protected iTunes Store purchases, as well as home movies and other videos converted to H.264 and stored on its built-in hard drive.

High-def rentals are also available, and can be streamed directly from the iTunes store. Music and photo support is excellent, as you would expect, and you can easily create great >>

#### **ADD-ON OPTION**

# High-Def Media Center Extenders

MEDIA CENTER EXTENDERS are good choices for people who want more than the limited streaming options of their game consoles and who already have a Media Center computer (the Media Center software comes with Vista Home Premium and Vista Ultimate).

Extenders connect to your Media Center PC and put the full functionality of the Media Center interface on your HDTV, including access to Microsoft's many content channels, a DVR interface (assuming you have a TV tuner and capture card), playback of files protected by Windows Media DRM (digital rights management), and much more.

HP is building extenders into some of its Media-Smart HDTVs, but most buyers will probably prefer to purchase a separate box.

You can find high-definition Media Center extenders from D-Link and Linksys now; other vendors may soon bring out their own models.

These products have very similar capabilities, but note that the \$300 Linksys DMA2200 we previously reviewed (see find.pcworld.com/ 60976) includes an upconverting DVD player.

If you don't need the DVD player, the otherwise similar Linksys DMA2100 will cost you \$50 less, or \$250. D-Link's model, the DSM-750 Extender, also costs about \$250.

Some media extenders use their own PC software, instead of Microsoft's Media

> Center, SageTV's HD Media Extender is one example.

THE LINKSYS DMA2200 includes an upconverting DVD player and costs \$300.



# Reviews&Rankings

slide shows set to music.

The downside: Relatively few HD titles are available, and presently the box is limited to 720p playback. You'll also need to convert most non-iTunes Store videos to the H.264 format. This process can be automated, but it is still time-consuming.

#### **Netgear Digital** Entertainer HD EVA8000

Netgear's device (find.pcworld. com/60969) is pricey, but it can do fancy tricks even if you have only Windows XP. It puts out a full 1080p, and was the sole player in our recent chart to support both Apple and Windows Media DRM-protected files.

The Netgear unit can integrate with an HDTV tuner/ capture card attached to your PC, to act as a digital video recorder and player. And it can also stream video, photos, and Internet radio from a variety of popular sources, including Flickr, Shoutcast, and YouTube. While it has no internal storage, it can stream from a UPnP NAS drive. The EVA8000 is by far the best streaming option for Windows XP users who do not have Media Center.

#### The HD Streamer You May Already Own

If you own a TiVo HD, Microsoft Xbox 360, or Sony Play-Station 3, you already have an HD streamer. The Xbox 360, in particular, can dou-

#### MORE ONLINE

For links to more information on the products discussed in this article, browse to find. pcworld.com/60977



ble as an HD Media Center extender, connecting to your Media Center PC over a network and streaming HD video, photos and music, among other features. To turn the console into an extender, you just download the necessary software and install it. If your PC doesn't have Microsoft's Media Center software installed, you can still stream media from your PC to your Xbox 360 using Windows Media Player 11.

Alternatively, the combo of a networked TiVo HD and the TiVo Desktop Plus software lets you stream unprotected photos, MP3s, and videos from your PC, as well as Amazon Unbox movies from the Web (although those are not yet in HD).

The PlayStation 3 also streams unprotected movies, music, and photos from networked PCs using Windows Media Player 11 or another DLNA-compliant media server.

You won't find fancy slideshow effects or other such bells and whistles on these dual-purpose boxes, but the price is right.

Sorry, Wii fans, that little console isn't HD-capable; however, a way exists to en-

able it to stream media from your computer to your TV. Browse to find.pcworld.com/ 60968 for the details.

#### Why Compromise? The Living-Room PC

Fortunately, achieving maximum playback and storage flexibility doesn't mean you have to torture yourself. Instead of buying a streamer box, we recommend spending a little more to put a Media Center PC (or a Mac, for that matter) in your living room and hooking the PC up to your HDTV via HDMI. Every other streaming device is basically a compromise, offering just a subset of a full PC's capabilities.

Using a PC for streaming has many advantages:

- · You aren't limited to what you can stream through Windows Media Center or any particular set-top box. Your TV simply becomes a de facto computer display. Anything you can play on your PC you can also show on the big screen.
- You won't be left behind every time some new video codec or streaming service comes along-you'll be able to enjoy new video sources as soon as they appear.

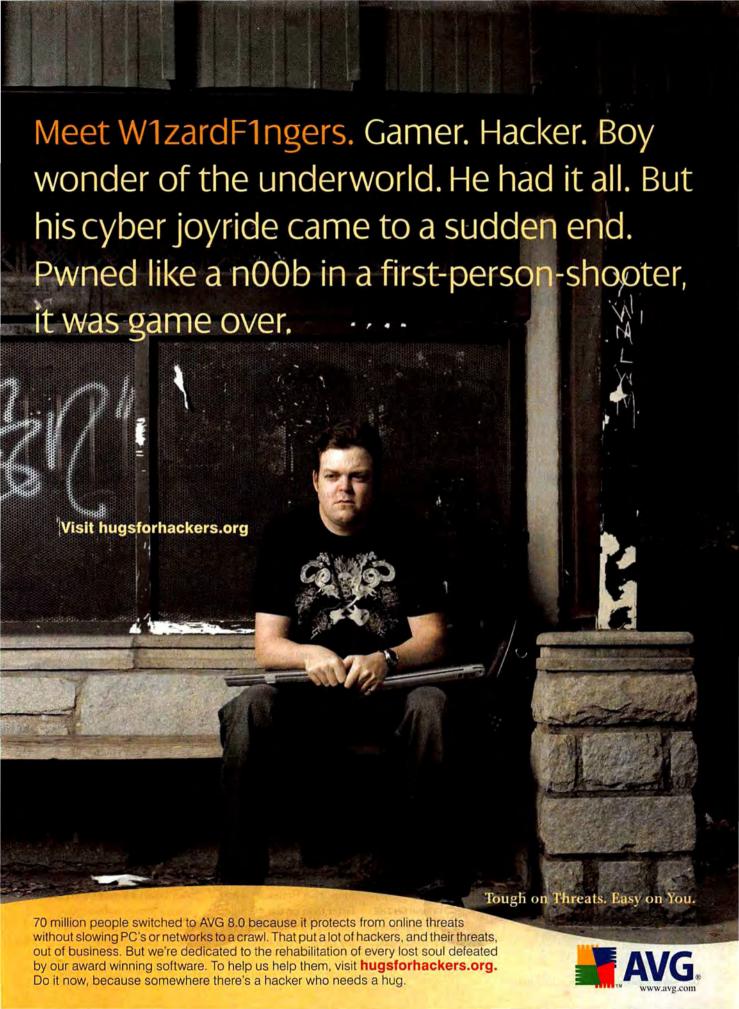
- · You can interact with the PC interface you already know, and you can keep a wireless keyboard and mouse on the coffee table for anything the Media Center remote can't handle.
- · You can expand storage as much as you need to, and you can even use your PC as an HD DVR with an off-air ATSC tuner such as Pinnacle's PCTV HD Pro Stick.
- · You can use whatever network connection you prefer, including gigabit ethernet or 5-GHz 802.11n Wi-Fi, both of which are rare in set-top boxes.

Brand-new Vista Media Center PCs, including ones with HDMI output, can be had for as little as \$500 to \$600. Considering that a settop box or an extender with decent storage will run you \$350 or so, those extra bucks go a long way. You can also repurpose an old machine for the job, although you'll likely need to upgrade the video card for HDMI output and maybe improve a few other things like memory and storage.

The PC should have Windows Vista Home Premium or Ultimate for the best Media Center experience. One caution: Make sure that the fan and disk drives are near-silent. Even a soft hum can be annoying when you are watching a movie.

Thinking of building your dream HD media PC yourself? For tips, check out our must-see slide show, "12 Great Components for the Ultimate HD PC," at find. pcworld.com/60975.

-Becky Waring



# Roku Netflix Player Offers Simple Streaming

ON-DEMAND VIDEO is not new, and neither is delivering video to your television via the Internet. But Roku's \$100 Netflix Player unites those two ideas in one device that streams standarddefinition video to your TV.

Setup went smoothly. The Netflix Player sits between your TV and your Internet connection (wired or wire-



#### Netflix Player | Roku

A worthy companion if you already have a Netflix account. List: \$100 find.pcworld.com/60955

less 802.11b/g). To activate the player, I had to log in to my Netflix account on my PC (you must subscribe to access movies) and enter the provided activation code.

Roku says that for simplicity's sake the Netflix Player lets you browse titles only in your Netflix Instant Queue. (Netflix offers over 10,000 movies and television shows for immediate viewing.)

Navigating through my Instant Queue choices was easy: The left-right directional arrows on the included remote let me scroll quickly.

Roku recommends having at least a 1.5-mbps connection to ensure image quality.



It looked mediocre to me, but not much worse than my digital cable at home.

One neat addition: Roku and Netflix developed a way to mimic fast-forwarding and chapter marks on a DVD. Netflix took still frames every 10 seconds of every video it has; as I fastforwarded through a film, I

could swiftly scan frames to find a desired spot.

As is, the Roku Netflix Player may be a great device for a living room, den, or bedroom-if you already subscribe to Netflix. If Roku can add a few more tricks to the player, the device's usefulness will increase multifold.

-Melissa I. Perenson

# Asus's Eee PC Mini-Notebook Adds Multitouch Pad

LATE LAST YEAR, Asus shook up the mini-notebook category with the slight (8.9 by 6.5 by 1.4 inches), light (2 pounds), and affordable (\$399) Linux-based Eee PC 4G. Since that time, we've

- 1

seen a refreshed model that offers Windows XP (the Eee PC 4G XP). And now, we have the Eee PC 900.

The latest version introduces a large, crisp 1024-by-600-pixel display without adding much to the device's overall size-and it's one of the first Windows laptops to have a multitouch touchpad.

Though the latest Eee remains saddled with a miniature keyboard suitable for a hobbit to type on, the small touchpad is simple and very effective.

> TYPING ON THE Eee PC's miniature keyboard is challenging.

You move two fingers downward to scroll a window; you spread two fingers apart to zoom in; or you scrunch them together to zoom out. If those motions sound familiar, it's because various Apple products, like the iPhone, incorporate them.

Inside the Eee PC 900 are a 900-MHz Intel CPU and a 4GB internal hard drive (you also get an 8GB SD Card). The hard-drive space was too meager for our lab to drop in our WorldBench 6 test suite to evaluate the unit's performance. Informally, I gauged the PC's boot and program startup times; I found that both were a hair faster than on the 4G model running XP-not a surprising result, given that the

new model carries 1GB of DDR2 RAM, versus its predecessor's 512MB.

Though I dig the new touchpad and the larger display, the Eee PC 900 isn't a must-buy laptop-at least not at its \$549 asking price. The Eee PC 900 is still a good deal, but the HP 2133 (with models selling for between \$500 and \$750) looks great in comparison.

-Darren Gladstone



#### Eee PC 900 | Asus

Asus delivers a bargain-basement laptop with a tiny keyboard but a usable multitouch pad. List: \$549 find.pcworld.com/60956

# ThreatFire 3.5 Protects Against New Malware

YOUR CURRENT antivirus program may offer good protection, but new, unknown threats could still slip in. Enter PC Tools' ThreatFire. Now in version 3.5, this free utility adds an extra layer of protection to any security software you already have.

To identify malware based on positive signature matches (still the primary method most antivirus programs use), a lab must first obtain a sample of the malware and create a full signature for it. Proactive detection such as behavioral analysis can detect and block brand-new threats without signatures, providing instant protection. Most antivirus apps supplement signature scanners with some type of proactive detection, but not all are as effective as ThreatFire.

In independent tests conducted for PC World by AV-Test.org, a German securityprogram testing operation, ThreatFire's performance was outstanding. It correctly identified 18 of 20 relatively unknown malware samples by looking purely at factors such as where the program came from, what changes it made to files or the system Registry, and whether the program attempted to send information to the Internet. It successfully blocked 17 of the 18 (one sample stopped ThreatFire before the block could occur), and it cleaned 16 of those it blocked (it left part of one infection behind).

What's more, ThreatFire

ThreatFire

Learn more about this threat

An application has performed an action that is potentially malicious.

Risk: VERY HIGH

Name: UNLOCKERASSISTANT.EXE Path: F. PROGRAM FILES UNLOCKER

Technical details What Happened?

Risk Level Threat Type

This program is attempting to install a component that can monitor or manipulate your system activity.

Please select an action:

· Allow this process to continue Kill and quarantine this process

✓ Remember this answer

YOU CAN INSTRUCT ThreatFire to prompt you whenever it encounters a suspected threat or potentially unwanted program on your PC.

registered no false alarms in AV-Test.org's run-throughsa plus because proactive, nonsignature protection is prone to triggering false alarms.

#### More Security for Free

Version 3.5 adds PC Tools' signature-based scanner, formerly available only in the \$30-per-year Pro version. It won't scan every newly saved file, so you must schedule scanning or activate it manually. With the scanner added to the free version, there's no real reason to shell out for Pro, unless you're running a business. (The freebie version is for home use.)

New in version 3.5 is a useful system-activity monitor. For programs and services that are currently running, it displays in-depth background data, such as the author, the command line, and a list of open windows and modules. You can stop a process, or launch a Google search for more information on it, with a rightclick on the process name.

Another change in 3.5 is better default options for handling alerts. You can now instruct the tool to automatically quarantine, allow, or prompt whenever it encounters a suspected threat or potentially unwanted program (known threats are always quarantined). Version 3.5 also has improved its master boot record scanning software.

Though you don't have to pay for ThreatFire, installing it imposes another kind of cost. The lightweight ThreatFire service and system tray process didn't noticeably impact our test system while we surfed the Web and performed common tasks. But security programs by nature have to reach far into your PC, and as a result they often conflict with other software. On one heavily used PC with a wide range of installed programs, the computer locked up each time we tried to run an ondemand scan using Threat-Fire's signature scanner.

ThreatFire's behavioral protection provides a worthwhile layer of security, and it's all the more impressive for being free.

-Erik Larkin

#### ThreatFire 3.5 | PC Tools

Solid free protection supplements your existing antivirus. Free find.pcworld.com/60963

#### TECH TREND

## Incredible Shrinking Laptops

SINCE ASUS LAUNCHED its budget-friendly Eee 4G PC in late 2007, the mini-notebook market has exploded. These tightly focused micromachines can handle word processing, basic



Web browsing, and... little else. So why even consider these computers? The price. Costing in the neighborhood of \$500, they are affordable starter systems for school and light business use. Performance may improve with the next generation, thanks

to the updated Via C7 and Intel Atom processors on the way. But don't expect either CPU to run Windows Vista very well.

Most current mini-notebook models run XP or Linux without evident strain. Of the current crop, I'd recommend that you check out HP's 2133 (just make sure not to buy the Vista edition unless you love waiting for apps to start)-and keep your eyes peeled for newer, more powerful devices coming in the fall.

-Darren Gladstone

# **New Models Offer More Monitor for Your Money**

GOOD NEWS! You don't PCW Test need a loan to get a Center great deal on an

LCD. Several inexpensive models, including ones that don't appear in our Top 5 charts due to design and specification shortcomings, produce great images.

The 22-inch HP w2207h rode its top-shelf features and performance to a Best Buy. NEC's LCD225WNXM-BK wasn't a top performer, but its balance of specs and price landed it on our chart.

Among 24-inch LCDs, Gateway's FHD2400 over-



GATEWAY'S FHD2400 has a nice design and great image quality.

came middling performance to take top honors with an attractive design and a range of inputs. Westinghouse's L2410NM finished second in our performance tests, but missed the chart because of a limited feature set.

Specs, image quality, and design helped several Samsung LCDs earn rankings.

-Greg Adler

#### MORE ONLINE

For reviews of these models and expanded reviews of monitors that didn't make the chart, visit find.pcworld.com/59424.

#### PC WORLD TOP 10 WIDE-SCREEN LCDs

# HP w2207h

20- OR 22-INCH MODEL

find.pcworld.com/60851

**BUY \$349 NEW** 

**PCW Rating** VERY GOOD

## Performance

- . Text quality: Very Good
- · Graphics quality: Very Good

Features and specifications

- · Analog and digital Multiple adjustments
- 5ms response time
- 1000:1 contrast ratio

BOTTOM LINE: This reasonably priced, full-featured LCD has multiple physical adjustments and very good image quality.

Samsung SyncMaster 2263DX \$499

find.pcworld.com/60301

**VERY GOOD** 

- · Graphics quality: Very Good
- . Text quality: Very Good
- Analog and digital
- Tilt adjustment only
- 5ms response time
- 1000:1 contrast ratio

BOTTOM LINE: Though innovative and stylish, Samsung's 2263DX is pricey and has considerable room for improvement.

**NEC MultiSync** LCD225WNXM-BK \$390 NEW find.pcworld.com/60854

- · Graphics quality: Very Good
- Text quality: Very Good
- · Analog and digital
- Multiple adjustments
- 5ms response time • 1000:1 contrast ratio

BOTTOM LINE: NEC's display has lots of ports, very good image quality, and full adjustability—all at an average price.

ViewSonic VG2230wm

find.pcworld.com/58688

VERY GOOD

- · Graphics quality: Very Good
- Text quality: Very Good
- · Analog and digital
- Multiple adjustments
- 5ms response time
- 700:1 contrast ratio

BOTTOM LINE: This 22-inch display is thoughtfully designed, and its graphics and text reproductions are easy on the eyes.

Samsung SyncMaster 2232GW 5 \$359

find.pcworld.com/58689

- Graphics quality: Very Good
- Text quality: Very Good
- · Analog and digital
- . Tilt adjustment only • 2ms response time
- 3000:1 contrast ratio

Features and specifications

BOTTOM LINE: The superb 2232GW is excellent for many graphics tasks, which may justify its slightly higher price.

#### 23- OR 24-INCH MODEL

Gateway FHD2400 BUY \$549 NEW

find.pcworld.com/60861

**PCW Rating** VERY GOOD

#### Performance

· Graphics quality: Very Good

. Text quality: Good

- Analog and digital Multiple adjustments
- 5ms response time
- 1000:1 contrast ratio

BOTTOM LINE: This full-featured monitor has every input and adjustment you could want, as well as great optional speakers.

Dell UltraSharp 2408WFP **\$699 NEW** 

find.pcworld.com/60867

VERY GOOD

- Text quality: Very Good
  - · Graphics quality: Very Good
- Analog and digital
- Multiple adjustments
- · 6ms response time
- 3000:1 contrast ratio

BOTTOM LINE: You get very good performance and great specs, including a memory card reader and display port connection.

Samsung SyncMaster 245T **\$649 NEW** 

find.pcworld.com/60865

- · Graphics quality: Very Good
- · Text quality: Good
- Analog and digital Multiple adjustments
- · 6ms response time
- 1500:1 contrast ratio

BOTTOM LINE: The fully adjustable 245T has many inputs and good image quality, but is hobbled by a hefty price tag.

Samsung SyncMaster 2493HM

> **\$499 NEW** find.pcworld.com/60855

VERY GOOD

- · Graphics quality: Very Good
- Text quality: Very Good
- · Analog and digital
- Multiple adjustments • 5ms response time
- 1000:1 contrast ratio

BOTTOM LINE: This display delivers very good image quality, comes with lots of connection options, and has a great design.

**HP LP2465** 5635

find.pcworld.com/54152

- · Graphics quality: Very Good
- . Text quality: Very Good
- · Digital only
- Multiple adjustments · 6ms response time
- 1000:1 contrast ratio

BOTTOM LINE: HP's 24-incher combines excellent image quality, a highly adjustable stand, and a low price—but few features.

CHART NOTES: Prices and ratings are as of 5/19/08. Response times are as reported by the vendor (ms = milliseconds).

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MICTO CENTER



# Reviews&Rankings

# Nintendo's Wii Fit Makes Working Out Feel Like Play

SWEATBANDS SNAPPED tight and short shorts riding high, I took Nintendo's \$90 Wii Fit-a home workout program disguised as a video game-for a test run. I can see why Wii Fit is a hit.

The game lets you choose from 48 activities in four categories: yoga poses, strength training, aerobic exercise, and balance games.



#### Wii Fit | Nintendo

Makes working out in front of your TV interactive and fun. List: \$90 find.pcworld.com/60957



THE WII BALANCE board resembles a double-width bathroom scale.

To perform the calisthenics, you stand-or lie-on the Wii Balance Board. Its four pressure sensors determine where your feet are, monitor your center of gravity, and check your weight.

Before getting started, I had to build my Wii Fit profile by entering my height, weight, gender, and birthday. A basic body test then measured my balance before the software presented me with a fairly accurate Body Mass Index (BMI) score, my weight in pounds, and a "Wii Fit Age" (more a measurement of my game skills than of my actual fitness level). You can weigh in again anytime you want, set goals to lower or increase your BMI, and arrange for the game's calendar to chart your fitness progress.

As you spend time exercising, you earn Fit Credits that unlock activities one by one. Each workout takes roughly 1 to 5 minutes. Unfortunately, each Wii Fit player must unlock each workout solo. I was frustrated at the lack of a twoplayer mode and at not being able to create a custom workout; that means you have to complete the activities back to back.

Clearly Wii Fit isn't a replacement for a gym membership. But if you want a fun, family-friendly workout option, Wii Fit is definitely fit for the task.

-Danny Allen



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# **Dell's Innovative Crystal** LCD: Pretty but Pricey

THE MUCH-ANTICIPATED Dell Crystal LCD has arrived. But at \$1199, it targets people with very deep pockets.

The Crystal's 22-inch panel is encased in ultraclear tempered glass (with integrated speakers and Webcam) and sits on a chrome-plated zinc alloy stand for a floating-



#### Crystal | Dell

For the price, this LCD should offer better performance. List: \$1199 find.pcworld.com/60853

screen effect. The display features unique capacitive touch controls, and though it lacks height and swivel maneuverability, it does tilt.

Like the other models on our Top 5 20- and 22-Inch Wide-Screen LCDs chart (see page 64), the Crystal has a native resolution of 1680 by 1050 pixels. For the price, though, its native resolution should be 1920 by 1200 pixels, like Lenovo's \$500 L220X.

Instead of placing regular ports on the monitor's back, Dell used a single cable that splits off into the display's connection options, includ-



THE CRYSTAL LCD looks like a product designed by Apple, not Dell.

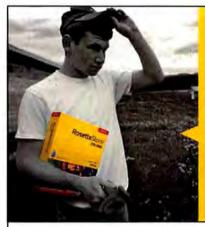
ing HDMI, subwoofer-out, USB, and power. The display does not offer a VGA port, and you must use an included HDMI-to-DVI adapter to establish DVI connectivity.

In our lab tests of overall image quality, the Dell Crystal ranked fifth out of the 19 20- and 22-inch LCDs in our database. That's not a bad

score, but it hardly justifies the display's price tag.

This is a very solid monitor with good integrated speakers and a breathtaking design-but its price is equally gasp-inducing. For the cost of one Dell Crystal, you could buy four 22-inch Dell E228WFP LCDs.

-Greg Adler



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# Reviews&Rankings

# Xobni: A Must-Have Outlook Add-On

XOBNI (INBOX spelled backward) is a free add-on for Microsoft Outlook. The reason behind the name: This useful tool allows you to look at your e-mail inbox from a whole new perspective. The add-on improves management of messages and contacts, one of Outlook's biggest shortcomings.

When you install Xobni, it

93 SUPERIOR

#### Xobni

A must-have for anyone who lives in Outlook. Free

www.xobni.com

indexes your mail, so you can search for contacts and text. It uses the information to create contact profiles, as well. It shows the number of e-mail messages that a contact has sent you, broken down by the time of day the messages were sent.

In addition, Xobni displays each contact's phone number, which it extracts (with amazing accuracy) from e-mail messages. Below each contact profile, you see a thread of conversations you've had and files you've exchanged. You can quickly find and view threads by specific topics; a slider control reveals more or fewer

THE XOBNI PANE sits to the right of your Outlook window, sliding open when you need it.

lines of the conversation.

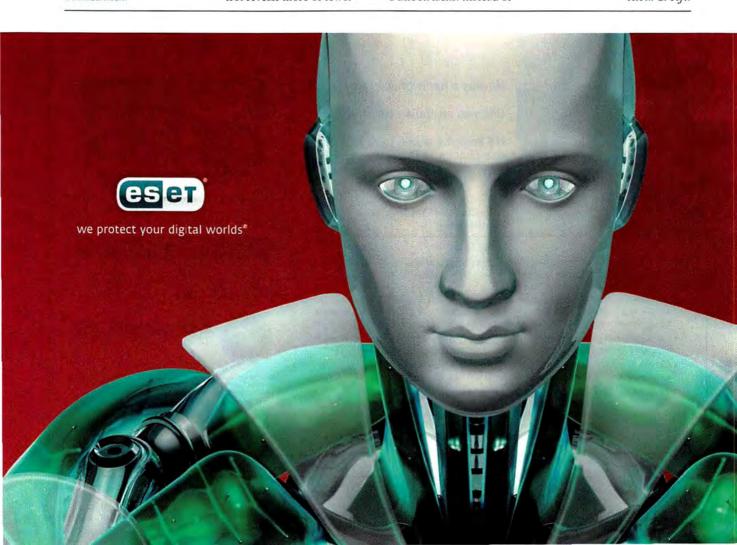
Xobni also creates a kind of social network by keeping track of any additional recipients on e-mail messages sent to you. You can put your friends' contacts into your address book or quickly draft e-mail to them from within the Xobni pane.

You can use Xobni for simple searches within Outlook, but this app goes far beyond searching. It provides social information and extended functionality that Outlook lacks. Instead of



treating messages, contacts, and calendars as separate entities, Xobni weaves them together within a responsive, intuitive interface.

-Kevin C. Tofel



# Street Atlas: Desktop Mapping Done Cheap

DELORME'S STREET Atlas used to be my go-to application for detailed travel directions. With the arrival of Mapquest and easy-to-use portable GPS devices for my car, however, Street Atlas was no longer essential. Following my test-drive of the 2009 version, I now find the

78

#### Street Atlas USA 2009 | DeLorme

This PC software is no match for a current GPS device. List: \$40 find.pcworld.com/60985

program disappointing.

For the modest price of \$40, Street Atlas delivers detailed street maps of the United States and Canada, millions of points of interest, and the ability to display real-time location information (when you attach a GPS receiver to your PC).

The disappointment starts with the unintuitive interface and extends to the GPS turn-by-turn navigation, which was interesting, to be charitable. (DeLorme sent its tiny LT-40 USB GPS receiver with my Street Atlas software—the \$70 package



BEFORE USING STREET Atlas, you'll need to spend some time with the manual: The software can be difficult to navigate at first.

is a bargain.) Street Atlas's turn-by-turn directions for my daily trip between work and home included an intersection that does not exist.

Street Atlas does have one advantage over rivals, as it offers tools—map annotation, extended trip planners, and transfer of routes to some GPS devices—that go well beyond what you'll find in online mapping services.

For real-time navigation, I would pass up Street Atlas. But for at-your-desk trip planning or fun with map making, the app's \$40 price tag is a cheap investment.

-Tracey Capen

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# Creative Vado Captures Quick Videos

HIGH-DEF FANATICS need not apply: The Creative Vado is an iPod-size camcorder that's built for sticking in your pocket or bag, shooting video on the go, and then uploading your low-fi footage to YouTube.

The \$100 camcorder has features comparable to those of the popular \$180 Pure Digital Flip Mino, but the Vado's video quality clearly isn't as good. That might not be a deal-breaker for price-savvy YouTube moviemakers, because the Vado does have a few things going for it.

Just like the Flip devices, the Vado is a tiny camcorder with a flip-out USB connector; you use the connector to upload clips to YouTube or Photobucket with one click, and to charge the device. The Vado's 2-inch screen is sharp and vibrant enough to see in bright sunlight. But that impressive LCD is both a blessing and a curse, as videos look much better on the device than they do after you send them to YouTube. After upload, I noticed much more pixelation and murkiness than I expected. The Flip units are a better option in terms of video quality.

Operating the Vado is simple. A four-way directional pad lets you zoom in, zoom out, and scroll through video clips. A big button starts and stops recording. One button on the side switches between recording and play-

ASK OUR EXPERTS

#### **Best Camera for Action Shots?**

CAN YOU OFFER any suggestions for a sub-\$1000, action-shot camera that has a very low shutter lag, good image quality, and the ability to take clear shots in both light and dark settings?

\*\*Bonjovi4ever, from the PC World forums\*\*

Senior Editor Melissa J. Perenson responds: As a sports shooter myself, I can point you in only one direction: a digital SLR. Point-and-shoot cameras simply aren't up to the task, especially in low light. We've tested several digital SLRs that come in at under \$1000 with the lens, including Canon's EOS Digital Rebel XTi and XSi and Nikon's D40, D40X, and D60 (find.pcworld.com/60953 has links to reviews). For low-light shooting, these cameras often let you bump up the ISO setting to 1600 or beyond. You should complement the bundled kit lens with one that has a wide aperture setting of f/1.8 or f/2.8. Such lenses can be expensive if you're aiming for a telephoto (Canon's 200mm f/2.8 lens costs about \$700); but most camera makers have a versatile 50mm f/1.8 lens that you can buy for under \$100.

E-mail your questions to askourexperts@pcworld.com, or post them online at forums.pcworld.com.

back modes, and another button below it deletes clips. Holding down both of those buttons takes you to a menu screen.

You connect the Vado to a PC by flipping out the camera's USB connector. Plugging it into any Windows computer's USB port (the device's on-board mediamanagement software doesn't work on a Mac) launches the Vado Central app, which lets you upload clips to YouTube or Photobucket in a matter of clicks.

The Vado's 640-by-480-resolution video quality isn't exactly terrible, but the Flip models still outshine it.

Though the Vado is good for quick-and-dirty clips, make sure to keep the lights on wherever you shoot. Lacking white balance and additional lighting, the Vado won't work well in a dark room.

Also, not all of the Vado's features are as impressive as they sound. The Vado's 2X digital zoom is choppy. You can shoot in standard-quality and high-quality (HQ) video modes; in standard-quality (SP) mode, the Vado stores up to 2 hours of video, while in high-quality mode, the device holds 1 hour of footage. But I didn't see a big difference in the quality of clips recorded in each mode. You may as well use the device's SP mode at all times and capture 2 hours' worth of mediocre-looking clips.

The Vado also doesn't feel as sturdy as the Flip devices. Its plastic body and buttons suggest that it might not be



THE VADO'S FLIP-OUT USB connector can make attaching the camera to a PC difficult.

able to withstand more than a year or so of punishment.

Not everyone will love the flip-out design of the Vado's USB connector, either; though the rubberized connector's flexibility will delight some users, plugging the very short connector into a desktop's USB ports makes the Vado dangle awkwardly in midair. The connector was clearly built with a laptop in mind, and it works great in that capacity.

Despite the Vado's drawbacks, it's a really wellpriced device that's good for capturing off-the-cuff video clips. If video quality is important to you, you should opt for the Flip Mino. If you want to save \$80, Creative's pocket-size camcorder is a serviceable alternative.

-Tim Moynihan



#### Vado Pocket Video Cam

#### Creative

Video quality disappoints, but the tiny Vado costs less than any Flip. List: \$100

find.pcworld.com/60895

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### Canon's Pixma MX7600 Has All and Wins All

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MFPs usually strike
a fairly even balance

between cost and quality.
Canon's Pixma MX7600,
however, manages to be so
good at pretty much everything it does that its high
price seems less crucial. This
\$400 mega-multifunction
prints quickly and generates
great-looking output on
both plain and special paper;
it even produces impressive
scans and copies.

Several models besides the MX7600 debut this month: Lexmark's X9575 Profes-



CANON'S PIXMA MX7600: Speedy, great-looking prints.

sional and Dell's 968w resemble each other, and both offer Wi-Fi, but the pricier Lexmark is better designed and comes equipped with an automatic duplexer (for two-sided printing). HP's Officejet J6480 All-in-One offers a lot for its price but isn't very fast. Kodak's ESP 3 All-in-One missed out; its spare configuration is best for light home/school use.

-Melissa Riofrio

#### MORE ONLINE

Visit PC World's Printers Info Center (www.pcworld.com/ic/ printers) for in-depth reviews, test results, and specifications.

#### PC WORLD TOP 10 INKJET MULTIFUNCTION PRINTERS

#### MODEL



\$400 NEW find.pcworld.com/60874

### PCW Rating

### 84 VERY GOOD

#### Performance

- . Text quality: Superior
- Graphics quality: Superior
   Tested speed (ppm): 9.8 text/ 3.7 graphics

### Features and specifications

- 28 ppm text
- 23 ppm graphics
   4800-by-1200-dpi maximum true cotor resolution

BOTTOM LINE: This fast, full-featured MFP will suit any small business or home office that can afford it.

2 Canon Pixma MX700 s200

find.pcworld.com/59701



- Text quality: Very Good
- · Graphics quality: Very Good
- Tested speed (ppm): 9.1 text/
   3.2 graphics
- 30 ppm text
- 20 ppm graphics
- 4800-by-1200-dpi maximum true color resolution

BOTTOM LINE: Work- and play-oriented features blend harmoniously in this unit, with just a few quality and design issues.

3 HP Photosmart C5280 \$130

find.pcworld.com/58163



- Text quality: Good
- Graphics quality: Very Good
   Tested speed (ppm): 7.3 text/ 2.4 graphics
- 32 ppm text
- 24 ppm graphics
- 4800-by-1200-dpi maximum true color resolution

BOTTOM LINE: This versatile unit handles photo and CD/DVD printing as easily as it does everyday copies and scans.

Canon Pixma MP530 \$180

find.pcworld.com/57390

80 VERY GOOD

- Text quality: Good
- · Graphics quality: Good
- Tested speed (ppm): 8.9 text/
   3.2 graphics
- 29 ppm text
- 19 ppm graphics
- 9600-by-2400-dpi maximum true color resolution

BOTTOM LINE: The Pixma MP530 is a well-equipped MFP for home offices, but it can print digital photos only from a PC.

Lexmark X9575
Professional
\$250 NEW

find.pcworld.com/60873

80 VERY GOOD

- Text quality: Very Good
- · Graphics quality: Very Good
- Tested speed (ppm): 9.9 text/
   2.0 graphics
- 33 ppm text
- 28 ppm graphics
- 4800-by-2400-dpi maximum true color resolution

BOTTOM LINE: Though this model is nicely equipped for a small or home office, its ink costs restrict it to lower-volume use.

6 C8180 All-in-One \$400

find.pcworld.com/59702



- Text quality: Good
- Graphics quality: Good
   Tested speed (ppm): 7.0 text/
- Tested speed (ppm): 7.0 text/ 2.7 graphics
- 34 ppm text
- 33 ppm graphics
- 4800-by-1200-dpi maximum true color resolution

BOTTOM LINE: A LightScribe drive offers soup-to-nuts digital photo processing, but office features are sparse.

7 HP OfficeJet Pro L7680 s400

find.pcworld.com/57391



- · Text quality: Fair
- · Graphics quality: Fair
- Tested speed (ppm): 13.1 text/ 4.2 graphics
- 35 ppm text
- 34 ppm graphics
- 4800-by-1200-dpi maximum true color resolution

BOTTOM LINE: This printer has high-end office features you'd expect from a color-laser MFP, but for much less money.

HP Officejet
J6480 All-in-One
\$200 NEW
find.pcworld.com/60872

78

- Text quality: Very Good
   Graphics quality: Very Good
- Graphics quality: Very Good
   Tested speed (ppm): 7,3 text/
- Tested speed (ppm): 7,3 text
   2.4 graphics
- 31 ppm text
- 25 ppm graphics
   4800-by-1200-dpi maximum true color resolution

BOTTOM LINE: A raft of features makes this unit tempting, despite middling performance and a few design flaws.

9 Dell 968w s219 NEW find.pcworld.com/60871 78 600D

- Text quality: Very Good
   Graphics quality: Very Good
- Tested speed (ppm): 10.2 text/ 2.0 graphics
- 32 ppm text
- 27 ppm graphics
- 4800-by-1200-dpi maximum true color resolution

BOTTOM LINE: A light-volume small or home office could appreciate this MFP's Wi-Fi and tolerate a few shortcomings.

10 Dell 948 AIO

\$149 find.pcworld.com/59704 78

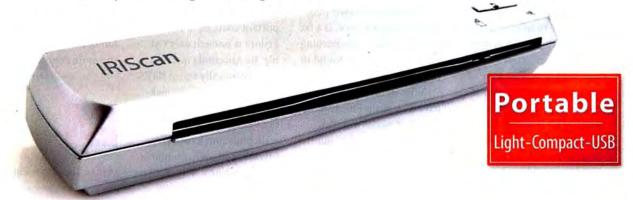
- Text quality: Good
- · Graphics quality: Good
- Tested speed (ppm): 7.6 text/
   1.7 graphics
- 28 ppm text
- 25 ppm graphics
- 4800-by-1200-dpi maximum true color resolution

BOTTOM LINE; Automatic duplexing and an ADF distinguish this multifunction from most others in its price range.

CHART NOTES: Prices and ratings are as of 6/6/08. Speeds are in pages per minute (ppm); resolutions are in dots per inch (dpi).



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### Reviews&Rankings

### Desktop Linux Face-Off: Ubuntu 8.04 vs. Fedora 9

OVER THE PAST decade, Linux has emerged from a herd of obscure and nerdy operating systems to warrant a place in even the most technologically unsophisticated business environments. And in the past three years, a few distributions have made giant leaps in performance and usability, winning the affection of millions of mainstream users.

The recent releases of Canonical's Ubuntu 8.04 and Red Hat's Fedora 9-two top Linux distributions-mark another step forward in the evolution of the Linux desktop. I've been running both of them to determine which one offers the better blend of usability and features.

### Ubuntu 'Hardy Heron'

Since the release of version 5.10 (aka Breezy Badger) in 2005, Ubuntu Linux has offered a free, stable, usable alternative to Microsoft Windows. With its click-and-go Live CD installation and its support for a broad base of hardware devices, Ubuntu has changed the way many people think about Linux.

The latest version of Ubuntu, 8.04 (aka Hardy Heron), builds strongly on the foun-

Distribution Opposide Upgrading Ubuntu to version 8.04 LTS Preparing to upgrade Setting new software channels Getting new packages installing the upgrades Cleaning up Restarting the computer About B minutes remaining Fetching file 17 of 1029 at 1201kb/s **②** <u>Cancel</u>

**UBUNTU USERS CAN upgrade to Hardy Heron** just by clicking a link in the Upgrade Manager.

dation that its predecessors laid. Hardy Heron exhibits more polish and refinement than any other Linux distribution I've seen.

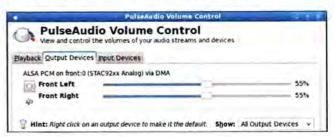
From the get-go, the Hardy Heron experience is smooth. I installed it on several machines (including an aging laptop); each installation found and recognized all of my hardware without requiring a reboot. Existing Ubuntu users enjoy even slicker installation: One click initiates an automated process that leaves all of the user's data in place.

Ubuntu hasn't changed much in overall look and feel this time around. It offers several new default applications (including Brasero for CD/DVD burning, the Transmission BitTorrent client, and Vinagre virtual network computing software), but these changes seem judicious rather than sweeping. Brasero, for instance, is a far more complete disc-burning utility than the one found in previous versions.

Hardy Heron still does not have a Desktop Effects Manager for Gnome installed; you can download it, but it really should be there in the first place. Also absent is a

> decent theme manager to take advantage of Desktop Effects.

Ubuntu 8.04 performs well where Windows XP and Vista screech to a halt, particularly on older



LIKE UBUNTU, FEDORA 9 features PulseAudio, which offers an easy way to control sound devices throughout the operating system.

hardware. It may be the best way to breathe new life into a seemingly moribund PC.

#### Fedora 9

Last year, Fedora escaped the shadow of rival Ubuntu by releasing Fedora 8, which offered a simple, graphical installer and the best hardware support we'd seen from the Fedora distribution. Still, it lagged behind Ubuntu in ease of installation and overall usability.

With version 9, Fedora has stepped up its ease-of-use game. One of the most important changes in the new Fedora is immediately visible: Its Anaconda installer can dynamically resize NTFS hard-drive partitions, making the task of adding Fedora to existing Windows installations much easier. Overall, Fedora's revamped install routine nearly matches Ubuntu's in simplicity and ease of use.

By default, Fedora includes SELinux, which enforces security policies throughout the OS. Developed by the U.S. National Security Agency, this app does an excellent job of alerting users to potential security threats and managing user authentication.

For people who are already familiar with Linux, Fedora 9 is an excellent choice. Robust security features and installation options make it somewhat more versatile than Ubuntu, which presents a more streamlined (and therefore more restricted) installation. For most users, though, Fedora lacks the ready-to-run simplicity of its more popular rival.

Ubuntu 8.04 offers a level of functionality comparable to that of Mac OS and Windows, from delivery to installation to daily use. If you're interested in trying Linux for the first time, it is the more compelling option.

-Robert Strohmeyer



### Ubuntu 8.04 Canonical

The best all-around Linux distribution available today. Free www.ubuntu.com



### Fedora 9 | Red Hat

An excellent choice for experienced Linux users. Free fedoraproject.org

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### Reviews&Rankings

### Dell PC Gets in the Game

DELL'S XPS 630 is a stylish and competitively priced mainstream gaming PC. Our \$3229 test system included Intel's 3-GHz QX6850 CPU, 3GB of RAM, 320GB of storage and a 22-inch monitor. Running Windows Vista Premium, it earned a score of 123 in our WorldBench 6 test



A BASIC VERSION of Dell's XPS 630 gaming PC starts at \$1199.

suite-on a par with competing PCs using the same CPU.

One drawback: The motherboard's nVidia 650i SLI chip set limits the system's two PCI Express x16 slots (used by the dual 512MB GeForce 8800 GT graphics cards) to x8 speed in SLI mode, raising the possibility of a bandwidth bottleneck. See our full review online.

-Danny Allen



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### DOWNLOAD THIS LAURA BLACKWELL



### Take Control of Your PC

PCs CAN BRING out everybody's inner control freak. This month, grab a powerful desktop utility, a Firefox tab tamer, and an astronomy app that puts the universe at your fingertips.

### Oh, Robot Servant...!

We may not have Jetsons-style technology. but you can play George or Jane with this timesaving robot, which streamlines some routine PC tasks. Find and Run Robot (aka FARR) comes stocked with handy tricks, and you can create your own or plug in add-ons as you go.

You can access FARR from the system tray, but pressing the default <Break> key is easier. Then, as you start typing the name of the program, folder, or file that you want-presto!-FARR displays possible matches, each of them assigned a probability score based on a formula (which you can tweak) that factors in spelling, frequency of use, and other parameters.

FARR also uses what it calls aliases—short phrases that access programs, command-line utilities, Web sites, or folders. Type "define" and a word, and you get access to fifteen online dictionaries and thesauri. Type "imdb" and a name of cinematic note to view IMDB search results in a browser window. And as you'd guess, typing "run" plus a command runs that command-no additional prompt required.

You can create your own aliases with a simple drag-and-drop, or grab those created by others by browsing the FARR add-ons forum at DonationCoder.com. Signing up at the site gives you posting privileges so you can ask questions or request new add-ons.

Find and Run Robot is free to try, but author Mouser accepts and encourages donations. Donationware, find.pcworld.com/60897.

### Make Firefox Fan-tab-stic

Basic browser tabs have fewer features than manila folders do. With the add-on Tab Mix Plus, however, you can tweak Firefox so that it works the way you do.

Tab Mix Plus lets you set new tabs to open as blank, as your home page, or as a duplicate of the current page. You can also have bookmarks open in new tabs instead of overwriting the tab on top. TMP abounds with mouse func-



AS YOU TYPE, Find and Run Robot suggests matches. Scores denote likelihood of a match.

tions, as well, such as selecting a page by hovering the mouse pointer over the tab.

TMP one-ups Firefox's own tab-saving option. allowing you to restore either your last batch of open tabs or the previous batch. TMP's session restoration highlights the titles of unvisited tabs, too, so you can quickly tell which ones you've seen recently.

Once you start making changes with TMP, it's hard to imagine how you lived without this handy extension. Tab Mix Plus is free to try, but donating a few bucks might help developer CPU add even more goodies. Donationware, find.pcworld.com/60898.

#### Explore the Galaxy

If the world's not big enough for you, how about the universe? Microsoft WorldWide Telescope lets you visit distant stars. This slick, attractive program-now in free beta-sets you loose in space, either alone or with a guide.

The Explore menu opens up heavenly bodies stored in easily understood collections: Constellations, Solar System, Hubble Images, Named Stars, and the like. Just click a collection and scroll through the thumbnails until you find a spot you'd like to examine more fully.

The images, from Earth to Orion and beyond, are breathtaking. I spotted a few blocky artifacts while the camera moved, but nothing ruined the view. You can sightsee for hours-or try the downloadable Guided Tours, in which astronomy experts briefly explain the wonders on your screen. Free, find.pcworld.com/60899.



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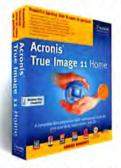
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# ught to Have How to Get Th ILLUSTRATION BY DAN PAGE

Wish that you could access your files, back up your data, or organize your work more easily? Linux and OS X include great ways to accomplish these and other tasks. Windows doesn't. But don't fret—we'll show you how to add the features to your Windows PC.

LOVE IT OR HATE IT, Microsoft Windows remains the world's most dominant operating system. But when you look at some of the hot features found in competitors such as Linux and Mac OS X, both XP and Vista can seem a little incomplete.

From automated installation tools such as Linux's application repositories to intuitive interface features like Apple's Cover Flow and Exposé to basic media capabilities such as ISO burning, Windows sometimes falls short on built-in goodies. And some features that other operating systems offer by default are available only through a premium-version license in Windows.

I took a good look at a variety of OSs-Mac, Linux, Unix, BeOS, and beyond-and rounded up a list of favorite features, few of which come standard in any version of Windows. I even considered the operating systems of yore, recalling some cool features that Microsoft still hasn't caught on to. Some of these capabilities aren't available for Windows at all, owing to the OS's design or to uncontrollable forces at work in the Windows marketplace. Several of them may eventually find their way into the upcoming Windows 7. But you can add most of them to your copy of XP or Vista right now, and I'll show you how to get them.



### Virtual Workspaces

#### Available on: Linux, Mac, Unix

Linux users have long enjoyed the freedom that operating system gives them to keep large numbers of applications

running simultaneously—without being overwhelmed by screen clutter—thanks to the power of virtual workspaces. In a typical Linux installation, four workspaces automatically spring into existence at boot time, signified by a little map on the control panel residing in the corner of the screen. As the user opens more programs, thumbnail icons of the applications appear in the workspace switcher, indicating which program windows are running in each workspace. To change workspaces, the user simply clicks the appropriate area on the workspace switcher or uses a keystroke combination such as <Shift>-<Right Arrow> to move between them.

With multiple workspaces comes the ability to organize the Linux desktop environment by task, by application type, by priority, or in any other way you care to slice it. It's particularly handy for keeping a handful of applications out of sight and out of mind, without having to shut them down. For instance, I like to keep my IM and e-mail apps in a separate workspace from my document-creation programs as a way of staying focused while I work.

Apple added the concept to OS X with the launch of Leopard in October 2007, though Leopard's Spaces feature lacks dynamic thumbnails (an item that versions of Linux have had for some time) in the Dock icon. To get workspaces on Windows, however, you'll have to do some downloading. XP users have an easy solution in the Microsoft Virtual Desktop Manager (find.pcworld.com/60931), a free download from Microsoft's PowerToys collection. But Vista users must turn to one of several thirdparty utilities. My favorite among these is a freebie called Dexpot (find.pcworld.com/60932), which offers a wide variety of configuration options.

### MICROSOFT'S Virtual **Desktop Manager** adds workspaces to Windows XP.

### Simple Remote Access

#### Available on: Mac

Nothing matches the sinking feeling you get when you boot up your office PC and realize that the latest version of the document you've been working on is stranded on your home system.

On a Mac that runs Leopard you can use Back to My Mac (along with Apple's MobileMe service) to fire up a connection to the remote computer and navigate the other machine as if you were sitting right in front of it.

Some versions of XP and Vista come with an application called Remote Desktop built in, but users of Vista Starter, Home Basic, and Home Premium are out of luck. If you use one of those versions, try GoToMyPC (gotomypc.com). At \$180 per year, this service ain't cheap, but it gives you unfettered access to your Windows PC from any Web browser. DIYers can get full remote control of their PCs through the free UltraVNC (find.pcworld.com/60979).

### **Multitouch Trackpad** Gestures

#### Available on: Mac

Beginning with the new generation of MacBooks, all Apple laptops support at least some multitouch trackpad gestures. You can use two fingers to do cool things such as scroll up and down, resize objects on the screen, and swipe your way through Cover Flow menus. MacBook Pros recognize more gestures than low-end MacBooks do, but all models respond to two fingers on the trackpad in some way.

Of course, Apple managed to accomplish that feat because it made its own hardware and software. Microsoft, on the other hand, makes only software and a few accessories. However, some laptop vendors, such as AsusTek, are beginning to ship their portables with multitouch trackpads and the drivers required to make them work. We'd like to see multitouch technology become standard on all Windows laptops over time-with support for multitouch gestures built directly into Windows. Microsoft does appear to be working on this functionality for Windows 7, but in the meantime you'll just have to keep an eye out for it with every laptop purchase.

### Audio Recording and Editing

#### Available on: Linux, Mac, Unix

While it isn't, strictly speaking, a feature of Mac OS X, Apple's Garage Band software ships with every new Mac. With it, you can compose music on your computer's keyboard, or attach external devices to your Mac to assemble a home recording studio. This makes podcasting particularly easy, as you can capture and edit speech and music, and apply a polished sound to your amateur efforts. Meanwhile Linux offers its users a vast array of open-source recording tools to choose from.

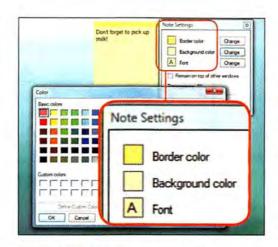
In comparison, Windows Sound Recorder is a sad one-trick pony that does nothing but collect noises from your microphone. Fortunately, you can add smart audio tools to Windows with Audacity (find.pcworld. com/60132). This freebie enables you to record your own audio, edit and splice additional sound clips into a podcast, and tweak audio settings. When you've finished creating your podcast in Audacity, use Easypodcast (find.pcworld.com/60935) to fill in the metadata that will make your podcast easy for listeners to find.

### Friendly Screen Sharing

#### Available on: Mac

When Mac OS X Leopard hit store shelves last year, it came with a handy little upgrade to iChat (Apple's homespun AIM client) that permits two Leopard users to share screens with each other on the fly.

Want to show a colleague what's on your display? Just share your screen. You can ask them to share their screen with



STICKIES FOR WINDOWS lets you create bright, eyecatching reminders and stick them on your desktop.

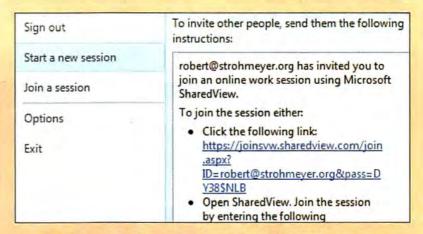
### **Stickies**

#### Available on: Linux, Mac, Unix

There's no shortage of applications designed to help you sort through your to-do listbut when it comes to sheer visibility, nothing beats a good, old-fashioned sticky note. Macs have long had an application called Stickies that adds the functionality to your desktop, letting you stick notes anywhere, color-code

the virtual paper, and set the fonts to your liking. Many Linux distributions include a utility called TomBoy Notes, which takes the Stickies idea to the next level by integrating hyperlinking functions that make the notes great for brainstorming, too.

Technically speaking, Windows Vista now includes a similar feature in the form of the Notes gadget, which you can find in the Windows Sidebar. This widget applet is a poor imitation of its Mac and Linux counterparts, however. For a sticky-note application that really pops, try Stickies for Windows (find.pcworld.com/60934). This simple, free, open-source program lets you customize your notes to your heart's content, and then stick them anywhere on your desktop.



you, too. It's free. You get an exact view of everything they can see, along with the ability to control their mouse pointer and click around as needed. It's a great way to fix your mother-in-law's computer without actually having to go visit her.

Vista's Meeting Space offers similar functionality, but only over a local network, so sharing your screen with a remote relative isn't an option. Live Messenger lets you share folders, but it doesn't allow you to control your buddy's screen.

Fortunately, Microsoft is beta-testing a new app, called SharedView (find.pcworld. MICROSOFT SHAREDVIEW ADDS easy screen sharing to Windows.

com/60980), that lets you start a screensharing session with anyone (as long as they also have SharedView installed). To share your screen in SharedView, you launch the application, click Start a new session, copy the invitation text, and paste it into an e-mail to your recipient. That person then joins your session by either clicking the link in the e-mail or launching SharedView on their PC and entering the session name and password.

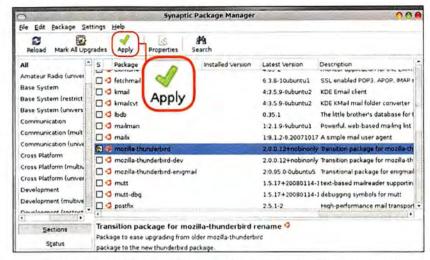


### Software Repositories

#### Available on: Linux, Unix

In a perfect world, you'd never have to leave your chair to find great software for your PC. You'd just pop open a magic software-finding utility and click a few options, and then any application you needed would install itself instantly. That perfect world already exists in Linux, which has long offered software repositories as an easy way for users to find and install new programs.

In Ubuntu, for instance, a utility called Synaptic Package Manager invites you to browse through large online software libraries (called repositories) to locate and install applications and utilities as required. Select one and mark it for installation, and it will automatically download and install when you click Apply. The utility will even automatically grab any other files that the installation depends on, without requiring any



**ONCE YOU MARK an** app for download in Synaptic Package Manager, just click Apply to install it.

additional work on your part.

Linux distributors can do this because nearly all of the software

contained in their repositories is free and open-source; they seldom have to worry about license restrictions hindering their efforts. In the Windows world, however, things are more complicated. A melange of licensing types, ranging

from freeware to shareware to trialware and even a little open-source, makes it difficult for anyone to build a reliable software library with the click-it-andget-it functionality that Linux users take for granted. Until someone assembles a massive library of self-installing Windows applications, users will have to depend on software-download sites such as Download.com, Tucows, and, of course, PC World's Downloads library (www.pcworld.com/downloads).

### **Desktop Effects**

#### Available on: Linux, Unix

Some of our favorite OS features are not so much practical as simply astonishingly cool. Take Linux's Compiz Desktop Effects, for example. We wouldn't say that turning your desktop workspaces into a rotating cube, painting fire across your screen, and making raindrops

fall onto your desktop have a lot of mission-critical business value. But that doesn't mean we don't love those features.

With the release of Ubuntu 7.10 Gutsy Gibbon in October 2007, Desktop Effects became a standard Ubuntu feature. So now any Ubuntu users who have a supported graphics card can spin their cubes, wobble their windows, and unleash lots of other eye candy. Jealous Windows users demanded similar features, and Otaku



**ON LINUX PCs, Compiz Desktop Effects** transform your desktop into a 3D cube. among other eye-popping enhancements.

Software responded. But the Windows version is more modest. Otaku Software's DeskSpace (find. pcworld.com/60937) lets you turn your desktop into a cube with four workspaces like the one offered in Linux. You can adjust the transparency levels, rotation speed, and mirroring effects, and you can even drag application windows from one side of the cube to another to reorganize your workspaces on the fly. But that's about

the extent of DeskSpace's power. And unlike Compiz, which comes preinstalled with many modern Linux distributions, DeskSpace will set you back \$20 after the initial 14-day trial period.

### Application Dock

### Available on: AmigaOS, Linux, Mac, Unix

The centerpiece of every Mac desktop is a little utility called the Dock. It serves as a launchpad for your most commonly used applications, and you can customize it to hold as many-or as fewprograms as you like. Unlike Windows' Start Menu and Taskbar, the Dock is a sleek, uncluttered space where you can quickly access your applications with a single click of the mouse.

You can add a simple application dock to your Windows computer with Stardock's ObjectDock software (find.pcworld. com/60938). ObjectDock sits atop your Windows Taskbar and behaves just as the Mac's Dock does, complete with a magnify effect that enlarges icons as you hover over them. The program can also hide your Windows Taskbar from view, giving your desktop the same sleek look that Mac users love. The standard version is free, but a \$20 Plus version adds more animations, tabbed docks, the ability to have multiple docks on the screen, and other options.



### **Truly Automated Backups**

OS X'S TIME Machine makes restoring old versions of your documents a snap.

#### Available on: Mac

Apple's Time Machine backup utility is one of the coolest new features in OS X Leopard; with its help, backing up all of your files to an external drive is idiot-simple. Better yet, it lets you quickly recover an older version of any backed-up file, so you can undo all of your horrible, horrible mistakes.

Windows XP and certain versions of Windows Vista have no such feature. Sure, they have a backup utility built in, but it's nowhere near as easy to work with as Time Machine is, and it won't do anything to help you track down lost versions of your important files. But Vista Ultimate, Business, and Enterprise come with Shadow Copy, a utility that lets you retrieve older versions of your files by right-clicking the file and choosing 'Restore previous versions' from the context menu.

What few people know is that the cheaper versions of Vista (including Home Basic and Home Premium) also record the necessary data for Shadow Copy to workthey just don't give you access to that data. A free utility called ShadowExplorer (find.pcworld.com/60933) can set that data free, letting you roll back to an earlier version of just about any file on your hard drive, without forcing you to buy an expensive OS upgrade you don't need. (For more on ShadowExplorer, see page 116.)

### Automated Screen Shots

#### Available on: Mac

Taking screen shots in Windows has never been as easy as it should be. Sure, it starts out simple enough: You press the <Print Screen> key, and the current view instantly copies to the Clipboard. Where it goes from there, however, is another matter entirely. It's up to you to open Paint or another image editor, paste the captured screen into the application window, and then save it. What a pain. Vista's Snipping Tool has the opposite problem: Even if you set up a Quick Launch icon for it, you don't have the option of creating a simple hot-key combination to start a capture unless you map one for yourself.

On the Mac, however, things are easier. When you press «Command»-«Shift»-3, an image of the entire screen view instantly saves to your desktop. Press <Command>-<Shift>-4, and the mouse pointer turns into a set of crosshairs

that you can drag over the area you want to capture.

You can improve Windows' screen-grabbing prowess with a free utility called FastStone Cap-

**FASTSTONE Cap**ture customizes **vour Windows** screen shots.

ture (find.pcworld.com/60981). FastStone Capture allows you to assign any hotkey to capture whole screens, partial screens, and even scrolling screens. It then gives you extensive editing options within its own editing tool.



### **Quick File Previews**

#### Available on: Mac

All of us absorb information in different ways, and some of us do better at handling graphical information than text. That's the main appeal of Apple's Cover Flow, which enables Mac OS X users to browse through their folders, files. music, and other data visually. With Cover Flow you can flip through your files one at a time, viewing each object as a large, helpful thumbnail-and even catching a glimpse of the contents of every file-rather than seeing everything as a mess of small, obscure icons.

Vista has made strides in improving the Windows Explorer interface, but Windows has yet to integrate anything as dynamic as Cover Flow. With a free utility called Harmony (find.pcworld. com/60939), though, you can add Cover Flow-like browsing to Windows Media Player. Harmony works only with iTunesgenerated cover art, and it doesn't integrate into Windows Explorer. Nevertheless, it's a simple, free way to spice up your Windows Media Player experience.



### **ISO Burning**

#### Available on: Linux, Mac, Unix

Mac OS can do it, Linux can do it, PC-BSD and just about every other modern OS can do it. But for some reason, Windows can't burn an ISO disc image to CD without a little third-party help.

If you want to burn a CD image on occasion, but you don't want to buy premium disc-burning software, try Alex Feinman's free ISO Recorder (find.pcworld.com/60794). Available for XP and

ISD HE CHE cata otation Copy image to CD Scan with AVG Open With... Share... Restore previous versions Send To

WINDOWS CAN'T burn CD images by itself, but ISO Recorder provides this feature for free.

Vista, ISO Recorder adds disc-image burning to your context menu whenever you right-click an ISO file. It's a lean, simple utility that does just what it's designed for and nothing more. ISO Recorder is available in 32-bit and 64-bit versions for Vista, and the Vista versions support DVD burning in addition to CD burning.

### **Tiled Window View**

#### Available on: Linux, Mac, Unix

It's an elegantly simple idea, and Apple has made it available on the Mac since 2003. When you want a clear view of all the application windows that are open at any one time, just press a function key, and a little feature called Exposé arranges them all as thumbnails spread neatly across your screen. Click one, and it pops to the front while the rest snap back into position behind it. On a Linux machine, you can get the same functionality through the Scales plug-in for Compiz Desktop Effects.

With the release of Windows Vista, Microsoft deployed a feature called Flip3D that attempts to simplify window management in a slightly different way. Flip3D lets users flip through three-dimensional renderings of whatever windows are open on the desktop, but it doesn't offer nearly the same instantaneous visibility that Exposé does.

Windows Vista users can add Exposé-like slickness to their systems with the aid

of a free utility called Switcher (find.pcworld. com/60982). Once it's installed, Switcher allows you to choose how your application windows should array themselves; it also lets you customize your window colors and configure your own keyboard shortcuts. In XP, the shareware tool Top-Desk (find.pcworld.com/ 60959) adds a similar feature for \$20 (after a 14-day free trial).



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### **PDF Creation**

#### Available on: Linux, Mac, Unix

Microsoft and Adobe have clashed more than they have cooperated over the years. Perhaps that's why

Microsoft still hasn't built Portable Document Format creation into Windows, even though the feature has been built into Linux operating systems and the Mac OS for years. Those operating systems let you view and create PDF files without resorting to third-party applications. Sure, Microsoft has designed its own competing format, XPS, for Vista in hopes that everyone will abandon the globally accepted PDF standard and switch to the new thing. But send an XPS docu-

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### File Shredder

#### Available on: Mac

Is a file-shredding feature in Windows too much to ask for? It shouldn't be. Mac OS X has shipped with its own Secure Empty Trash feature for years, and Disk Utility can shred the free space on a drive as a means of obscuring sensitive data that may have been deleted previously in an insecure way. But so far, Microsoft hasn't followed suit.

File Shredder (find.pcworld.com/ 60943) lets you add such features to Windows XP or Vista. This handy tool permits you to shred a single file, an entire folder, or all of the free space on your hard drive, using your choice of several shredding techniques.

PRIMOPDF WORKS alongside Acrobat to let you print your documents as PDF files.

ment to a friend running XP, and you're likely to induce a migraine.

Until Microsoft gets on the clue train and makes PDF printing a standard part of Windows, check out PrimoPDF (find.pcworld.com/ 60944). The free app works side by side with Adobe Reader (adobe. com/reader) to turn any document that you can open into a PDF that you can share with the world.

### POSIX Compliance

#### Available on: BeOS, Linux, Mac, Unix

Outside the Windows desktop, much of the world's software is written to conform to a Unix-based standard called POSIX. Any POSIX-compliant OS can run most software written for Unix. Linux is inherently POSIX-compliant. The Mac is, too, because it's built on Unix. Even the now-defunct BeOS supported POSIX. But Windows does not.

Though users of the Vista Enterprise and Ultimate editions can, in theory, add the "Subsystem for Unix-based Applications" to their PCs, our experiences with this feature yielded more frustration than fruit. A better way to add POSIX to any XP or Vista installation is to run Cygwin (find.pcworld.com/ 60940). This free Linux emulator installs quickly, and it supports a variety of popular Linux-based programs that have been rebuilt specifically to run with Cygwin. It also functions as a Linux command prompt, which allows you to run Linux command-line utilities, such as the popular ToDo shell script (todotxt.com), in Windows. Though Cygwin won't give you full support for all Linux software on your Windows PC, it will open the door to some basic Linux features.

### Launcher Plug-ins

#### Available on: Linux, Unix

Power users know that when it comes to accomplishing computing tasks quickly, the keyboard always beats the mouse. Linux and Unix systems come with Deskbar, a utility that lets you launch any file on your PC without taking your hands off the keyboard. It also launches Web URLs, searches Google or Yahoo, and supports plug-ins that work with third-party applications, so you can send a

text message or post a tweet to Twitter without ever touching the mouse.

Though the search bar in Vista's Windows Explorer can launch apps and URLs, it doesn't support plug-ins. To get such features, try a free download called Launchy (find.pcworld.com/60973).





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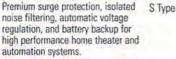






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### Standardized Menu Ribbon

A UNIFIED MENU ribbon, like the one in OS X, puts every app's controls in a predictable location.

#### Available on: Mac

Windows lacks a unified menu ribbon for all its applications. Sure, most Windows programs have stuck to a conventional 'File', 'Edit', 'View' format for their menus, but even Microsoft is beginning to buck that trend, starting with its convoluted new ribbon interface for Office 2007. In contrast, Mac OS X application menus are completely standardized, with the same ribbon of menus running across the top of the screen, so users always know where to look for certain important controls.

With Stardock's ObjectBar (find.pcworld.com/60941) you can use the MacPC skin to transform your Windows Taskbar into a Mac-style menu ribbon. The utility even duplicates the menus that most Windows applications use, so you can control them from the top of the screen as you would in Mac OS X. (The menus will still be available within your programs, too, however.) Currently ObjectBar works only on Windows XP, but a Vista version of the software is expected soon.

### Single-File **Applications**

Available on: Mac

The very existence of the Add/ Remove Programs control panel is evidence that Windows applications have become too large and unwieldy for many users. On the Mac, however, few programs consist of more than one file. (Okay, technically they're just specially packaged folders, but to the user they appear as a single file.) Removing a Mac application usually consists of dragging its icon to the Trash.

You can attain similar simplicity in Windows by running portable apps (see Scott Dunn's "Carry a PC in Your Pocket" at find.pcworld. com/60942). Of course, doing so would force you to sacrifice some of the robust features you might prefer in your favorite Windows programs, so we don't recommend it. Unless Microsoft takes a radical turn in designing the next version of Windows, you can expect Windows software to become more complicated, not less.

### 5 Great Features Microsoft Charges Extra For

Windows does come with plenty of cool features of its own, but accessing those features isn't always as straightforward as it should be. And many features that come standard in other operating systems require the purchase of a premium version of Windows Vista, such as Ultimate or Business, or exist only in a 64-bit version.

Faxing: It's 20th century, to be sure—but for millions of people, it remains a standard means of sending information. Most mother-

boards still have a modem built in. If you want to use it to send a fax through Vista, however, you'll need the Business or Ultimate edition of the OS.

Remote access: Remote Desktop Server comes standard in Vista Business, Enterprise, and Ulti-

mate, letting you control your PC from a distance for free. But if you want to access a machine running Home Basic, Home Premium, or the Starter

WANT ALL OF the features mentioned here? You'll need a 64-bit copy of Windows Vista Ultimate. edition, you'll have to pay for an expensive service or learn to master the intricacies of UltraVNC (find.pcworld.com/60979).

Media Center: One of Windows Vista's biggest selling points, Media Center allows users to share pictures, music, and video across their networks. Unfortunately, Media Center functions are a no-go for Vista Business and Home Basic users.

Drive encryption: With encryption, you can keep your data secure

should your PC or laptop fall into the wrong hands. Vista's BitLocker feature comes standard in the Business, Enterprise, and Ultimate editions, but is unavailable to Home Premium and Home Basic users.

Access to large amounts of RAM: Most new and recent PCs, which ship with 64-bit processors, have the ability to recognize more than 4GB of RAM. But unless you install a 64-bit version of Vista, Windows won't recognize more than about 3.5GB. Of course, if you do go 64-bit, you'll face a cavalcade of other problems, including applications that won't run.



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Wilson 801231 SignalBoost™ Mini-Mobile kit shownoffering 6x the power of a typical cell phone.





## Will It Cost You?

Buying replacement ink from a third-party vendor can save you big bucks. But will you pay with lousy-looking prints that fade in no time? We did months of testing to see how well cheapo replacement inks compare with the manufacturers' own brands.

BY JEFF BERTOLUCCI · ILLUSTRATION BY GEOFF SPEAR

RAZOR-BLADE MAKERS sell consumers the shaver at low prices and then make a killing selling replacement blades. Printer manufacturers do the same thing—selling their printers on the cheap and then making bank on expensive consumables like ink. It's a time-tested practice that's inspired a lively aftermarket of cheap ink from third-party suppliers.

The printer makers—the original equipment manufacturers, or OEMs—claim that their ink is worth the premium prices they charge for it. OEM ink, they say, creates images that are more accurate and colorrich, and longer-lived. Third-party suppliers, on the other hand, say that their inks are just as good but »

cost a lot less. For example, HP charges \$18 for a black ink cartridge for the Photosmart C5180, but the same cartridge remanufactured by Cartridge World costs only \$8.75.

Who's telling the truth? To find out, PC World teamed up with the Rochester Institute of Technology, a respected research university known for its top-notch laboratory for testing imaging products. Using popular ink jet printers from Canon, Epson, Hewlett-Packard, Kodak, and Lexmark, we ran side-by-side tests of brand-name and third-party inks to compare image quality and fade resistance. We also tracked how many pages each cartridge churned out before running dry.

Our tests show that all of the third-party inks in our test group yielded more prints per cartridge—on top of costing less—but that, with some notable exceptions, the printer manufacturers' ink we evaluated usually produced betterquality prints and proved more resistant to fading. Of course, our conclusions apply only to the printers we tested. We couldn't test all of the printers that are available (partly because you can't get third-party ink for all of them), so we picked a set of mainstream inkjet printers from recognized brands as a way of taking a snapshot view of the ink market.

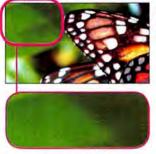
### Manufacturers' Inks Made **Higher-Quality Prints**

WE USED DIFFERENT inks to print various images on plain and photo paper, and then compared the quality of the prints. With one exception (HP vs. third-party inks), images made with manufacturers' inks were more accurate and more color-rich.

PRINTER	Ink	Text and line art	Photos (color and black-and- white)	Overall	
Canon Pixma	Canon CLI-8	Good	Very Good	Very Good	
MP830	TrueStar	Fair	Good	Good	
Epson Stylus	Epson No. 69	Fair	Good	Good	
CX5000	LD Products	Fair	Fair	Fair	
HP Photosmart	HP 02	Good	Good	Good	
C5180	Cartridge World	Good	Good	Good	
	LD Products	Good	Good	Good	
Lexmark X3470	Lexmark No. 1	Fair	Very Good	Good	
	Cartridge World	Fair	Fair	Fair	
	Overstock.com	Poor	Fair	Fair	
	Walgreens	Poor	Fair	Fair	
Kodak Easyshare 5300	Kodak 1963149	Good	Good	Good	

HOW WE TEST: We used five test printers to print a series of text, line art, grayscale, and color photo images on plain or photo paper. For photo prints we used the paper that the printer's manufacturer recommended for optimal results across all ink types. A panel of three judges, using guidelines developed by the PC World Test Center, graded the test prints as Poor, Fair, Good, Very Good, or Superior. The overall rating is an average of seven image quality scores awarded to test images created using that ink. FOOTNOTE: 'No aftermarket ink for the Kodak 5300 was available at the time of our testing. Source: PC World Test Center.

### Close-Up: Ink Quality Test





In a Canon printer, Canon brand ink accurately re-created the gradual hues of the test image.



NOT-SO-GOOD QUALITY

In the same printer, TrueStar ink created abrupt changes (called banding) between color shades.

### The Image Quality Face-Off

The PC World Test Center created a number of different text and image printouts, pitting manufacturers' inks against third-party inks in five different printers. Image samples included a motion shot of cars on a racetrack, a close-up of a butterfly, a photo of a group of people with different skin tones, and a black-and-white photo of a boat. For text we created Word document samples on plain paper; for line art we designed a test document with closely grouped vertical and horizontal lines. Judges then rated the pages for qualities such as color accuracy and vibrancy, sharpness of text and of line art, and contrast levels in grayscale images.

In most matchups, brand-name inks outperformed thirdparty alternatives, but there were a few instances in which third-party inks fared just as well as the brand-name inks did. For example, in evaluations of output from the HP Photosmart C5180 printer, inks from third-party challengers Cartridge World and LD Products earned scores identical to those awarded to HP's own ink, including an overall rating of Good, on almost all of our tests. Both the HP and the thirdparty inks printed color glossies quite well but were just soso at producing color images on plain paper.

However, after RIT technicians submitted their fade and yield results-and returned the printers it had tested to usthey became concerned that some of the HP-brand ink might have remained in the HP 5180 printer when it was printing test images using third-party ink, because the printer has unusual, long ink tubes that connect the cartridges with the printer nozzles. RIT therefore recommended that we omit the HP and HP-compatible inks from the fade test results.

We subsequently conducted our own tests to determine how much ink could have remained in the HP printer's tubes. To do so, we swapped the cyan and magenta inks (in a set of aftermarket cartridges) and printed a color composition. The image quality changed dramatically with the eighth print, indicating that the swapped ink had flushed the HP ink; if any difference in image quality were to occur, it would have to happen after the machine had printed eight pages. We then printed 20 pages from each set of cartridges-HP's ink and three aftermarket inks-and saw no change in print quality, a result tending to support our earlier conclusion that the print quality of the third-party ink was equal to that of the HP ink.

In output from an Epson CX5000 printer, Epson's and LD Products' inks performed well overall, though the Epson ink scored higher for its color glossies and grayscale prints. Our judges didn't care for the line-art output from either vendor's ink, however; one judge commented: "Blech! Lots of overlapping lines. Horrible diagonals-jagged and feathery."

Tested in a Pixma MP830 printer, Canon ink produced samples that looked particularly sharp in our plain text, color glossy, and grayscale print tests. A third-party competitor, TrueStar, was no slouch either, receiving an overall score of Good. The TrueStar ink excelled at color glossies, but fell far short of Canon ink at printing on plain paper, whether the content consisted of color images, grayscale images, or text.

Lexmark's house brand earned a Good overall score, and its color glossy output snagged the only Superior rating our judges awarded. Meanwhile, the inks from Cartridge World, Overstock.com, and Walgreens earned lower marks overall: For color glossies, the third-party inks earned scores of Good or Very Good (below the ratings for Lexmark's own ink), and their grayscale output received a grade of Poor. Our panel criticized the third-party inks for banding (abrupt changes between shades of the same color) and for odd, greenish hues.

### Third-Party Ink Yields Were Higher

On the other hand, printing with the third-party cartridges in our tests will save you anywhere from 3 percent to nearly 70 percent per page, depending on what kind of printing you're doing. For example, a set of remanufactured Epson Stylus CX5000 color cartridges (cyan, magenta, and yellow) from 123Inkjets.com printed nearly 70 percent more pages than the Epson ink, at a cost of about 9 cents per page of color printing, and 2.6 cents per page for black. In contrast, Epson's ink cost 30 cents per page of color printing and about 10 cents per page for black. Epson's Web site says that a set of its color cartridges for the CX5000 should print about 350 pages, but the Epson cartridges we tested averaged only about 190 pages. In contrast 123Inkjets' remanufactured color cartridges averaged just over 320 pages.

Third-party ink cartridges outlasted HP ink cartridges by an even greater margin. 123Inkjets' black cartridge for the HP Photosmart C5180 printed at a cost-per-page of 0.6 cent, while its brand-name HP counterpart printed at 2.2 cents per page. The 123Inkjets cartridge yielded 72 percent more pages than the HP before needing replacement. 123Inkjet's color cartridges (cyan, magenta, and yellow) did even better, yielding an average of 99 percent more pages than the HP cartridges. Cartridge World cartridges, which cost less than HP's

### Third-Party Inks Printed More, Cost Less

WHICH PRINTER INKS-those made by printer manufacturers or those made by third-party ink sellers-delivered more bang for the buck? Using 13 competing cartridges in five printers, we calculated the cost of the ink needed to print a page of black-only, full-color, or high-quality photo printing. Though many third-party ink cartridges failed to work in our test printers, those that did printed more pages and cost substantially less than the brand-name rivals. See our charts on pages 94 and 96 for the rest of the story.

PRINTER	Ink	Black-only printing <sup>1</sup>	Color printing <sup>2</sup>	Photo printing
Canon Pixma	Canon CLI-8	3.6 cents	11 cents	26 cents
MP830	Cartridge World	2,6 cents	7 cents	17 cents
Epson Stylus	Epson No. 69	9.6 cents	30 cents	59 cents
CX5000	123Inkjets	2.6 cents	9 cents	16 cents
	Cartridge World	n/a³	n/a³	n/a³
HP Photosmart	HP 02	2.2 cents	9 cents	32 cents
C5180	123Inkjets	0.6 cents	3 cents	11 cents
	Cartridge World	1.3 cents	8 cents	17 cents
Lexmark X3470	Lexmark No. 1	16 cents <sup>4</sup>	16 cents	30 cents
	Walgreens	n/a <sup>5</sup>	15 cents	29 cents
	Overstock.com	10 cents*	10 cents	n/a <sup>6</sup>
	Cartridge World	7 cents <sup>4</sup>	7 cents	n/a <sup>s</sup>
Kodak Easyshare 53007	Kodak 1963149	2 cents	8 cents	12 cents

HOW WE TEST: All printers were evaluated following ASTM International testing standard F2555-06 "Standard Practice for Determining Page Yield of Ink Jet Printer Cartridges-Continuous Printing Method." Using an ASTM F1942 text document with 5 percent area coverage (all colors) as our definition of a printed page, we report the average page yield of three cartridge sets. n/a = Not available. FOOTNOTES: 'Black-only ink cost per page is derived by dividing the cost of one black cartridge by the number of pages it yielded. Color and photo printing ink costs per page are derived by dividing the cost of all ink colors (including black, whether in separate cartridges or all-in-one) by their average page yield. \*Cartridges failed to print when installed, \*Black ink and color inks there contained within one cartridge) ran out simultaneously at the end of the test. The all-inks-in-one cartridge failed before the black ink ran out. "Cartridges failed early with major print-quality defects (see "Brand-Name Cartridges Were More Reliable," page 97, for details). 'No aftermarket ink for the Kodak 5300 was available at the time of our testing. Source: Rochester Institute of Technology; ink prices from PC World research.

OEM versions on all counts, produced impressive page yield numbers, too: Its black, eyan, and magenta cartridges generated about 70 percent more pages than the HP cartridges, and its yellow cartridge churned out 80 percent more.

The overall disparity between Canon inks and Cartridge World inks was smaller. Both cartridge sets produced reasonably good page yields and costs per page for black and color prints. For high-quality photo prints, however, the Cartridge World cartridges were a bargain, printing at 17 cents per page versus the Canon inks' 26 cents per page. (For details see "Third-Party Inks Printed More, Cost Less" on page 95.)

### Manufacturers' Inks Aged Gracefully

Several factors determine how well a color print withstands the effects of aging. Heat, light, and pollution play major roles, as do the inks' chemical composition and the type of paper they're printed on. To test the inks' resistance to these sources of image fading, RIT technicians placed print samples in an image-durability chamber, which speeds up the aging process by exposing the prints to concentrated levels of ozone and ultraviolet light (see "How We Tested the Longevity of Inks" on page 97). In the end all of the inks tested suffered some loss of optical density, but the OEM inks generally resisted fading better than their third-party competitors did.

In RIT's study, Epson's inks, on average, showed by far the greatest resistance to fading. Test prints created using Epson ink lost only 0.5 percent of image density in the ultraviolet light test, and only about 1.6 percent of image density in the ozone exposure test. So slight a degree of degradation is hard for the human eye to detect. Images created using Epson-

### Manufacturers' Inks Resisted Fading Better

PRINTER MAKERS' INKS usually stood up better than thirdparty inks to heightened levels of ozone and ultraviolet rays, though the OverStock.com and Cartridge World inks resisted ozone better than their Lexmark brand rival. The numbers below represent percentage of image fade, so lower is better.

PRINTER	lnk	Ozone fade	Ultraviolet fade	
Canon Pixma	Canon CLI-8	28.36%	10.03%	
MP830	Cartridge World	66.01%	21.63%	
Epson Stylus	Epson No. 69	1.61%	0.06%	
CX5000	123Inkjets	29.1%	35.96%	
Lexmark X3470	Lexmark No. 1	3.32%	11.4%	
	Walgreens	5.13%	57.01%	
	Overstock.com	2.22%	22.12%	
	Cartridge World	2.96%	28.29%	
Kodak Easyshare 5300'	Kodak 1963149	5.17%	1.45%	

HOW WE TEST: For the ozone fade test, we gauged the ability of an image to resist fading when exposed to pollution-in this case, ozone. Each color was measured before and after seven days of exposure to 5 ppm of ozone; we recorded the percentage of image density loss for each color and then averaged the figures. For the light-fastness evaluation, we exposed sample prints to an increased level of ultraviolet light in a Q-Panel xenon-arc chamber for 80 hours at 63 degrees Celsius. We recorded the percentage of image density loss for each color and then averaged the figures. FOOTNOTE: 'No competing aftermarket ink was available for this model, so we compared the Kodak ink to other OEM ink brands in the market. NOTE: RIT did not obtain usable results in fade tests of HP and HP-compatible ink cartridges. Source: Rochester Institute of Technology

### Inks Age Differently







WALGREENS INK BEFORE



LEXMARK'S OWN INK AFTER Lexmark brand ink faded marginally, yet noticeably, under exposure to ultraviolet light.



WALGREENS INK AFTER Lexmark-compatible Walgreens ink, by contrast, lost 57 percent of its color density in our UV test.

compatible 123Inkjet inks, the lone Epson competitor tested by RIT, lost an average of 36 percent of their image density under UV exposure, and 29 percent under ozone exposure.

The Kodak inks averaged 5 percent fade after 80 hours in the UV chamber, while fading only 1.45 percent under ozone exposure. (At the time of our testing, no compatible thirdparty ink had yet emerged to compete with Kodak's ink; LD Products has since brought out cartridges for the 5300.)

The Canon brand ink faded 28 percent under exposure to ozone, and 10 percent under UV light. Canon-compatible Cartridge World inks faded about twice that much-roughly 66 percent in the ozone test, and 22 percent in the UV test.

In RIT's UV test, the Lexmark ink proved far more faderesistant than the Walgreens ink, and marginally better on average than the Cartridge World and OverStock.com inks. None of the Lexmark or compatible inks faded substantially in the ozone test. Canon supplies-particularly the black and green inks-faded noticeably, but Cartridge World ink faded even more in all colors except black. (See "Manufacturers' Inks Resisted Fading Better" at left for full details.)

### And Now a Kodak Moment . . .

Kodak asserts that its cartridges have more going for them than a low price: Prints made with its inks are as vivid, colorful, and accurate as those made with any other manufacturers' inks on the market, the manufacturer says. We confirmed Kodak's claims on both counts: Kodak inks were as economical as the third-party inks, selling at \$10 for black and \$15 for color cartridges, the same price as cartridge refills at Walgreens. The Kodak inks' cost per page is fairly good, too, at 2 cents for black printing, 8 cents for color, and 12 cents for photo. Kodak inks earned scores on a par with those of the other manufacturers' inks in our print-quality tests, and rated especially highly in color glossy print jobs. And Kodak inks were second only to Epson in resisting ozone and UV light.

### Brand-Name Cartridges Were More Reliable

Printer vendors say that their ink cartridges are more reliable and pose fewer technical problems in their own printers than third-party inks do. Most third-party ink sellers remanufacture (that is, buy, clean, and refill) used brand-name cartridges or resell cartridges that they buy from another manufacturer.

Our research tended to corroborate the printer manufacturers' claims. In the RIT tests, brand-name cartridges consistently installed and ran without a hitch, whereas some thirdparty supplies worked poorly or not at all.

For instance, a few Walgreens and OverStock.com cartridges designed for the Lexmark X3470 printer suffered from color mixing (in which ink from one cartridge leaks into another inside the printer) and from print-quality defects. Supposedly compatible Cartridge World cartridges-40 of them, in factfailed to work in the Epson Stylus CX5000 printer and could not be tested. (The Epson unit's ink-replacement software utility reported, "The installed ink cartridge is incompatible with this printer," but didn't provide details.) And 2 of 20 Lexmark-compatible cartridges from Cartridge World arrived at RIT with ink leaking into the packaging prior to installation.

These reliability problems are not entirely the fault of the third-party ink sellers. Some manufacturers put microchips in their cartridges and printers, thus making it harder for third-party suppliers to design compatible supplies. "They'll put in a chip to keep third parties from being able to reverseengineer" the product, says IDC printer analyst Keith Kmetz.

For instance, Canon ink cartridges include a computer chip

that thwarts third-party competitors. "Nobody's been able to replicate it, figure it out, figure out how to reset it, get around it," says Steven Eaton, store manager of Cartridge World in Folsom, California. "Printer manufacturers roll out new printers every six to eight months, and it's a struggle to keep up with all the new technologies," Eaton says.

Vendors also use scare tactics to discredit third-party products. "We see vendors saying your warranty could be affected if you're not using their genuine supplies," says IDC's Kmetz.

"Usage [of a third-party ink cartridge] alone does not void the warranty," says Tricia Judge, executive director of the International Imaging Technology Council, a trade group for toner and ink suppliers. The only way the warranty can be voided, according to Judge, is if a third-party product damages the printer. And if you're dealing with a legitimate aftermarket vendor, "They're going to repair or replace the printer for you if their cartridge damages it."

### Our Ink-Stained Conclusions

Depending on your printer, you may be able to find cheaper, third-party inks that perform as well as or better than the brand-name stuff. In our study we found that third-party ink cartridges usually cost less and often yielded more prints than their manufacturer-made rivals. On the other hand, in most cases, we confirmed the printer manufacturers' claims that their own inks produce better-looking images.

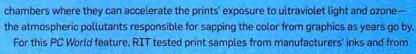
Deciding between brand-name and third-party alternatives depends in part on how you plan to use your prints. If you >>

### How We Tested the Longevity of Inks



ALL PHOTOGRAPHS FADE over time, as sunlight and pollution take their toll. But to determine whether printer manufacturers' inks last longer than those of third-party suppliers, researchers need to condense years of image fading into just a few days. How do they do it?

Technicians in the Imaging Products Laboratory at the Rochester Institute of Technology (RIT) place color prints in environmental



third-party aftermarket inks. Altogether, it tested ten cartridges per color, per vendor. For the light-fastness tests, RIT technicians placed the print samples in a Xenon-arc chamber (see the image above) for 80 hours at 145 degrees Fahrenheit, exposing the sam-

ples to an increased level of ultraviolet light. In the chamber, brief bursts of high-intensity light mimic the effects of a low-intensity exposure over a period of many years. The laboratory also ran tests to determine how well a print resisted the effects of ozone

or pollution in the real world. In this test, RIT researchers measured the image's color values before and after a seven-day exposure to air containing 5 parts per million of ozone.



want high-quality color photos that future generations will be able to enjoy, then OEM inks are usually a better choice.

Many of us, however, don't need the best ink supplies that money can buy. If your prints tend to be for one-time-only office presentations, text documents for school, or temporary color images (such as plainpaper photos), inks from thirdparty supplies may be a reasonable cost-saving option. And over the lifetime of your printer, cost savings from buying thirdparty inks can be considerable.



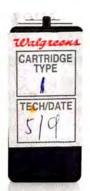
THIRD-PARTY

Third parties sell cheaper ink in new or refurbished cartridges.



### **OWN BRAND**

**Printer makers** sell pricier ink in cartridges built for their printers.



#### REFILL

Walgreens refills empty ink cartridges brought to its retail stores.

says Charlie Brewer, managing editor of The Journal.

One key factor in the printer manufacturers' dominance of the replacement cartridge market is a landmark 2007 ruling by the International Trade Commission (a U.S. government agency) that barred the importation of Epsoncompatible ink cartridges into the United States. The immediate result for U.S. consumers is a big drop in the availability of thirdparty inks for Epson printers.

Another factor is the printer makers' aggressive and persistent

effort to take third-party vendors to court for infringement of their ink cartridge patents. "They're very litigious, they're very threatening, and they go after people," says patent attorney Edward O'Connor, who has been arguing printer industry patent-infringement cases for nearly 20 years.

Aftermarket lawsuits are nothing new, says IDC's Kmetz. The printer manufacturers "are not making as much money on the hardware as they are on the supplies, so any supply revenue that gets threatened is of great concern."

Printer vendors say they're just protecting their turf, not trying to mortally wound their aftermarket rivals. "We believe in fair competition," says HP's Brown.

Critics, however, charge that printer makers engage in bullying third-party vendors, most of which lack the resources to fight long legal battles. The resulting chilling effect discourages aftermarket competitors from selling ink, which in turn hurts consumers by keeping ink prices artificially high. •

### An Ink Aftermarket in Flux

Finding suitable third-party cartridges for a particular printer isn't always easy, and may be getting harder. That's because selling third-party ink, we're told, is a tough business.

According to imaging industry forecaster Lyra Research, parent company of The Hard Copy Supplies Journal (a printer industry trade publication), printer manufacturers control about 80 percent of the market for replacement printer ink cartridges. Total worldwide revenue from inkjet cartridge sales will be about \$31.5 billion this year-\$25.1 billion of it going to printer makers and the other \$6.4 billion going to third-party cartridge sellers and refill shops or kiosks.

And experts say that third-party vendors' market share may be falling. "Overall, the OEMs are gaining back a little share, maybe a point or two over the next several years worldwide,"

### Where and How to Buy Cheap, Reliable Ink

THE AFTERMARKET FOR printer ink can be a tricky place to shop. Third-party cartridges cost less than the manufacturers' brands-which is why people buy them. But it can be a lot harder to tell whether a thirdparty vendor sells high-quality ink products.

One time-tested method is to shop at an established retailer (online or brick-andmortar) that guarantees the quality of its products. Obvious examples include office supply chains such as 123Inkjets, Cartridge World, Office Depot, Office Max, and Staples, all of which carry third-party ink cartridges.

But finding third-party ink for your specific printer model can be a challenge, particularly if your unit is very new, very old, or not very popular. Before driving around town to find the right cartridge, do a little homework online. At today's insane gas prices, you could end up spending \$20 on fuel just to save \$10 on an ink cartridge.

Like the online arms of other major retailers, Staples.com has an Ink & Toner Finder. Click the link for Staples Brand Ink & Toner to find a decent assortment of third-party supplies for Brother, Canon, and Lexmark printers. If you find compatible ink, you can buy it online or check with your local outlet to see whether it has the product in stock.

If you're dealing with a vendor that you

haven't used before, ask questions. A reputable online ink retailer will provide names and contact information for the ink manufacturers that it buys its supplies from.

When shopping for remanufactured cartridges, ask the third-party supplier how thoroughly it inspects used cartridges before refilling them. "Do they look for cracks? Do they test the electrical characteristics of the cartridge? A cartridge can look fine but have a broken electrical component, and then it won't work," says Tricia Judge of the International Imaging Technology Council. The vendor should also test the cartridge after the refill, Judge adds.

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# Dawn of the Megazooms

**EQUIPPED WITH** a servo-controlled 20X optical zoom lens, Olympus's SP-570 UZ is the megazoom to beat.

For many photographers, a powerful optical zoom may be more valuable than a mountain of megapixels. These advanced pointand-shoot cameras let you pull in a tight shot from very far away. »

BY ANDREW BRANDT, DAVE CARROLL, PAUL JASPER, ANDREW MAGER. AND DANNY PALMERLEE

PHOTOGRAPHS BY ROBERT CARDIN

With pocket-size point-and-shoot cameras peaking, camera makers have emerged from their R&D labs with a new generation of hybrids: mutants with superior vision. These cameras blend the simple controls of pocket models with high-quality optics and advanced features typically offered only on digital single-lens reflex units. The unfortunate moniker given to these cameras? Megazooms.

These units' defining features are larger lenses and high-power optical zooms. You also get manual control over ISO settings, aperture, and shutter speed. Don't expect to slip one of these behemoths into a pocket. These chunkier models fit in a camera bag or camping pack.

We tested six newer megazooms, from Canon, Casio, Fuji, Olympus, Panasonic, and Sony (the Canon is actually a 2007

model; the company hasn't yet announced an updated version for 2008). Another contender, Nikon's new Coolpix P80, was released too late to make our tests; look for an online review.

Many megazooms add image stabilization to the lens; and if ever you need image stabilization, it's when you're zoomed in on a far-away subject. The greater the magnification, the less movement it takes to blur a shot. Even with image stabilization, you should use a tripod, especially in low light.

Want high-end features? The slow-motion mode in Casio's Exilim Pro EX-F1 shoots 60 full-resolution photos per second and (much-lower-resolution) video at 1200 frames per second. The EX-F1 can also capture 1080i high-definition video, making it a great hybrid of a still and video camera.

A megazoom's responsiveness (how quickly the camera takes the picture after you press the shutter release button) falls short of a digital SLR's lightning-

> THE OLYMPUS SP-570 UZ offers intuitive controls and a nice range of both manual and beginner-friendly settings.

fast reaction. Nevertheless, these plus-size point-and-shoots bring you close to the experience of using a digital SLR, and they do so for much less dough.

-Andrew Brandt

### Rating the New Megazooms

OLYMPUS'S SP-570 UZ doesn't just come equipped with the largest optical zoom (20X); it also posted the highest PC World Test Center rating of all the new megazooms that we reviewed for this roundup. Here's how these models stack up.

AD	VANCED	PCW Rating	Performance	Features and specifications	Bottom line
1	BLST Olympus SP-570 UZ S500 find.pcworld.com/60987	88 VERY GOOD	Image quality: Superior     Battery life: Superior     Overall design: Very Good	10 megapixets     26mm to 520mm zoom (20X)     31 scene modes     19.5 ounces	The king of the high-zoom cameras takes sharp long-distance pictures and detailed close-ups—and delivers good ergonomics.
2	Canon PowerShot S5 IS \$350 find.pcworld.com/60988	84 VERY GOOD	Image quality: Superior     Battery life: Good     Overall design: Very Good	8 megapixels     36mm to 432mm zoom (12X)     22 scene modes     20 ounces	An articulable LCD, great image stabilization features, and top-quality photos add up to an above-average megazoom camera.
3	Panasonic Lumix DMC-FZ18K \$350 find.pcworld.com/60989	84 VERY GOOD	Image quality: Very Good     Battery life: Superior     Overall design: Good	8.1 megapixels     28mm to 504mm zoom (18X)     18 scene modes     14.4 aunces	Decently priced megazoom is a great learning tool for photo enthusiasts who are ready to graduate from a point-and-shoot.
4	Sony Cyber-shot DSC-H50 \$400 find.pcworld.com/60990	82 VERY GOOD	Image quality: Superior     Battery life: Good     Overall design: Good	9.1 megapixels     31mm to 465mm zoom (15X)     12 scene modes     16 ounces	The Cart Zeiss telephoto and manual features are strong, but the camera's focus-lock is erratic and its startup is slow.
5	Fujifilm FinePix S8100fd \$400 find.pcworld.com/60991	82 VERY GOOD	Image quality: Superior     Battery life: Superior     Overall design: Good	• 10 megapixels • 27mm to 486mm zoom (18X) • 13 scene modes • 18.7 ounces	Lightweight model has a zoom lens that plays well at both the wide-angle and the telephoto extremes of its range.
6	Casio Exilim Pro EX-F1 \$1000 find.pcworld.com/60992	81 VERY GOOD	Image quality: Superior     Battery life: Superior     Overall design: Very Good	6 megapixels     36mm to 432mm zoom (12X)     26 scene modes     28.7 ounces	Innovative camera captures full-resolution photos at a rate of up to 60 frames per second in its special burst mode.

### Olympus SP-570 UZ

Olympus's \$500 megazoom has the greatest magnification rating in the collection of six cameras we tested for this roundup. At 20X, photos taken 30 feet from the photographer look like close-ups. The SP-570 UZ's range is stunning: This model covers the equivalent of a 35mm film camera's range of 26mm to 520mm; it's great for taking both wideangle pictures and very detailed macro (close-up) shots.

The zoomy monster isn't a one-trick pony by any means. It has a servo-controlled zoom; 23 scene modes; manual ISO, aperture, shutter, and focus settings; and a "guide" mode to step you through the photographic process.

Four buttons for basic functions line the left edge of the 2.7-inch screen; five additional buttons arrayed like a directional pad control the flash, the self-timer, and the macro mode. You adjust the servo-controlled zoom by turning a ring on the lens; a small motor moves the lens. I found that the motion of the lens-which doesn't move exactly in proportion to your turning of the dial-took a little getting used to.

In low light, the autofocus would scan from one end to the other trying to sharpen the image, and sometimes it took up to 2 seconds to lock on to a focal point. But in daylight, Olympus's iESP targeting system (which the autofocus controls use) worked remarkably well and produced clear shots even at the maximum zoom, aided by the image stabilization built into the lens.

-Andrew Brandt

### Canon PowerShot S5 IS

The oldest high-zoom digital camera in our roundup is hardly a dinosaur. Like its 2008 competitors, Canon's \$400 Power-Shot S5 IS-released in May 2007-resembles a smaller digital SLR in look and feel. Its optical zoom maxes out at 12X.

The S5 IS comes with excellent optical image stabilization. This feature worked brilliantly except at maximum zoom in, at which point image blurring occurred. The face-detection technology is clever, too, but sometimes it's just as easy to set





THE CANON Power-Shot S5 IS comes with a 12X optical zoom lens, stereo microphones, and an LCD that twists, turns, and swivels.

the focus yourself. The camera has a basic video editing feature, stitch assist for piecing together panoramic images, and color adjustment and white balancing for low-light shots.

The chunky handgrip offers a stable hold with easy access to every control with either your index finger or your thumb. A convenient, dedicated button for recording movies sits next to the camera's viewfinder, and an ingenious power/mode lever allows easy toggling between modes. The only control I missed was a ring for manual focusing; you must use a directional pad, which can be difficult and time consuming.

The flip-out LCD screen on the S5 IS is a tremendous plus: It's large, bright, sharp, and fully articulable. That's especially fortunate because the camera's electronic viewfinder displays a picture worthy of a gas station security monitor; it's pretty much useless for anything other than gross composition.

The 12X zoom is quick and quiet, and the autofocus was

snappy except at maximum zoom; sometimes it had to search for the proper sub-

> ject whenever I decided to zoom way in.

Picture quality varied. Otherwise good images occasionally suffered from a noticeable degree of noise at anything above midrange ISO. In addition I detected an odd blur- >>



PANASONIC'S **Lumix DMC-**FZ18K offers an 18X Leica wideangle lens, and it's a nice deal



**OUR REVIEWER** liked the tilting LCD screen on the 15Xoptical-zoom Sony Cyber-shot DSC-H50, which enabled him to shoot from the hip-literally.



riness around the periphery of many of my images.

Despite including a handy function menu for the most common options, the S5 IS has some "hey-let's-just-throw-it-in" features that clog menus (a wolf-howl sound effect for the self-timer-really?). For every great feature that it offers (image stabilization, stereo microphones), another is missing (manual focus ring, RAW file support). But the good far outweighs the bad, and the S5 IS is a solid camera for aspiring amateurs.

-Dave Carroll

### Panasonic Lumix DMC-FZ18K

The \$350 Lumix DMC-FZ18K cuts no corners on the lens: it offers an 18X optical zoom, a 28mm wide-angle lens, and a host of manual controls for a good price. Amateur photographers can learn the art of taking great shots by playing with this 8.1-megapixel camera's manual settings. It's beginnerfriendly, too, thanks to 18 preset scene modes and auto mode.

The DMC-FZ18K's wide-angle Leica lens doesn't just stand out because of its zoom. The focal range extends from 28mm to 504mm, and the camera's excellent macro mode allowed me to take great shots of food-and scare the grin off of a bug's face. The camera is built for comfort; its bulky size feels good in your hand, but it weighs less than a pound.

In isolation, the camera's image quality impressed me, but it ranked near the bottom in image scores for these megazooms

### What Kind of Camera Is Your Perfect Match?

MEGAZOOMS DIDN'T EMERGE out of an economic vacuum: Businesses and individuals have a need for their combination of features.

Like smaller point-and-shoots, megazooms are far less expensive than SLR cameras, yet they also have advantages beyond mere price: They're simpler to use, less burdensome to lug around, and great for taking photos. The 10-megapixel CCD on some models means there's even a bit of room to magnify an image if you need to go beyond the maximum optical zoom and use the digital zoom as well. The cameras can also shoot video, which an SLR can't do.

The big disadvantage of the megazooms—their bulkiness—isn't dramatic; schlepping one around is just slightly more of a hassle.

Who needs a megazoom? Home inspectors, contractors, insurance agents, and real estate agents stand to gain from using the long-distance zoom-photographing a roof defect from the street, for instance, to save a trip up a ladder. Many models offer a macro feature that lets you place the lens inches from the photographic subject. Car insurance adjusters would get mileage from that.

Nature and wildlife photography is another match for megazooms: When photographing skittish (or dangerous) wildlife, for example, you can keep your distance and still get a decent shot.

The one thing that megazoom cameras struggle with is jerky motion. Though several models include image stabilization, you can't depend on that alone to block the blur-so a tripod is a must.

-Andrew Brandt

### POINT-AND-SHOOT, MEGAZOOM, OR DIGITAL SLR?

MEGAZOOM CAMERAS AREN'T the perfect fit for everyone or every situation, but they definitely have a target audience. Are you in that group? Here are some criteria to consider in deciding which class of camera is right for your needs.

#### **Digital SLR**

WHY TO BUY: You need a really quick shutter to photograph fast-moving targets. You want precise control over your shots. You want access to a variety of lens options. You're looking for a very durable camera. You want or need to use fineart features such as multiple exposures.

WHY NOT TO BUY: You need something light. beginner-friendly. compact, or inexpensive.

#### Point-and-shoot

WHY TO BUY: Small size and ease of use are the two most important considerations you are weighing. Neither zoom nor manual controls factor into your needs.

WHY NOT TO BUY: You need to use a relatively advanced camera-one that offers greater responsiveness, more manual controls, and/or a higher-quality image than you can get with a point-and-shoot model.

#### Megazoom

WHY TO BUY: You want to capture image details from a relatively long distance with a highmegapixel camera. You need manual controls. but not enough to justify paying a premium for a full digital SLR camera.

WHY NOT TO BUY: Your photographic needs are met by a smaller or less costly camera. The only real appeal these models have for you is that you like saying "megazoom." in our subjective testing, earning low scores for exposure quality and for flash exposure despite having a large, flip-up flash.

Battery life was a bit disappointing: The DMC-FZ18K outlasted only the Canon PowerShot S5 IS and the Sony Cybershot DSC-H50. In our tests, the Panasonic's rechargeable lithium ion battery took 420 shots on one charge, compared with shot counts in the 500 range for some other cameras.

The DMC-FZ18K's face detection didn't produce anything spectacular during testing. Sometimes it failed to recognize a person's face in the dark, and a few half-presses on the shoot button were needed to focus on the subject's face. Another shortcoming is the camera's optical image stabilization: It's only so-so unless you have the camera in auto mode.

Besides its manual controls and wide-angle lens, the DMC-FZ18K has other goodies for advanced photographers and image editors: It shoots RAW-format images—but keep in mind that the image size is about six times larger than a JPG, and plan your SD memory card purchases accordingly.

The Lumix DMC-FZ18K comes through for the price, especially if you want a great lens and a beginners' course in manual settings. If image quality tops your wish list, you may prefer Olympus's SP-570 UZ or Sony's Cyber-shot DSC-H50.

-Andrew Mager

### Sony Cyber-shot DSC-H50

The DSC-H50's strengths begin with its Carl Zeiss 15X zoom lens, equivalent to a 35mm maximum of 465mm—impressive for the camera's size and weight (16 ounces). During street testing, the lens opened up a world of subjects that otherwise would have been too distant for me to capture. I used the telephoto constantly, often shooting from the hip using the tilting LCD display (another great feature).

Sony's image stabilization kept most photos very sharp, even with the lens cranked up to 15X on a cloudy day.

The DSC-H50's manual capabilities include aperture priority, shutter speed priority, and a fully manual mode, as well as bracketing modes for exposure, color, and white balance. You can select the amount of noise reduction to be applied to your photos in-camera. Two features I liked were the adjustable flash and the dedicated light-metering button. Lowering the flash intensity made for warmly lit indoor photos. And the metering button, located directly behind the shutter release, made switching between full-scene, center, and spot metering a cinch.

The DSC-H50 has plenty of other virtues, too: In our lab tests it scored as well as or better than its competitors THE FINEPIX
S8100FD'S dedicated face-recognition
and image stabilization buttons are
a nice touch—that
is, if you remember
to press them.

on image quality, especially sharpness. The unit's user-friendly mode dial made the manual functions and 12 scene modes easy to access. The camera takes superb close-ups in macro mode, and the video (in 640 by 480 resolution at 30 fps) is excellent for its class. Finally, there's the smile sensor: Having the shutter trigger when everyone smiles is great for laughs.

The DSC-H50 does have some shortcomings. The LCD produces a jumpy image when panning, and battery life is very low. Our lab tests yielded 291 shots on a charge; in the field, that's noticeably few. While most of the camera's dials and buttons are logically placed, the shutter button's sensitivity meant that I often released the shutter when attempting to focus. Though the DSC-H50 has some advanced focusing capabilities (including child- and adult-priority face detection), the camera sometimes wouldn't focus when I wanted, and I lost shots. I was also unhappy with the startup speed.

Overall, the DSC-H50 made a favorable impression, especially the 15X lens and the tilting LCD. Eliminate the glitches (or ignore them), and you have a fierce little camera for \$350.

-Danny Palmerlee

### Fujifilm FinePix S8100fd

The \$400 Fujifilm FinePix S8100fd's versatile 18X zoom lens covers a very wide range—the equivalent of 27mm to 486mm in a 35mm film camera—thereby allowing true wide-angle and extreme-telephoto capability in a compact unit.

The wide angle was excellent for sweeping mountain backdrops, while the long telephoto let me get up close to wildlife. The two-pronged image stabilization system was effective

> at reducing the likelihood of blur in zoom shots and at capturing birds in flight. It works by shifting the sensor to compensate for unsteady hands and by raising the sensitivity to allow for shorter exposure times.







tection and automatic red-eye removal, the camera provides exposure compensation, aperture- and shutter-priority settings, and full manual focus and exposure controls. Despite its relatively low exposure range (which extends from F2.8 to F8.0), the camera tended toward large apertures for my scenic shots. I liked being able to reduce this setting myself, to achieve a longer depth of focus in pictures.

I found the camera's color fidelity somewhat disappointing; green trees and grass often looked unnatural. On the other hand, the S8100fd performed well in our lab tests, where our judges reported seeing good color reproduction. Exposure acAA alkaline batteries, which are easier than most to replace. The S8100fd's combination of automated assistance and fine-tunable settings make it a good camera for all occasions.

-Paul Jasper

### Casio Exilim Pro EX-F1

Photos that freeze action as a ball hits a bat or a droplet splashes into a pool come easily with the EX-F1. It takes up to 60 frames per second and has several ways to exploit this ability.

At the ballpark, I loved the mode that prerecords frames as you half-press the shutter release. The EX-F1 saves images

only when you press the button down the rest of the way. If the hitter whiffed, I just released

> the button and tried again. When I caught a hit, I could review the

sequence on the bright 2.8-inch LCD and save my best shots. (I often missed the next play, however, while choosing images or waiting for all 60 shots to write to my SDHC card.)

Shooting video is a joy; the EX-F1 records both 1080i HD and standard-definition video.

In high-speed mode, it shoots reduced resolutions at up to 1200 fps, but 300 fps is plenty to capture the contortions of a pitcher throwing the ball.

The image-stabilized, 12X zoom is great for sports, but the wide-angle lens is too narrow for dramatic scenery shots and big family portraits.

Along with automatic face

detection, the EX-F1 has a full set of manual modes. The builtin flash has two light sources—a strobe and an LED for long bursts. You can attach an external flash to the hot shoe.

The camera feels solid, though I often hit the three buttons to the left of the lens by mistake. I like that you can configure the ring around the lens to adjust focus, zoom, or frame rate. I usually hate electronic viewfinders, but I found that I could use the EX-F1's tiny screen to compose shots accurately.

A 6-megapixel resolution seems low, but it's a nice compromise for achieving high frame rates. Image quality stood up well to 8-megapixel cameras in our lab tests, showing fine exposure and low distortion. The chunky lithium ion battery handled all 500 of our test shots. That's key: You use a lot of juice waiting for shots and taking so many in succession.

At \$1000, the Casio EX-F1 isn't cheap. But for sports and wildlife shots, where high frame rates and HD video stand out, this innovative megazoom could be worth every penny.

-Paul Jasper

THE \$1000 CASIO Exilim Pro EX-F1 combines a 12X optical zoom and a 6megapixel sensor, but the star of the show is its highspeed shooting mode, great for sports shots.









curacy was exceptional in natural light but considerably less impressive with the built-in flash. Images weren't as sharp as expected from the camera's 10-megapixel sensor.

The S8100fd offers two high-speed settings at lower resolutions. You can record up to 33 frames at 7 frames per second for 5-megapixel images or at 13.5 fps for 3 megapixels. That's useful for catching sports and wildlife action. The camera records standard-definition video at up to 30 fps.

The rubberized handgrip made the lightweight S8100fd feel comfortable to hold and operate. The well-arranged controls worked nicely, though it was easy to forget to select the image stabilization and face detection buttons on top of the camera. The 2.5-inch LCD was clear and bright, but the colors it displayed didn't seem very natural; I often used the electronic viewfinder. Bumping up the refresh rate from 30 fps to 60 fps improved the viewfinder's picture, though it was still fuzzy.

A set of batteries lasted 459 shots in our lab tests, but they drained more quickly in the field. Fortunately, the camera uses

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# Here's How

# Master Your Schedule With Google Calendar

Google's free online calendar makes it easy to track your schedule from anywhere, but many of its best features lurk beneath the surface. Here's how to handle Gcal like a pro.

BY SCOTT DUNN

DESKTOP CALENDAR APPS are great if you are always at your desk or diligent about syncing with your PDA or phone. But if you like to travel light, consider switching to a calendar you can access from any Internet terminal. Google's free Google Calendar is one of the most robust choices available. Here's how to get the most from Gcal's advanced features.

#### Choose Your Views

Once you're logged in to Google Calendar, you can quickly switch between views (such as day, week, or month) by clicking the tabs along the top of the calendar. The agenda view conveniently displays your appointments in chronological order, starting with the present date, without the screen clutter of a day, week, or month view.

The tab marked 'Next 4 Days' may seem arbitrary, but it's a gem of a feature, because you can customize

the tab to display your preferred time period, from two days to four weeks. Click Settings in the screen's upper-right corner (or press S), and scroll down to 'Custom view' on the General tab. Then choose an option from the drop-down list and click Save.

A cool way to display a relevant stretch of days is to click and swipe over the minicalendar on the left, thereby selecting just the days you want.

Using the keyboard to navigate through your calendar is easy too. Just press D, W, M, X, or A to jump to the day, week, month, custom, or agenda view, respectively. Press N (for "next") or P (for "previous") to go forward or backward in time, respectively. (You can also press the J and K keys to accomplish the same things.) Press T to jump to today's date.

#### Make a Date

Google Calendar provides a couple of simple ways to add items: One way is to click Quick Add in the upper-left area of the calendar page (or press Q) and start typing. Like a real person, Gcal assumes that words such as "Monday" and "Wednesday" refer to days of the current week, and it adds your new



SEE A CUSTOM view of selected dates by dragging over, in the minicalendar, the days you want to see in the main view.

item to the appropriate day.

Or just click a day or time in the main calendar and start typing in the box that opens. Google Calendar recognizes most expressions of time (7:00 PM, 7p, and so on), and schedules the associated events accordingly.

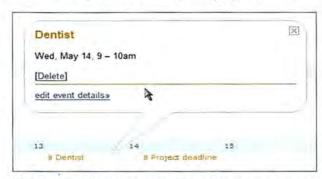
Need to reschedule? You can easily change dates and times by dragging and dropping an appointment. If a whole month is visible, dragging changes only the day. But if your view shows a day or week schedule, you can drop on any hour to change the event's time, too.

If you need to cancel an event, click an item once and click Delete to zap it.

#### Share Alike

By default, only you can see the events on your calendar. But you can make entire calendars or individual eventspublic if you like.

To change the default setting, click Settings in the upper right (or press S). Choose the Calendars tab. Click the link under Sharing to open the appropriate calendar. Then use the check boxes to instruct Gcal whether to share everything with the whole world or just specific people. To share



EDIT OR DELETE items in two steps: Click an event to see its pop-up options, and again to delete it or to open its details page for editing.



ule to BlackBerry smart phones, but it can also send event notifications to even the

dumbest cell phone. In fact, setting up SMS (Simple Message Service) alerts is even easier than configuring Google Sync. Here's how to get started right now.

1. Log in to Google Calendar and click Settings at the top of the page. Choose the Mobile Setup tab from the Calendar Set-

Options		
Reminder		
Pop-up	10 minutes	· remove
∉ Email		
SMS		
Snow me as	valiable o bosy	

tings menu and enter your cell phone number in the 'Phone number' field. Choose your cellular carrier from the Carrier drop-down list, and then click Send Verification Code. Now wait for a text message from Google Calendar.

- 2. When you receive the verification code via SMS on your phone, type it into the 'Verification code' field in Calendar Settings, and click Finish setup.
- 3. Create a new event in Google Calendar. Once you have entered the event details, locate the Reminder drop-down menu under Options and choose SMS. Select how long before the event you would like to be notified (10 minutes, for example), and then save your event as you normally would. You'll receive the event reminder on your phone at the specified time.

with specific people only, leave the check boxes empty and use the controls underneath to add the names of the privileged few. When you're done, click Save.

#### Seeing Multiple

You may need different calendars for specific purposes -work life and social life, for example. To accommodate such divisions. click Add below the minicalendar on the left. Having multiple calendars lets you customize privacy, sharing, and other settings for each one.

You can give the text of each calendar a custom color (use the drop-down menu to the right of the calendar name), or you can use the check box at the left of the name to show or hide events on that calendar.

When you have multiple calendars, Google Calendar adds a dropdown list to the New Event pop-up balloon so you can specify which calendar displays the new event. However, if you use Quick Add (press Q) to create an item, the program will add that event to your first (uppermost) calendar.

To move an event from one calendar to another.

Calendar Settings General Calendars Mobile Setup My Calendars CALENDAR SHARING **⊞** Home Shared: Edit settings **■ Work** Share this calendar Create new calendar Other Calendars CALENDAR **Earthquakes** San Jose Earthquakes schedule Online Story Calendar Blockbusters, print projects III US Holidays Add calendar

THE MANAGE CALENDARS screen allows you to add, remove, or hide your various calendars in Gcal.

select (click) the event, and then click edit event details. Choose another calendar from the Calendar dropdown list, and click Save.

You can make your calendar automatically display holidays, sporting events, television shows, or other items of special interest to you. Just click Add above

> your calendar list, and choose Add a public calendar. In the 'Add a Public Calendar' page, select a category on the left, and then click Add to Calendar for each one you want to add. You have hundreds of options here, ranging from schedules for your favorite sports teams to concert tour dates.

> Want to integrate a Web-based calendar set up in the iCalendar format that Apple's iCal and Microsoft's Windows Calendar use? Simply choose Add by URL from the Add menu, and type

the desired Web address.

If you change your mind, you can hide or delete any calendar from your list. Click Settings on the upper right (or press S) and select the Calendars tab. Click Hide or click the trash-can icon to the far right of the calendar that you want to suppress or zap, respectively.

#### **Events and Invites**

With the latest tools for sending invitations built into sites such as Facebook and Google Calendar, you may not need your old eVite account anymore. To invite people to an event in your calendar, simply type their e-mail addresses into the Guest box on the event details page. Click Save, and Gcal will offer to send those people an invitation.

If a recipient uses a Gmail account, the event will appear in the invitee's calendar (as well as in their e-mail Inbox) with a question-

## Here's How

mark icon. The recipient can click the event and choose Yes, No. Maybe, or Delete directly in the calendar.

To receive notifications about invitations and replies, click the arrow next to the calendar name, and select Notifications from the menu. Use the controls at the bottom to specify e-mail or SMS for notifications.



CHOOSE NOTIFICATIONS FROM the drop-down menu for a given calendar to customize how you receive alerts for scheduled events.

#### Take It Outside

Gcal allows you to print and save your calendar, and to embed it in your blog or on other Web sites you post to. Click the print icon (next to the Day, Week, and Month tabs) to print your current view or export it as a PDF.

If you've designated your calendar as public (see "Share Alike" on page 110), you can embed it in another Web site or blog. Click the arrow to the right of your calendar name; choose Calendar settings. Scroll down the page that appears and copy the code next to Embed This Calendar to publish the information on a Web site. Then click the button for the appropriate format (XML, iCal, or HTML) to obtain the address of your calendar for that format.

To check your calendar without logging in, use the buttons in the Private Address section to obtain the URL for a read-only version of your calendar.

#### Going Mobile

If your existing calendar can't sync with your cell phone or other mobile device, Google Calendar can help. You can use your phone's text messaging feature to receive reminders of upcoming appointments or to send new ones to Gcal.

For those features, you must register your phone with Google Calendar. Click Settings or press S under Calendar Settings, and click the Mobile Setup tab. Next, fill out the information for your country, phone number, and carrier. Then click Send Verification Code. When you receive the code as a text message on your phone, make a note of that number and enter it in the 'Verification code'

box. Click Finish Setup, and Save.

Once you've registered your phone number with Google Calendar, you can use it for common calendar chores. For example, grab information over your phone by sending a text message to 48368 (GVENT). Enter next to get the next scheduled item on your calendar, day to see all the day's agenda, or nday to view tomorrow's agenda. If you send something more prosaic, like "Get a haircut at Joe's on Tuesday at 11 am," Google Calendar will create a new event.

To receive notifications via SMS, click the arrow next to the calendar name, and choose Notifications.

Next to 'Event reminders', click Add a reminder to set the default method (pop-up, e-mail, or SMS) and the time to receive reminders. If you want multiple reminders or reminders of multiple kinds, click Add another reminder. Click Save when you're done.

#### Keep It All in Sync

Google Calendar can import data from other calendars in the iCal or CSV (commaseparated values) formats. This comes in handy if you plan on migrating your schedule to Google once and forever. But for people who want to use both Outlook and Google Calendar, Google makes a utility that keeps data from both sources in sync with each other.

To import data from a calendar, you must first export it to a file. For example, in Apple iCal, select the calendar you want to export and choose File • Export. Then name and save the file. In Yahoo Calendar, click Options on the upper right and then click Import/Export under Management. Click the Export button under 'Export to Outlook'. Save the file to a desired location.

Outlook users who want to use Google's syncing utility can download it from find.pcworld.com/60927. Once you have saved and finished downloading the file, run the installer. As part of the installation, the program will instruct you to identify your Google account and password, specify which direction to synchronize info in (or choose both), and state how often the utility should perform that task. You can change the settings by right-clicking the Google Calendar Sync icon in the

> taskbar tray and clicking Options.

Google Calendar Sync is an easy way to keep your Outlook and Google calendars always up-to-date with each other. But the tool can synchronize only your default Outlook calendar and your main (first) Google calendar. For many people, that's enough.



**GET ONGOING AUTOMATIC syncing between Google** and Outlook calendars with the free Sync utility.

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## Here's How

# Send Text Messages **From Your Computer**

SUPPOSE A TEXT message arrives on your phone while you're sitting at your desk. Do you really have to peck out the reply on the phone's tiny keypad? Not if you know the recipient's phone number and carrier. Just fire up Outlook or any other mail client and compose your reply as you would an ordinary e-mail. The trick lies in knowing the proper way to address the message.

For example, e-mail sent to phones on the AT&T network must be formatted as phonenumber@txt.att.net. To send e-mail via SMS (Short Message Service) to a Verizon customer, use phonenumber@ vtext.com. On Sprint, use phonenumber@messaging. sprintpcs.com. And for T-Mobile it's phonenumber@ tmomail.com. You can find a more complete list of carri-



YOU HAVE TO peck around your phone's keypad to send a text message. The easier way: Just fire off an e-mail to your recipient's SMS address instead.

> ers and their text-message addresses at sms411.net.

If you don't know the recipient's carrier or can't remember all those abbreviated addresses, take this shortcut: Send your e-mail to phonenumber@teleflip.com. The handy, free Teleflip service does the legwork for

you, routing your message to the appropriate carrier.

Whatever method you use, keep in mind that replies will come to your e-mail inbox, not your cell phone-which can be a good thing if you are spending the day working at your desk anyhow.

-Rick Broida

#### ANSWER LINE

# How do I get rid of a spyware-carrying program that won't

uninstall?

Zehraa, Answer Line forum

THE UNINSTALLER THAT comes with a malicious program isn't likely to do much good. Still, you might run it with Revo Uninstaller (find.pcworld.com/60617), a freebie that launches an app's own uninstall function and then scans the hard drive and Registry for leftovers (usually there are some). I'm not sure how effective it will be against a malicious program, but it's worth a go.

If that doesn't work, try to manually delete the program file or folder. If Windows won't permit that, check out Cedrick Collomb's free Unlocker (find.pcworld.com/60905). Once installed, Unlocker comes up automatically when Windows refuses to delete, move, or rename a file or folder; or you can launch it from the file or folder's



THE FREE UNLOCKER utility can help you delete files that try to lock you out-something malware often does-and their related processes.

#### SEND QUESTIONS TO ANSWER@PCWORLD.COM

context menu. It also shows you what processes are hanging on to the culprit and lets you kill them. (My thanks to Mphenterprises of the Answer Line forum for recommending Unlocker.)

You can also try Windows' System Restore:

In Windows XP, select Start All Programs Accessories System Tools. System Restore, choose Restore my computer to an earlier time, and then click Next. Pick the earliest restore point available, and follow the prompts.

In Vista, click Start, type rstrui, and press <Enter>. Select Choose a different restore point, click Next, and check Show restore points older than 5 days. Click Next. Finally, pick the earliest restore point you see available, and follow the prompts.

If that fails to solve things, run System Restore in Safe Mode: Reboot your PC and press <F8> just before Windows loads (you may need to try a few times to get the timing right). At the resulting menu, select Safe Mode with Command Prompt and pick your

operating system. At the command prompt, type C:\windows\ system32\restore\rstrui (just rstrui in Vista), press <Enter>, and then run System Restore from there.

Still can't get rid of the vicious thug? Try HijackThis (find. pcworld.com/60906), a free utility that creates a very technical report on your system's suspicious Windows behavior. You probably won't be able to make heads or tails of it, but plenty of Internet forums exist where friendly people can help you decipher HijackThis reports and can recommend a course of action. Go to Trend Micro's "Analyzing your HijackThis Log" page (find. pcworld.com/60907) for links to many of these forums.

If nothing else works, reformatting your hard drive is the last, desperate measure to take. But back up all of your data first. In fact, if you already have a full backup of your data (as indeed you should), make an extra backup anyway. The more, the safer.

-Lincoln Spector

# Change the Background in Any of Your Photos

SOMETIMES YOU WANT your camera to slavishly record what you see through its viewfinder. But there's no reason to settle for ordinary reality when your imagination is so much more interesting. Digital tools let you replace the background in any photo. Here's how to do it using a standard photo editing program such as Adobe Photoshop Elements.

To put your face on any backdrop, all you need is a photo editor that has a selection tool-ideally, one that snaps itself to the edges of an object as you trace it. Such a tool allows you to cut around your subject, copy it to the clipboard, and paste it into another photo.

In Photoshop Elements, select the Magnetic Lasso Tool from the toolbar.

Using the Lasso Tool, carefully click on the edge of your subject and slowly move the mouse around-the tool automatically "snaps" to the edges. If things go awry, press < Delete > to remove snap points until you've undone the unwanted selections, and then continue. When you're all the way around your desired area, double-click to finish the selection and then choose Edit • Copy from the menu.

The downside of this method-as you'll quickly discover if your subject has frizzy hair-is that it's hard to cut the subject out without including unwanted colors and detail around the edges. An easier solution?

Use an automatic extraction tool; in Elements, it's called Magic Extractor. Choose Image • Magic Extractor. Use the Foreground brush (which paints a red line) to trace inside the subject you want to cut out, and switch to the Background brush to outline the outside of your subject in purple.

When you're done, click OK. You'll have a nicely separated subject, including hair and other subtle edges.

Now use the Rectangular Marquee tool to select your separated subject and copy it to the clipboard. Finally,



USE THE MAGIC Extractor in Photoshop Elements to separate the subject of your photo from the unwanted backdrop.

switch to your other photo, and choose Edit . Paste.

If you don't like the way your subject is placed, or if it's the wrong size, click the Move tool and then either

reposition your pasted subject or resize it by dragging a corner of the image until the subject is sized about right in its new environment.

-Dave Johnson

#### READER-TO-READER

#### FORUMS.PCWORLD.COM

#### Disable the Hibernate Feature in Vista



ARE YOU tired of walking away from your PC

have to wake it back up from Hibernate mode? This month. PCW forums member smax013 tells how to save resources and improve performance just

by turning off Windows Vista's Hibernate feature.

Join our online

community at forums.pcworld.com, If we print your forum contribution in the magazine, we will send you a PC World T-shirt.

#### smax013 Says:

Windows' hibernation background services can consume a large amount of system resources. If you don't use the Hibernate feature on a regular basis, you may want to disable it and thereby give your Vista PC a performance boost.

To disable Hibernation, click Start · Control Panel. In Home view, click System and Maintenance, then Power Options. In Classic view, double-click Power Options.

Under the selected plan, click Change plan settings, and then choose Change advanced power settings to bring up the 'Advanced settings' tab.

Expand the Sleep section by

clicking the plus symbol beside it, and then, in the same manner, expand the Hibernate after section.

To completely disable Hibernate mode, click the Setting value, type 0 in its place, and click Apply. Hibernate won't bother you again as long as you continue using the current power plan.



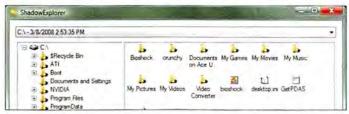
YOU CAN TWEAK your PC's power management features in the 'Advanced settings' tab of Power Options.

# Retrieve Lost Documents in Windows Vista

SOMEHOW YOU'VE managed to overwrite the report you've been working on for weeks, and now all your effort has just vanished in a few spins of the hard drive.

But wait! Windows Vista Business, Enterprise, and Ultimate editions include a feature called Shadow Copy that lets you browse backward in time, recovering a specific version of your file, not just the most recent copy.

Each system-restore point or backup point that Windows creates initiates a new Shadow Copy. So at least



TO RESTORE AN older version of one of these files in ShadowExplorer, just right-click it and choose Export to save it wherever you like.

once a day, Vista creates another copy of your precious files, without your having to lift a finger.

To recover a lost document with Shadow Copy, right-click a file or folder, and select Restore previous versions from the context menu. Browse through the different modification dates, and click Open to preview the file as it was. Then just click Restore to retrieve a copy for current work.

The thriftier versions of Vista, namely Starter, Home Basic, and Home Premium, also save Shadow Copy data-even though those

versions don't give you the necessary tools to access the "shadow" files. Fortunately, a free download called ShadowExplorer (find.pcworld. com/60924) can add this retrieval feature in a snap.

After installation, launch ShadowExplorer, and choose your desired restore date from the dropdown menu at the top of the window. Navigate through the file browser to locate an item that you'd like to restore, then right-click it and choose Export. Save it to any location you wish.

-Zack Stern

#### ANSWER LINE

# How do I restore Windows if I've lost my restore CD?

Conflict34, Answer Line forum

WHEN WINDOWS MISBEHAVES and nothing else works, restoring the operating system via your restore CD or hidden hard-drive partition may be your last resort. So what should you do if you can't find that precious CD?

The first thing to do is to get in touch with your system's manufacturer and find out its policies. Usually, some option will be available. I checked with six PC manufacturers, and five of them (Gateway, HP, Lenovo, Micro Electronics, and Micro Express) will sell

you a recovery CD for between \$15 and \$40. (Recovery media may not be available for older systems, however.) Also, several companies include software on their machines for creating a new recovery disc.

The sixth PC manufacturer I consulted, Dell, has no stated replacement policy. But the company encourages customers to call when this need arises.

If your PC is currently in good working order, but you worry that you don't have a recovery tool and that someday you'll



OFTEN, A PC'S reinstallation CD is just a copy of Windows. Find any additional driver discs that may have come with your computer.

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desperately need one, create your own with a good backup program. The resulting recovery disc is arguably better than a factoryissued backup tool, because it will restore a version of Windows that includes all of your personalized settings.

You'll need a backup program with good disaster-recovery capabilities. Image-based backup programs such as Symantec's Norton Ghost (find.pcworld.com/60914) and Acronis's True Image (find. pcworld.com/60323) do nicely. I'm partial to Genie Backup Manager (find.pcworld.com/60913), which doesn't use images but reliably restores Windows. You may own an image backup app already; such programs come with Vista's Business, Enterprise, and Ultimate editions, with Nero Burning, and with some external hard drives.

> The trick is to make a single image or disaster-recovery backup of your drive and then put it aside. You should also create regular daily backups with the same program or another one, but you should keep your recovery backup separate from these, in a place where it won't be overwritten.

> If Windows ever becomes too broken to fix, first restore it from your recovery backup, and then restore your newer data from a recent data backup.

> > -Lincoln Spector

# Preserve Your E-Mail, With Online Backups

ARE YOU AN e-mail pack rat? If so, you'd probably be loath to lose your archives. To avoid that disaster, try using one of two free backup utilities designed expressly for e-mail: either Amic Email Backup (amictools.com), which copies everythingincluding your address book, account settings, and message rules-to a single compressed file; or Mail-Store Home (mailstore.com), which duplicates all of your e-mail into a searchable archive and optionally backs it up to CDs or DVDs for offline storage.

Amic supports nine e-mail clients, including Outlook, Outlook Express, Eudora,

and other programs. Mail-Store Home works with Vista's Windows Mail, Outlook, Outlook Express, Thunderbird, and SeaMonkey.

Of course, unless you put those discs in a safe or upload the archive file to the Web, those kinds of backups are still vulnerable to fires and other local disasters. That's one big reason to consider routing your e-mail through Gmail IMAP, which effectively creates a Webbased archive by syncing mail between Google's servers and your PC.

Once you sign up for a free Gmail account, you can either configure your mail account to forward all mes-



WITH ALL OF your e-mail backed up to MailStore Home, you can search through past messages from any Web-connected PC.

sages to Gmail or set up Gmail's Mail Fetcher to retrieve messages from your ISP's POP3 server. Then enable IMAP in Gmail and follow the configuration instructions for your mail client to pick up messages from Google's servers.

When all that setup is done, your mail will go

through Gmail, giving you more than 6GB of storage space for messages and attachments, plus some excellent spam filtering to boot. And you'll have copies of all your messages available on the Web. That's not only an ideal e-mail backup, but just plain handy, too.

-Rick Broida

### FACT CHECK ROBERT STROHMEYER

### True or False: It's Best to Leave Your PC Running 24/7

FOR A COUPLE of decades now, various people-including a few otherwise-brilliant IT pros-have been telling me that it's better to leave your PC running round the clock than to shut it off at night and boot it back up in the morning. If you never shut down your computer, the reasoning goes, you will save wear and tear on your components and extend the life of your machine. I've asked some top tech types at HP, Seagate, and other major com-

panies, and nobody seems to know how this rumor was born. But they all agree on one thing: It's bogus.

"If you don't care at all about energy consumption or your carbon footprint, then there's no great downside to leaving your PC running," says Ken Bosley, a 12year veteran of HP's Personal Systems Group who has spent years researching hard-drive reliability. "But you shouldn't waste energy to extend the life of a computer by a very small amount."

Bosley discounts the notion that shutting down and starting up a computer puts undue

Will your computer really last longer if you never shut it down?

stress on the components, noting that most systems are retired because of obsolescence, not because of hardware failure.

Always-on proponents cite hard-drive longevity in particular as

a major reason never to shut down. But Seagate staff engineer Billy Ruddock says, "Turning off the system is usually best to prolong hard-drive life." Unless you're talking about servers, most computers' hard disks are simply not designed for continuous operation.

Besides, Ruddock notes, "Windows operating systems execute various important housekeeping tasks during shutdown and startup-another very good reason for turning off a system."



**LEAVING YOUR PC running continuously is** unlikely to extend its life. If anything, it will actually run better with nightly shutdowns.



### STEVE BASS'S HASSLE-FREE PC

#### Six Tricks to Make Windows Vista and XP Work Your Way

Print directory folder listings, dump dopey balloon tips, and save ornery files. Plus: I debunk a bogus performance tweak.

HAD ENOUGH OF Windows' shenanigans? I'll show you how to print elegant folder lists, dispatch balloon tips and annoying icon wizards, and copy files that won't copy. In addition, I'll debunk a performance hoax that's making the rounds on the Net.

#### Restore the Taskbar's 'Customize' Option

The Hassle: In your last column (find.pcworld.com/60961), you explained how to hide and restore the Safely Remove Hardware icon in the system tray. Easy for you to say—the Customize option in the Taskbar tab of the Properties menu on my PC is grayed out.

The Fix: Leave it to Microsoft to make things confusing. Rightclick the Taskbar and choose Properties-'Hide Inactive Icons' is checked, right? Clear that box, click Apply, and you're in business.

And if you ever trash your system tray, grab a copy of the Taskbar Repair Tool (find.pcworld.com/60915): This miraculous freebie (\$5 for the Pro version) fixes dozens (36, to be exact) of taskbar, quick-launch, and system-tray problems.

#### Battle Balloons and Icons

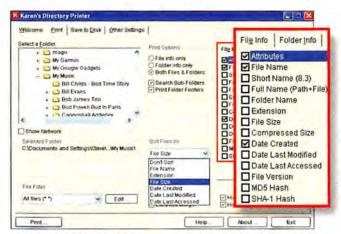
The Hassle: I bought a laptop with Windows Vista (I know, silly me). The OS keeps asking to remove desktop icons, and the balloon tips are driving me nuts. Have a solution?

The Fix: I agree—Windows' Desktop Cleanup Wizard is ever so annoying. (Hey, Microsoft, I like my old, unused shortcuts!) In XP, you can disable the wizard with a free VB script from Kelly Theriot (find.pcworld.com/60916). It's safe, so you can ignore any security warnings. The process is easier in Vista: Right-click on the Desktop, choose Properties Desktop Customize Desktop, and clear the

#### TOOL OF THE MONTH

## HoboCopy Your Files

I SAW A neat Flash video on a Web site and wanted to keep it to view offline. I found the file in the temp folder and tried copying it to another folder. No luck-the error message 'File in use' was all I saw. None of my copying tricks worked; and when I closed the browser tab playing the video, the file was automatically deleted. But now I've outsmarted Windows with the help of HoboCopy (find.pcworld.com/60923; XP users should click the text link there), an obscure, slick utility that employs Volume Shadow Service to copy files (and folders) that are in use. Once you get the hang of this command-line tool, it's surprisingly easy to work with.



KAREN'S DIRECTORY PRINTER generates folder and subfolder listings, including (or excluding) file size, creation date, and attributes.

check box labeled Run Desktop Cleanup Wizard Every 60 Days.

You can ditch balloon tips in XP with Doug Knox's VB script (find. pcworld.com/60917); in Vista this script can be a chore, so read the instructions on the gHacks page about it (find.pcworld.com/60918).

#### Print Any Folder List

The Hassle: My friend asked for a printed list of all my MP3s. I spent an hour and still could not figure out how to do it.

The Fix: There's an easy way to do this, and a hard way. Me, I'm lazy (it's the genes), so I use Karen's Directory Printer (find. pcworld.com/60919). This free utility generates folder and subfolder listings in every way imaginable, including (or excluding) the file size, creation date, and attributes. For you purists avoiding extra programs, Microsoft has a weekend project to print folders from your context menu in XP or Vista. Be aware, though, that it involves batch files, folder mods, and Registry hacks. If you're undeterred, check it out at support.microsoft.com/kb/321379.

#### Beware This Speedup Hoax

Not everything you read on the Internet is true, I spotted a tweak -a modification of the Quality of Service (QoS) Packet Scheduler's settings-that purportedly gives both XP Pro and Vista a 20 percent bandwidth boost. I tried it, as did a few buddies. Though some of us didn't see a thing, others, me included, perceived better performance. But it was merely the power of suggestion-Microsoft's experts say that the tip is bogus, and I believe them.

However, if you use Wi-Fi, tuning your router's QoS settings can help with some applications. Check out Becky Waring's "Optimize Wi-Fi for VoIP, Video, and Gaming" (find.pcworld.com/60920), and then read Preston Gralla's "Internet Boosters" (find.pcworld.com/ 60925) and Michael S. Lasky's helpful "Five Quick Fixes for Internet Connection Hang-Ups" (find.pcworld.com/60921) for more.

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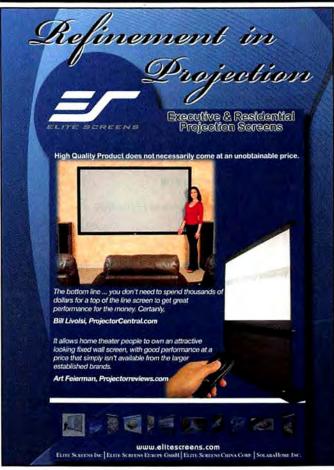
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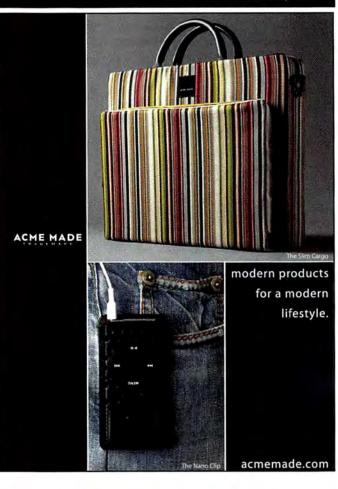
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# Full Disclosure

# Laptops: In Search of Bearable Lightness

THIS YEAR MARKS the tenth anniversary of my affair with 3-pound notebooks. In 1998 I fell in love with Sony's pioneering 1-inch-thick VAIO 505G, and I've kept the flame burning with a couple of its successors. But now the unit I've been carrying everywhere for four years has a Webcam that's dead and a keyboard with shiny surfaces where various letters should be. Before the Wizards of Redmond could drive a stake completely through XP's heart, I went looking for a portable that wasn't restricted to The Windows That Must Not Be Named. Making a choice turned out to be a surprisingly tough call.

I briefly considered deserting Windows entirely. But Apple's Macbook Air resembles the original VAIO lightweights, with dongles for important connections and an optical drive that's both outboard and optional. That combination is state of the art-for 1998. And since a charged-up spare battery often saves my bacon, the Air's nonremovable cells make this ultraportable a classic form-kills-function Steve Jobs Vanity Machine.

Lenovo's ThinkPad X300 series has an excellent keyboard, a built-in DVD writer, plenty of connectors, and XP if desired, but the 13.3-inch LED-backlit screen is rather dim. Worse, the unit ships with a 64GB solid-state hard drive only. That helps the system boot in just 45 seconds-but hikes the cost to a luxury-liner minimum of \$3200. And the package weighs about 3.4 pounds, a little

Toshiba's Portege R500 amazes by weighing a full pound less than the X300 while still stuffing in just about everything users need for some \$2100-and as of this writing, you can still buy one with Windows

porky for an "ultralight" model.

XP. But the bummer here is a shimmery, grainy, unevenly lit 12.1-inch screen. It flexes, displays wan, odd colors, and has an almost nonexistent sweet spot for viewing-in short, it's

the worst notebook screen that I've seen in years.

HP's Mini-Note has a chunky, newish form that

isn't thin; but at 2.8 pounds it's light, and at \$750 it's also cheap. Though it manages to pack a surprisingly decent keyboard into a small space, the Mini-Note is basically a box of severe compromises: The processor and graphics perform at a glacial pace; the bright, sharp 8.9-inch screen is a tad too small for comfort; the laptop has no optical drive; the touchpad buttons are in the wrong places; and the standard battery lasts only about 2 hours. Here you'll find Windows Nameless at its most repulsive, with an infuriating 3-minute boot time. But at least XP is available; Linux too.

Sony's VAIO TZ series—the great-grandchild of my old 505G-starts at around \$1800. Its crisp, bright 11.3-inch screen is by far the best of the bunch, and a DVD writer and lots of connectors come standard. But this VAIO has some faults of its own: Its separated keys (none dedicated to the likes of (Page Down) and (End)) are small, and its touchpad buttons are a bit too slick and stiff.

And get this: To assassinate Windows Voldemort, you must shell out an extra hundred bucks

for the business version, which comes with XP "downgrade" disks. Then you supply a

couple of hours' labor to install XP and eliminate the laptop's cornucopia of crapware, followed by a trip to the Web to download a bunch of replacement drivers.

Despite those annoyances, I ended up committing to this imperfect 2.7-pound package anyway. Old habits die hard.

All the same, I have to wonder about the wisdom of shelling out for such an underpowered ultralight when I could easily have found a beefy garden-variety notebook with better performance for one-third the price. But every time I pick

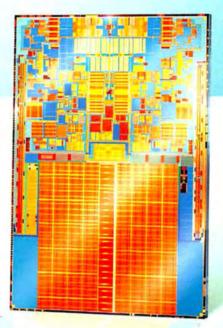
up my overstuffed traveling bag or someone sends the airplane seat in front of me diving toward my lap, I know that this costly affair will continue to smolder for years to come. •

Finding an ultraportable laptop with everything I need-and without Vista—isn't so easy.

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